The Effects of Working Capital Management on Firm Profitability
A study examining the impacts of different company characteristics

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Spring semester 2014
Degree project, 30 HP
Abstract

Many argue that there is a trade off between profitability and liquidity. However, many studies have found that the profitability can increase with an efficient Working Capital Management. Correctly allocating cash flows to where and when it is needed increases liquidity and simultaneously increasing profitability. The purpose of this study is to develop the research on the relationship between Working Capital Management and profitability by investigating how it is affected by different company characteristics.

A quantitative method was applied with philosophical stances in objectivism and positivism and deductive theory was used to approach the subject. From the theoretical framework, five hypotheses were established and statistically tested in order to answer our research question. The first hypothesis was formulated to confirm previous research, while the remaining two aimed at providing both a theoretical and practical contribution to existing knowledge.

The thesis centers on the Cash Conversion Cycle, a metric of how fast a company turns purchased products into profit, with Gross Profit Margin as the measure of profitability. The data analyzed is financial information from 2012, collected from a secondary source, Business Retriever database. In order to fulfill the purpose, hypotheses were tested. The first centered in previous research of the subject, while two were introduced based on research of company characteristics. This was tested in a cross-sectional study on the Swedish wholesale industry, covering a sample of 1,485 companies. The companies were segmented by size and whether they were listed or not. By using correlation and regression analyses, the relationship between Working Capital Management and profitability is compared between the different company groups.

The conclusion drawn from the study is that there is a positive relationship between the Cash Conversion Cycle and profitability, inconsistent with previous research. However, strong significant results indicated that smaller firms are returning a higher profit, regardless the level of Cash Conversion Cycle. No difference was found in the sensitivity to changes in Working Capital Management strategies. This was true also for non-listed firms, although they were performing worse than listed firms in accordance to the theory presented. The foremost conclusion from the analysis is the weak explanatory power of the Cash Conversion Cycle on Gross Profit Margin. A debate is therefore included, discussing the possibility of lurking variables influencing the results.

Keywords: Working Capital Management, Cash Conversion Cycle, Profitability, size, public, private, trade credit, wholesale industry, Sweden
Acknowledgements

We would like to thank our supervisor, Lars Lindbergh, for the help and support we have received throughout the project. We also would to like to thank Kenny Bränberg for the assistance with the statistical aspect of the thesis.

Umeå, 2014-05-22

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List of Abbreviations

B2B – Business to Business
CCC – Cash Conversion Cycle
COD – Cash on Delivery
COGS – Cost of Goods Sold
DIO – Days Inventory Outstanding
DPO – Days payable Outstanding
DSO – Days Sales Outstanding
EAIT – Earnings After Interest and Taxes
EBIT – Earnings Before Interest and Taxes
EPS – Earnings per Share
GPM – Gross Profit Margin
NTC – Net Trade Cycle
OCC – Operational Cash Cycle
OLS – Ordinary Least Squares
ROA – Return on Total Assets
ROE – Return on Equity
ROI – Return on Investment
STF – Swedish Trade Federation
WCM – Working Capital Management
1. Introduction

In this chapter the research area is briefly discussed, followed by the problem background in what previous studies have been focusing on. The subject choice follows naturally, which includes the research gap and what will be studied. The chapter is ends by presenting the research question and the purpose with this study.

1.1 Working Capital Management

In 1955, John Sagan, a former executive of Ford Motor Company, described the importance of effective cash management. The auto manufacturer used to receive the payments for their cars given directly to the driver of the shipment. The driver would take the check and drive it back to his home office. Depending on how long the drive was, this procedure could take up to ten days. Ingeniously, Ford realized that if their drivers sent the checks per mail before heading back, the company could instead transform the money from an accounts receivable item to usable funds in less than two days (Sagan, 1955, p. 123).

Having funds that are accessible at any given moment could be crucial for firms. Most companies will go through certain time periods when staying afloat is more important than maximizing profits. Saving up a cash buffer is a common way of dealing with such risks. However, since money not invested yields no return companies must sacrifice profitability in exchange for this buffer. Padachi (2006, p. 45) explains there are numerous examples of economic textbooks discussing this trade off. He further argues that a mismatch between assets and liabilities could increase a company's short-run profitability, but that it will affect the long-run solvency.

This is all part of the classical discussion on liquidity. The basic view of liquidity is that firms need to be able to find financing for any investments they make. Classically, this means that, in the short-term, current assets need to be in balance with current liabilities (in the long-term, the discussion rather regards insolvency). Having all your capital held as cash or cash equivalents generally means that you earn no returns. On the other hand, tying up capital in different operations means being exposed to the risk of failing to pay off debt. The managers have simply had to try and find the optimal level of liquidity to both make sure that firms have money to invest and to be able to pay debts. This is generally viewed as rather straightforward as credit terms are usually set in advance.

However, as the Ford example indicates, when companies start collecting money faster, capital is freed up. While this can be utilized to cut down on outsider financing, it could also be reinvested for even higher returns. Consequently, there are ways of increasing liquidity and profit simultaneously by managing the flows of cash. While methods of cutting money transfer time have become obsolete with the birth of the computer age, questions regarding credit periods and level of inventory are of concern for today’s companies. Furthermore, globalization has increased potential markets. Foreign exchange barriers and simply keeping track of allocating the cash flows have increased, as companies have become larger. In order to keep liquidity and profitability from being
mutually exclusive, firms have come to put greater emphasis on their short-term financing procedures (Polak et al., 2011, p. 53).

Instead, today, the challenge of achieving a simultaneous increase to both liquidity and profitability is more concerned with being able to match the inflows and outflows of cash in the most efficient way possible (Kroes & Manikas, 2014, p. 37). This is becoming increasingly more difficult due to globalization and the increased size of corporations. Furthermore, the issue of finding financing to begin with can be a challenge in itself. The financial markets are subjected to trends and the focus on liquidity has gone up and down, both before and after the days of Sagan’s time at Ford. For instance, the financial crisis that occurred in 2008 has changed the attitude and the importance of financial management. Polak et al. (2011, p. 48), describe how the severe financial period decreased the accessibility of easy cash through financial instruments and created a liquidity problem. The liquidity problems that arose moved the focus from earnings towards liquidity and efficiency due to the unstable markets. Prior to the breakdown, many firms saw profitable investments in the financial markets but at an eventual expense of its liquidity. In order to prevent such economic breakdowns in the future, rules and regulations have been stringent on banks. The coming implementation of Basel III will further decrease the easy access of cash and secure for liquidity (Hull, 2012, p. 289).

Accordingly, the attitude towards financial management and its risk behavior have changed. As an effect of recent times, more concerns regarding operational risk, counterparty (credit) risk and systemic risk have become important factors in firms’ financial management (Hart, 2009, p. 219). Hart further explains that the responsibilities of the financial manager are to invest and manage the firm’s capital effectively in order to meet the day-to-day activities. Financial instruments are used for growth and securitization of capital. However, through these instruments firms made losses and became less liquid. In order to become liquid and possibly to avoid being too reliant on expensive outside financing, several firms looked over their capital management to operate more efficiently. Rehn (2012, p. 2) mentioned the importance of an efficient cash management in times of economic turmoil, how it provides for competitive advantages and giving opportunities for strategic- and relatively cheap investments. Furthermore, as there is a trade-off between liquidity and profitability, Harris (2005, pp. 52-53) discusses the importance of forecasting, predicting and reacting to market changes in order to have an understanding of when to effectively prepare for uncertainty and when to enjoy the profitability in the market.

1.2 Problem background

A previous study conducted by Chazal Du Mee in 1988 (cited in Padachi, 2006, p.48), concluded that 60% of the surveyed enterprises were suffering from a poor cash management. Further, Rafuse (1996, p. 59) concluded in his study how poor working capital management (WCM) is a major cause of default in UK firms. As mentioned earlier around the concept of liquidity, a healthy company with potential of generating strong cash flows in future years might end up bankrupt because of the inability to pay their bills today. The globalized world has increased the difficulties in managing this. For example, it is much easier to keep track of all payment dates when your entire company is located in the same building. A multinational firm, on the other hand, will
have a harder time of communicating internally to manage their business (Polak et al., 2011 p. 50). If the inflows do not match the outflows, profitability might skyrocket in one quarter at the expense of liquidity in the following, creating an asset-liability mismatch (Padachi, 2006, p. 45).

The basics of WCM are to match the short-term inflows with the outflows. It deals with matching capital with the day-to-day operational activities. Making sure that money is flowing in (accounts receivable) is larger than the money flowing out (accounts payable). Otherwise, the firm will quickly become insolvent. This also concerns the level of inventory held, as an excessive inventory means binding capital in products you are unable to sell. A shortage means you have produced too little and it may not be sufficient to meet the demand (Brealey et al., 2011, p. 758). Furthermore, how the firm handles their accounts receivable and accounts payable with regards to trade credit and short-term cash management needs to be contemplated.

All of these variables are important considerations for a working capital manager. There are numerous ways in how to measure the efficiency with which a company manages these factors. Examples include Current Ratio, Inventory Turnover and Working Capital Days. One dynamic measurement combining the factors of inventory, accounts receivable and accounts payable is the Cash Conversion Cycle (CCC). It measures the days from purchasing raw materials to collection of money of goods sold. It is calculated by subtracting Days Sales Outstanding (DSO) and Days Inventory Outstanding from Days Payable Outstanding (DPO) (Berk & DeMarzo, 2011, p. 849-850).

Cash Conversion Cycle = Days Sales Outstanding + Days Inventory Outstanding – Days payable Outstanding

Many studies that have been conducted in the area of WCM, such as Shin & Soenen (1998), Padachi (2006) and Rehn (2012) have looked at the relationship between the CCC and firm profitability. The conclusions are that there is a negative correlation between the variables. This reinforces the statement made regarding the Ford Automobile example. By decreasing the time between sales and collection of payment, Ford was able to reinvest their money and decrease the loss associated with the time value of money. Accordingly, an effective WCM does increase both liquidity and profitability simultaneously.

However, managing a sound WCM is easier said than done, especially for smaller firms. Padachi (2006, p. 46) emphasizes the importance that WCM has on the growth and survival of small firms. This is because smaller firms have to put greater reliance on short-term funding for their assets. Also that smaller firm may grow too quick and enjoy the profitability that comes with high levels of sales. Ebben & Johnson (2011, p. 381) discuss that smaller firms have problem in finding affordable financing and that established companies are associated with lower risks, meaning a higher level of trust among lenders. Therefore, larger firms are dominant in their position as they also can have an impact on their suppliers offering generous trade credit. Fewer financing opportunities for the smaller firms lead to an increase in the reliance on owner financing and trade credit (Padachi, 2006, p. 46). This means that an effective WCM is especially important for small firms (Grabowsky, cited in Padachi, 2006, p. 46).
1.3 Subject choice

No previous study has specifically examined how certain company characteristics impact WCM decisions in firms. Most researchers have touched upon the subject of company size and its effect on firm performance, by either discussing results with unrelated theoretical arguments or by including control variables meant to reduce its effects (e.g. Kroes & Manikas, 2014; Padachi, 2006). Moss & Stine (1993) researched how the length of the CCC varies between different sized companies, but did not include the aspect of profitability. Garcia-Teruel & Martinez-Solano (2007, p. 175) studied Spanish SME’s and concluded that an effective WCM is especially important for firms of this size. However, they also concluded that their results were similar to previous studies conducted on large firms and no argumentation was given as to why WCM would be especially important for smaller firms. No previous study has offered comparative studies to prove that the relative importance is higher for smaller firms and not only theoretical.

An additional variable to be examined in this study is to compare listed and non-listed companies. Since Rehn (2012, p. 52) mentions in his study of listed companies that the pressure from stakeholders might have an effect on WCM as they require returns on their investments, Rehn (2012) argues that listed firms have easier access to cash but at the same time have greater external pressure, which might have an impact on liquidity strategies. Therefore, it is interesting to see whether or not being listed can have an impact on the short-term financing. Previous findings can demonstrate that it can have an impact on higher returns, which shareholders demand. The comparison is interesting, as the same pressure may not apply to non-listed companies (Boubakri & Ghouma, 2010, p. 2483). The theory of stakeholder pressure may also be applicable to the smaller firms since they do not have the same exposure as the larger companies. Generally speaking, Rehn (2012, p. 52) believes that the pressure from stakeholders can have an effect on corporate decisions, including WCM.

This is supported by Boot et al. (2006, p. 803) who mention that a major difference between public and private firms is their access to cash. Non-listed firms usually give up an easy access to cash in exchange for autonomy, which could influence the strategic decisions in short-term financing. They, together with several other authors (i.e. Brau & Fawcett, 2006, p. 425; Miller et al., 2013, p. 556) agree with Rehn regarding external pressures impact on corporate decisions. However, to our knowledge, the theoretical impact this might have on the WCM-profitability relationship has never been empirically tested.

The chosen characteristics of this study all relate to the concepts of liquidity and the management of capital available. Since WCM regards the short-term financing of the firm, the characteristics should play a role in what type of company that is most profitable when managing short-term operations effectively.

Furthermore, many studies have looked at the capital-intensive industries and presented argumentation for these industries being particularly influenced by the subject at hand. Two of the most recent studies in the field are Kroes & Manikas’ (2014) research on American manufacturing firms and Rehn’s (2012) study on companies listed on the Swedish and Finnish stock exchanges. In both papers, the authors suggest to further
research capital-intensive industries. They conclude from their findings these industries to be the most affected by short-term financing and working capital. For their argumentation, they state these industries to be affected as a lot of capital is tied up in operations, which they significantly prove. While Kroes & Manikas mentioned the retail industry as a natural expansion of their study, Rehn confirms this view, but also mentions the wholesale industry. In Sweden, the wholesale industry is far more capital-intensive than the retail industry. The Swedish Trade Federation (STF, 2011, p. 4) explains that the Swedish wholesale industry has a turnover of more than twice as much as the retail industry while it employs the same amount of people. Furthermore, the industry is more Business-to-Business (B2B) oriented, making it more appealing for this study.

1.4 Research gap

Previous researches on the relationship between WCM and profitability have mainly been focused on general relationships, either for a market as a whole or in individual industries. Shin & Soenen (1998) and Kroes & Manikas (2014) are examples of such studies. The issue of size has mostly been used as a control variable or different segment of size have been studied independently (e.g. Ebben & Johnson, 2011; Garcia-Teruel & Martinez-Solano, 2007; Padachi, 2006). Moss & Stine’s (1993) study looked at the relationship between company size and the length of the CCC. However, they did not study how this impacted profitability. While comparisons have been made between different industries, none have been presented comparing different sized companies.

By focusing on a single industry and separating the firms into different size classes, the intention is to be able to identify whether or not companies of different sizes respond or behave different within the same circumstances. In this instance, the wholesale industry is selected, an industry which has been sparsely investigated and, to the best of the authors knowledge, never on its own.

Furthermore, based on Rehns discussion regarding public versus private firms, there are reasons to believe that firms that are private might behave differently when it comes to WCM, as compared to public firms. This is discussed by Boot et al. (2006), Brau & Fawcett (2006) and Wu et al. (2012), who all argue that non-listed firms are under less pressure from external sources. It is theorized that this will have an impact on short-term financing decisions, which ultimately affects the WCM-profitability relationship that this thesis intends to examine.

1.5 Research question

- How do different company characteristics affect the relationship between Working Capital Management and profitability in the Swedish wholesale industry?
1.6 Purpose

This paper aims to provide a deeper understanding of the relationship between WCM and profitability. Previous research focused on the relationship between CCC and profitability and utilized characteristics as control variables. This thesis aims to investigate this relationship, with a special focus on the effects of certain characteristics, size and whether or not the company is listed. Thus, the theoretical contribution will be to extend the knowledge regarding WCMs relationship with profitability through an analysis of the explanatory factors. Furthermore, by investigating how the varying characteristics of the different companies in the Swedish wholesale industry, the practical contribution will be to provide an understanding for financial managers of, especially small and/or new, companies where WCM may not be prioritized.
2. Theoretical framework

This chapter introduces the wholesale industry characteristics followed by the concept of Working Capital Management, with a focus on the CCC and its components. Further follows a presentation of previous findings that gives a presentation of the development in the researched field, as well as other important articles. A discussion on the findings relevance to this thesis is presented that ends in summarizing the hypotheses. The chapter concludes with contemplation on causality.

2.1 The Swedish wholesale industry

The STF defines the wholesale industry “as merchandising that is not aimed at private consumers” (2011, p. 7). Their 2011 report is named an invisible value creator since it neither operates directly to individuals, such as the retail industry, nor have any brand names on products, such as the manufacturing industry. The actors in the market are operating to ease the exchange of trade between producers and consumers in greater proportions. The STF (2011, p. 6) further explains that the wholesale industry contributes to cost-effective distribution of goods decreasing the transaction costs.

In Sweden, the wholesale industry consisted of about 46,000 registered companies, with a total turnover of 1,300 billion SEK in 2008 (STF, 2011, p. 5). It constituted 20% of the total private sector in Sweden. The industry has had a growth rate of 80 % in the period 1997 – 2008. Although the industry has 20 % of the total sector in turnover, the industry does only employ 5 % of the workforce. Meaning that the industry is significantly more capital- than staff intensive. This relationship is increasing with the technological improvements that are streamlining the industry, confirming why the industry has been growing considerably throughout the past 10 years (STF, 2011, pp. 11-12). Large quantities are traded among the companies causing the transaction costs to decrease as contracts and product inspections occur to a lesser degree. These facts are significant for the industry's enterprises, which means that a good relationship with your stakeholders is an essential tool for succeeding in the industry.

![Figure 1. The wholesale industry, (STF, 2011, P.6)](image)

Constantly throughout the report, the STF (2011, pp. 6-7) stresses the importance of being competitive by offering low prices. To accomplish that, it is very important to seize the opportunities that come with economies of scale and interconnectivity advantages in an industry of large trading volumes. The STF predicts that the industry
will move to fewer actors and more wholesalers will focus on specialization. This is due to globalization that enables for larger economies of scale where successful companies will outperform the inefficient companies. Especially since e-commerce has enabled companies to extend their reach to new markets relatively easy. However, they also mention that the global competition can be met by competing with local knowledge of the Swedish market (STF, 2011, p. 18).

Another prediction for the future is that competition from other industries will have an impact due to vertical integration by businesses in the retail and manufacturing industries. These industries share characteristics with the wholesale industry and can integrate their operations to compete with the wholesale industry. This risk have amplified, in a similar manner as the globalization through e-commerce, as firms in these industries can sell their products directly to customers online, excluding the need for a sophisticated supply chain. The STF addresses the importance of a sound inventory and supply chain management to meet the threat from new entrants, reducing costs and improving efficiency through utilizing the technological improvements. Competitive advantages that come with economies of scale are developed from a productive, cost efficient supply chain management. This knowledge is not new for a wholesaler, although, it is for a new entrant (STF, 2011, p. 18).

A study of American wholesalers and retailers shows how the inventory management has improved significantly between 1981 and 2004. The authors, Chen et al. (2007, p. 430) conducted a study to investigate whether inventory holdings have declined in the sectors and if they affected the market value. They concluded that inventory days have shifted from 73 to 49 during this period. Also, they found that larger inventory correlated with a poor long-term stock performance. What differed between the two industries was that retailers started to improve its management much later than the wholesalers (Chen et al. 2007, p. 451). This, according to the STF, is because the retail industry is less capital intensive and more service oriented (STF, 2011, p. 12). Generally speaking, these improvements are because of information technology, third party logistics and outsourcing (Chen et al., 2007, p. 430).

Nevertheless, there are not only advantages to decreasing inventory levels. Since there is a growing demand of product variety, diversifying the inventory could guarantee not missing out on any sales opportunities, but increases the inventory held (Chen et al., 2007, p. 431). Missing out on any opportunities due to spanners in the works on the supply chain are dangerous for a firm. According to Hendricks and Singhal (2003, p. 520), shareholder value decreases with glitches in the supply chain where the effects are stronger in larger companies.

Clearly, the wholesale industry is particularly dependent on strategic supply chain solutions. The STF (2011) explains that many Swedish wholesalers are located near the largest regions where the infrastructure is well functioned, facilitating for the trade. Most companies are located in the larger cities. However, there are wholesalers located in smaller regions as well, due to company culture and historical reasons. Strong ties and cultural relationships to a specific local area have created a pride too great to swallow. Also, their businesses may have been successful throughout time, but the industry is now facing challenges in terms of improving economies of scale and interconnectivity practices (STF, 2011, pp. 16-17).
Obviously, larger companies should benefit from the industry characteristics, which is also confirmed in how the numbers of group holdings are distributed in the Swedish wholesale industry. The 2011 STF report (p. 16) shows that 16% of the companies belong to a corporation, compared to 7% of group holdings in the total market. Wholesale companies that belong to an international corporation are 6% while the rest, 78% of the companies do not belong to a group.

2.2 Working Capital Management

As was described in the beginning of the thesis, WCM has evolved with the technological development minimizing the time of money transfers. More focus was directed from the actual transportation of cash to measures able to capture liquidity of a company. Richards & Laughlin (1980) presented arguments for the inadequacy of static measurements, such as Current Ratio and Acid-test Ratio, because they do not account for the dynamic properties of cash flows. Instead, they presented the CCC as better suited to reflect a company's liquidity levels through including a time element of turning assets into cash. Unlike Current Assets and Liabilities, that per definition mature within 12 months, the CCC is able to capture how fast companies normally are at liquefying assets and pay their short-term debt.

2.2.1 Cash Conversion Cycle (CCC)

Already in 1974, Gitman (cited in Jose et al., 1996, p. 34) developed the Cash Conversion Cycle (CCC) model. It investigated how long it took for a company to receive cash payments after procurement of raw materials, measured in days. This is a very important measure for two reasons. Firstly, it enables the manager to monitor where there are needs for liquidity improvements. Secondly, it describes how fast a company can react to a liquidity shortage.

Although it is just a temporary setback and the company is sound as a whole, there is still the chance of bankruptcy due to illiquidity in the short-term (Richards & Laughlin, 1980, p. 32). A better knowledge of the inflow and outflow of cash can more accurately help managers make decisions regarding the allocation of those cash flows. Therefore, the CCC is a better measure as it calculates the time it takes between cash expenditure on resources to the funds received for the sale (Schilling, 1996, p. 5). It includes the age of the inventory, the average period for paying and collecting on debt. Unlike previous liquidity measures, such as the Current Ratio, it is measured in days rather than money. This characteristic of the measurement means it is able to give a dynamic overview of the ongoing liquidity of a company (Jose et al., 1996, p. 34), which has made it preferable over static measures, which may give false indications. Indeed, as explained by Moss & Stine (1993, p. 30) “Policies that result in a longer cash conversion cycle require a larger commitment to cash and noncash investments and, ... result in higher current and quick ratios”.

Gentry et al. (1990) further developed the concept by introducing the weighted CCC, which, according to Shin & Soenen (1998, p. 38) “...provides a better appreciation of the complexities of the cash cycle...”. However, due to limitations of acquiring the information needed to apply the correct weights, this measure has not been utilized in to a great extent by researchers.
Most of the studies referenced in this paper have instead focused on the unweighted CCC and its relationship with firm profitability. The components of the CCC (DSO, DIO and DPO) are presented below.

2.2.2 Days Inventory Outstanding (DIO)

Days Inventory Outstanding is the percentage of Cost of Goods Sold (COGS) that is represented by inventory expressed in days. It is calculated by dividing the average inventory of the period with the COGS in the same period, multiplied by the length of the period in days. It can be interpreted as how long it takes for a firm to turn its inventory into cash (Wilkinson, 2013a).

\[
\text{avg. Inventory} / \text{COGS} \times \text{# of days in period}
\]

The decisions managers need to make vary between industries. For instance, for wholesale firms it is more common to deal with finished goods inventory while a manufacturer deals with more raw material or work in progress inventory. The situation of the company may also affect. When a company is in a growth stage, a high level of inventory may facilitate opportunities to expand into new markets on short notice (Hoffelder, 2012). Usually, what decides how much inventory to hold is the trade-off between order costs and cost of carrying the inventory. Since ordering in bulk usually is more beneficial, the more you order in one go, the better. However, if you are unable to sell off all products, storage and insurance fees will decrease those margins. Depending on what line of business you are in, whether you should hold inventory as raw materials, work-in-progress or finished goods is also a concern. However, ceteris paribus, a short DIO is better as inventory is not actually making the firm any money. It decreases the liquidity of the company and only benefits the profitability when it is sold (Brealey, et al., 2011, p. 758).

2.2.3 Days Sales Outstanding (DSO)

Days Sales Outstanding is the percentage of COGS that is represented by accounts receivables expressed in days. It is calculated by dividing the average accounts receivables of the period with the COGS in the same period, multiplied by the length of the period in days. It can be interpreted as how quickly the company is collecting payments on sales done with trade credit (Wilkinson, 2013b).

\[
\text{avg. Accounts Receivable} / \text{COGS} \times \text{# of days in period}
\]

The Ford example explained how early concerns regarding collection of sales was shortening the time spent on transporting the physical checks received from the buyer to the company accountants. Technological development has reduced the importance of this aspect. Today, accounts receivables is the important factor, or more accurately stated, policies on trade credit. Ceteris paribus, a shorter DSO is better as it means that the company does not have to wait to receive payments for their products. As money flows in faster, liquidity rises. However, many businesses operate in a credit environment, where payments are made at a later point than when the buyer receives the
good. Requesting Cash on Delivery might simply not be the best way of collecting on sales. There is an inherent risk associated with this, as the buyer might not be able to pay his debt when the time comes. One way to reduce this risk is by offering a lower price if the buyer pays it within just a few days instead of waiting the entire credit period (Brealey, et al., 2011, p. 761).

Another aspect of giving credit is that it basically is the seller lending the buyer money. As such, the seller will want compensation, which is then the difference between the earlier price and the later price. Both the seller and the buyer need to decide if lending the money is a beneficial solution for them. This is where the question of liquidity arises. If a selling company can increase the value by receiving money earlier, for instance by investing in short-term securities, they could consider giving a higher discount on early payments to incentivize the buyer to pay their debts faster. Similarly, if the buying company could increase the value, they may want to wait the full trade credit period before paying the debt. This reasoning stem from Emery’s (1984, p. 273) remarks on firms pure financial intermediary motive, the object of which, he argues, is to maximize the liquid reserves rate of return.

2.2.4 Days Payable Outstanding (DPO)

Days Payable Outstanding is the percentage of COGS that is represented by accounts payables expressed in days. It is calculated by dividing the average accounts payable of the period with the COGS in the same period, multiplied by the length of the period in days. It can be interpreted as how long it takes a firm to pay off its current debts (Wilkinson, 2013c).

\[
\text{avg. Accounts Payable / COGS} \times \# \text{ of days in period}
\]

Inversely from DSO, a company’s DPO concerns it’s policies on trade credit with regards to outstanding debt. Just as for DSO, the company needs to decide whether or not they can earn a higher return than a potential discount from the debtors for faster payments. There might also be operational factors concerning a company's accounts payables decisions. If the company does not have an on-going co-operation with a supplier, it might demand a longer credit time, so that the products can be evaluated fully before any transaction is made. On the other hand, a buyer perhaps has a strategic relationship with one or more of their suppliers, and that supplier is struggling. If this is the case, it might be reasonable to support their collaborators by brokering early payments or vice versa, even though it is not beneficial for the stable firm in the short-term (Moran, 2011, p. 42). However, everything else held constant, an increased DPO is beneficial to the firm as it allows the company to hold and invest money for a longer period.
2.2.5 Gross Profit Margin (GPM)

This paper will measure profitability by using the Gross Profit Margin (GPM). Gross Profit is how much profit you have made after removing the COGS from your revenue. By dividing the Gross Profit with the revenue you are able to measure how much you have made on the margin after removing the costs associated with your core operating activity (Berk & DeMarzo, 2011, p. 30).

Therefore, the GPM is a direct connection to inventory levels. This is relevant as the industry is described to be very dependent on supply chain strategies (STF, 2011, p. 18). It is also highly affected by sales, which in turn is affected by DSO and DPO. Furthermore, by contrasting with the sales level the emphasis on assets will be avoided.

One problem associated with this measure is to determine the COGS, since far from all firms in our sample have reported this number. Further explanations of how it was calculated and deeper discussion regarding the choice of GPM as dependent variable will be presented in the practical method chapter.

2.3 Cash Conversion Cycle & profitability

2.3.1 Summary of previous studies

In 1993, Moss & Stine investigated the relationship between size and the CCC. They found strong evidence for larger firms to have a shorter CCC. They also established that short CCC did translate into higher cash flows for firms. Since their study, the direction of research has turned towards using the CCC as an indicator of firm profitability. One of the most commonly cited works in this area is Shin & Soenen’s (1998). It was one of the first studies that focused on the dynamical aspect of cash management by using the Net Trade Cycle (NTC) (which expresses the CCC multiplied by 365/sales) as their independent variable in a correlation and regression analysis. The study was conducted by examining almost 60,000 US companies between 1975-1994. While the data is rather old, the broadness of the study makes it relevant to this thesis, as it has been for several others. The sample covers a large amount of companies from several different industries, mitigating any non-systematic effects. Furthermore, the study also spans several turns in the US economy, accounting for growth periods, inflation increases and even stagflation (Saltzman, 2004, p. 21). Their findings indicated that there was a negative relationship between firms NTC and profitability.

In the wake of Shin & Soenens work, other studies with similar frameworks have been conducted in various nations. For instance, Deloof (2003) performed a similar research on 1,009 Belgian firms with data from 1992-1996. Though conducted on a smaller sample and with a smaller timeframe, his results also supported the idea of a negative relationship between WCM and profitability. However, in an effort to extend the knowledge even further, Deloof also examined the components of the CCC. Through this examination, he found that, while the DSO and DIO are related negatively to profitability, so is DPO. This would seem strange as a shorter DPO is corresponding to
a longer CCC. To account for this mismatch, Deloof offers the explanation that less profitable firms wait longer to pay their bills.

Padachi (2006) performed a study similar to Deloof's on Mauritian companies, although with a more narrow focus, as only small manufacturing firms are investigated. Nevertheless, the findings are still similar to those of Deloof, with a negative relationship between profitability and the CCC and, contra theory, the DPO. However, the latter relationship is not statistically significant under a Fixed Effects Model, that is likely contributed to the small size of the sample (58 firms) as compared to Deloof's. Padachi does extend on the subject by introducing a comparison between different subindustries and he is able to find arguments for a stronger relationship in certain industries, such as paper and printing.

Another study with a high similarity to Deloof's and Shin & Soenens papers are Garcia-Teruel & Martinez-Solano (2007). When investigating 8,872 Spanish SME’s they also conducted correlation and regression analysis and found results further backing up Deloof’s theory, that less profitable firms wait longer to pay their bills. While the CCC was negatively related to profitability as a whole, so was the DPO in itself. To further the investigation, the authors also conducted a causality test, in order to shed light on the direction of the relationship. This was performed by using lagged variables and found profitability to be the influenced variable, except when it came to DPO as the finding lacked significance. While the results, arguably, could be affected by the use of yearly data, as the nature of WCM is more short-term, it can also be seen as support for Deloof’s speculation on the twofold relationship between DPO and profitability.

A better attempt at establishing the direction of the relationship is performed by Kroes & Manikas (2014). By means of a Granger Causality test and quarterly lagged variables, they were able to establish that DSO was a driver of profitability. The DIO variable did give some evidence of increasing profitability, although not as strong as DSO. For changes in DIO and DPO, however, the tests were inconclusive, leaving the directional effects undecided. The results of the regression analysis performed by Kroes & Manikas found the CCC to not be significantly related to profitability. However, when the DPO variable was removed a strong negative relationship was found. This is further evidence of DPO having a negative relationship with profitability. While the findings of Kroes & Manikas paper are highly interesting, they may also have been highly affected by the turbulence of the years when the study was performed. Following the financial crisis of 2007, the uncertain times may very well have impacted the strategies of firms. For instance, the harder time of finding outsider investments could have pushed firms to have to improve their WCM.

Another study that has been highly influential to this study was performed by Rehn (2012). While it did not move the subject forward as much as its predecessors, the fact that it was conducted on a similar market, with both Swedish and Finnish companies and is relatively new makes it cause for consideration. He researched companies during the 2002-2010 period and found a strong negative relationship between the CCC and profitability. As this period consisted of both an economic recovery from the so called “IT-bubble” as well as the financial crisis of 2008, it is interesting to see that the
relationship remained negative throughout the years, although to varying degrees. Moreover, Rehn did further the findings regarding variations between different industries. He primarily noted that DIO had varying impacts depending on industry. This could easily be attributed to some industries relying more on inventory than others.

Lazaridis & Tryfonidis (2006) studied an economic period similar to the one examined in this study, following a relatively recent financial crisis. They analyzed another European country, Greece, and also found a strong negative relationship between the CCC and profitability. In their analysis of their different components of the CCC they too found accounts payable to also have a negative correlation.

Ebben & Johnson (2011) further extended the research into how smaller firms are affected by WC. In a study of American manufacturing and retail firms, they found small firms to be highly dependent on an effective WCM, due to bigger constraints on finding affordable financing. Furthermore, they established that smaller firms in general are more reactive in their approaches to cash flow management.

Wang (2002) performed an interesting study, as he compared two different countries where the major difference was, as argued by the author, that one of the countries (Japan) was highly dominated by large companies interconnected with the financial system of the country. The other (Taiwan) was mostly comprised of small, often family-owned firms. While this makes for an interesting comparison, it should also be noted that other influences might have an impact, making it hard to compare how varieties in one factor affects the whole, without controlling for external stimuli. While Wang found evidence in accordance with previous researches for both countries, without any major differences. However, it is hard to determine whether this is due to other influences than WCM or if it is due to a relatively mild impact of WCM.

Raheman et al. (2010) performed a similar study as the ones presented above, with similar results. However, as the market examined were that of an underdeveloped, non-European country (Pakistan) the similarities with this study are viewed as limited. Goel (2013) studied the 5 largest Indian retail firms and also found efficient WCM to be related to higher profitability. However, as he performed a more in depth analysis his study is considered to be less relevant to this paper. The same is true for Randall & Farris (2009) who through a case study analyzed the effects of WCM and supply chain financing. While this enabled them to use WCCC considered by many authors to be a better measure then the unweighted CCC (Shin & Soenen, 1998, p. 38), we were unable to obtain the same data, making a comparison less useful.
Table 1. Summary of previous studies

<table>
<thead>
<tr>
<th>Authors</th>
<th>Sample</th>
<th>Market</th>
<th>Period</th>
<th>Industry</th>
<th>Research Method</th>
<th>Liquidity</th>
<th>Profit</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,069 non-financial</td>
<td>Belgium</td>
<td>1992-1996</td>
<td>Various</td>
<td>Correlation &amp; Regression</td>
<td>DSO, DIO, DPO and CCC</td>
<td>Gross OCI</td>
<td></td>
<td>DSO, DIO and DPO are all negatively related to profitability.</td>
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<td>firms (5,945 firm-years)</td>
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<tr>
<td>1,712 small firms</td>
<td>USA</td>
<td>2002-2004</td>
<td>Retail &amp; Manufacturing</td>
<td>Correlation &amp; Regression</td>
<td>CCC &amp; Invesed capital</td>
<td></td>
<td></td>
<td>Firms with shorter CCC require less equity and debt financing.</td>
</tr>
<tr>
<td>Garcia-Jurado &amp;</td>
<td>Spain</td>
<td>1996-2002</td>
<td>Various</td>
<td>Correlation &amp; Regression</td>
<td>DSO, DIO, DPO and CCC</td>
<td>ROA</td>
<td></td>
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<tr>
<td>Martinez-Solano</td>
<td>(2007)</td>
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<tr>
<td>Quarterly data from</td>
<td>USA</td>
<td>2008-2011</td>
<td>Manufacturing</td>
<td>Regression analysis &amp; Granger causality test</td>
<td>DSO, DIO, DPO and CCC</td>
<td>Tobin's q</td>
<td>Changes in CCC are not significantly related to changes in Tobin's q. Changes in CCC are.</td>
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<td>1,233 publically</td>
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<td>traded manufacturing</td>
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<tr>
<td>131 listed firms</td>
<td>Greece</td>
<td>2001-2004</td>
<td>Various</td>
<td>Correlation &amp; Regression</td>
<td>CCC</td>
<td>Gross operating profit</td>
<td>Negative relationship between Profitability and CCC.</td>
<td></td>
</tr>
<tr>
<td>Moss &amp; Sin (1995)</td>
<td>1,717 firms</td>
<td>USA</td>
<td>1971-1990</td>
<td>Retail</td>
<td>Regression</td>
<td>CCC, Quick Ratio, Current Ratio</td>
<td>-</td>
<td>Larger retail firms have shorter CCC.</td>
</tr>
<tr>
<td>Patalno</td>
<td>Mauritius</td>
<td></td>
<td>1998-2003</td>
<td>Manufacturing</td>
<td>Correlation &amp; Regression</td>
<td>DSO, DIO, DPO and CCC</td>
<td>ROTA</td>
<td>WC needs for firms change over time and firms need to ensure good asset-liabilities matching.</td>
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<td>(2006)</td>
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<tr>
<td>Annual data of 612</td>
<td>Finland &amp; Sweden</td>
<td></td>
<td>2002-2010</td>
<td>Various</td>
<td>Correlation &amp; Regression</td>
<td>CCC &amp; Net Trade Cycle</td>
<td>Gross Operating Profit</td>
<td>Significant negative correlation between profitability and CCCNTC.</td>
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<tr>
<td>(1789 company years)</td>
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<td>public companies.</td>
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2.3.2 Previous findings

As mentioned before, an efficient WCM can help keep a company liquid without having to resort to large cash holdings. However, by managing the CCC effectively, managers are not only able to make safeguard decisions to protect them in the short run. This was proven by the groundbreaking research of Shin & Soenen has opened up a field of research regarding how managers should behave when it comes to their WC.
They argued that a shorter CCC, indicating better liquidity, is an integral part in creating shareholder value (Shin & Soenen, 1998, p. 37). They present the case of Walmart and Kmart as an example. Although adopting a similar capital structure of about 31% debt financing, Walmart significantly outperformed Kmart in 1994. For instance, the Return on Equity reported for Walmart and Kmart was 24.9% and 4.91%, respectively, during this period. Shin & Soenen argue that Walmart’s shorter CCC, which was 40 days, as compared to Kmart’s 61 days, partially explains the differences in returns. In the same paper, where they investigated almost 60,000 companies over a 20-year period, they concluded that there is a strong negative association between a company’s (NTC) and firm profitability (Shin & Soenen, 1998, p. 38).

Shin & Soenen established that a shorter CCC correlated to higher profitability. Decreasing the time between the procurement of inventory and the collection of sales is not only increasing liquidity, but also improves profitability as room for new investments are created. However, questions can be raised whether Walmart’s success is because of its dominating position. Mottner & Smith (2009, p. 540) performed a study over Walmart’s suppliers and found that Walmart exercises abuse of dominant position where their suppliers take the burden for stocking inefficient inventory. Also, Bloom & Perry (cited in Mottner & Smith, 2009, p. 535) found that Walmart suppliers have lower profits than non-Walmart suppliers. Walmart’s CCC is improved as their suppliers are forced into an increase in DIO. The supplier’s dependency on Walmart forces them to accept trading agreements although it decreases their margins, in accordance to what Shin & Soenen’s study suggests. Such strategy may have an impact on social issues as larger companies may abuse smaller manufacturers causing bankruptcy. Mottner and Smith argue that Walmart does not really care what will happen with their collaborating suppliers, as there are many other similar suppliers (2009, p. 540). In an ethical aspect, they argue that Walmart should improve their reputation because it may be harmful in the long run. Additionally, Walmart is known to be unethical to its employees, giving minimum wage and abuses worker’s rights. As a matter of fact, the Swedish social pension fund, “AP-fonden”, sold shares in the company worth $140 billion after pressures from the Swedish ethical council (O’Connor, 2013).

Since Shin & Soenen’s work, other researchers have followed suit and extended the knowledge regarding the area. Most of the studies have found the CCC to be negatively related to various measures of profitability. (e.g. Deloof, 2003; Garcia-Teruel & Martinez-Solano, 2007; Lazaridis & Tryfonidis). To further try to establish what exact factors in liquidity that drives firm profitability, researchers have examined the respective components of the CCC (DSO, DIO and DPO). A short CCC corresponds with a short DSO and DIO, but a long DPO. Previous findings are consistent in the relationship that a shorter DSO and DIO have a negative correlation with profitability. Therefore, it would be logical to find a positive correlation between DPO and profitability. However, this has not always been the case. For example, Garcia-Teruel & Martinez-Solano (2007, p. 175) found that the significance of DPO diminished as lagged variables were introduced. Kroes & Manikas (2014) employed a longitudinal approach, with lagged measures of CCC and its components to capture how the dynamic effects of changes in the measures affected firm performance. Profitability was measured using Tobin’s q. They found the change in Operational Cash Cycle (ΔOCC) to be a much more effective tool for managers to improve financial performance, since it excludes the DPO variable, which they found not to be significantly related to firm performance changes.
Deloof (2003, p. 585) was the first researcher to find a negative relation between all three of the CCC measures. He ascribes the inverse relationship between DPO and profitability to the fact that it might be because a less profitable firm waits longer to pay their bills simply because they are unable to pay in time. Though, he does not apply any causality testing to confirm this theory. He argues that it could also be that firms with a shorter DPO perform better because companies receive discounts when they pay their suppliers faster. As the practices regarding trade credit vary between businesses this might be troublesome when performing industry-spanning research as Deloof did. Firms operating in relatively high-risk industries might be allowed shorter trade credit, automatically decreasing the DPO. Other differences in industry conditions may also have an effect, such as suppliers giving discounts for bulk orders. The buyers then need to make a decision regarding the trade-off between the beneficial factors of buying larger orders and the negative aspects of tying money in inventory. It is important to bear these facts in mind when comparing previous research. Rehn (2012), for instance, has been used to a great extent and his findings may or may not be related to the sample that we will be studying since this study investigates one industry. However, his contributions regard the Swedish market and are up to date.

Furthermore, an increase in DSO could be a consequence of an increase in sales and might therefore correlate positively with profitability. Long et al. (1993, p. 118) argue, from a marketing perspective, that giving the customer an extended payment period could give them a chance to evaluate the product. This might have a positive effect on customer relations that, in turn, could increase sales.

While there are arguments for both an increase and a decrease in profitability, based on previous research, we expect to see a significant negative correlation between CCC and GPM. This leads to the statement of the following hypotheses:

- **H₀**: There is no negative correlation between the CCC and GPM
- **H₁**: There is a negative correlation between the CCC and GPM

By testing this hypothesis we intend to develop a deeper understanding of the relationship between WCM and profitability. The hypothesis testing aims at confirming the theorized relationship between the CCC and GPM, which will work as a foundation for the extended research on firm characteristics.

### 2.3.3 Company size

A well-debated aspect of recent studies is how the size of a company might have an impact on its WCM decisions. Ebben & Johnson (2011, p. 381) discuss the problems in finding affordable financing for small firms. Lenders and investors are more conservative in supplying small firms with money, as the risks are higher than with established companies. This increases the costs of borrowing for the smaller companies, causing fewer opportunities of finding outside investors and accessing long-term capital markets, requiring them to rely more on owner financing or trade credit. Therefore, it is crucial for smaller companies to manage their CCC in an efficient way. Berryman (cited
in Padachi, 1993, p. 46) and Dunn & Cheatham (cited in Padachi, 2006, p. 46) mention that one of the major reasons for small businesses failure are due to a weak WCM and insufficient long-term financing. Owners equity financing is bound to reach its limits if the company is interested in growing. So, when a small company is looking for external funds and the cost of capital is simply too high, they can instead turn to their suppliers or buyers for help (Ng et al., 1999, p. 1110).

One way of procuring such financing is through trade credit. That is the practice of allowing customers to wait before paying their debts for various reasons. It is usually set up in the way, that a buyer could have a certain time period to pay off their debt in full. For instance, a company could set up a net term form of trade credit denoted “net 30”. Meaning that the buyer’s payment is due 30 days after the invoice date or else he/she is in default. A more sophisticated form is the two-part term. This could, for instance, be denoted “2/10 net 30”. Meaning that the buyer still have 30 days to pay off his debt before being in default, but with the additional option of paying within 10 days. By paying within the shorter timeframe, the buyer will then receive a discount of 2 percent. This allows financially stable companies to lower their costs by paying directly and struggling companies can effectively “borrow” money from their supplier by waiting the full credit term (Ng et al., 1999, p. 1110). Smaller firms, in need of financing are affected in one of two ways. If they are struggling with liquidity issues they may be the “borrower” that waits to pay their debt. Effectively, they increase their DPO, which is the component of the CCC that firms found less connected to profitability. Or, as a supplier, they may be the firm extending trade credit to procure faster inflow of cash.

When discussing trade credit, most authors have divided the reasons for implementing trade credit policies into three different sections, the operational, the commercial and the financial. The operational aspects regard the timing of exchange of goods and their payments (Garcia-Teruel & Martinez-Solano, 2010, p. 216). By employing a trade credit policy a supplier could decrease the uncertainty of the future demand (Ferris, 1981, p. 255). Furthermore, Emery argues that companies are better responding to fluctuations in demand by what he calls the “pure operating flexibility motive” (1984, p. 272). By relaxing their trade credit policies, when there is a deficit in demand, or tightening, when there is excess, companies can better react to these fluctuations. Simultaneously the company can isolate the effects to the financial sector of the firm, as it insulates operations from fluctuations in demand.

In the commercial perspective, the main arguments are for increasing sales. Brennan et al. (1988, p. 1128), Petersen & Rajan (1997, p. 689) and Ng, et al. (1999, p. 1115) all present the argument of being able to price discriminate through the use of trade credit. The supplier can also use it as a quality guarantee so that the customers will have time to assess the quality of the product (Long, et al., 1993, p. 118; Ng et al., 1999, p. 126). This could be extensively useful for smaller, lesser-known firms as a means to generate repeat-sales and garner a reputation (Smith, 1987, pp. 870-871). Contrarily, firms that have long-standing relationships with their customers may not need to give an extended trade credit, as their counterparties know what to expect from them. The same is true for large, well-known firms that are more likely to already have a good track record that ensures the quality, although it is not with the customer in question (Bernanke et al., 1994, p. 14). Alternatively, if you have a good collaboration with a customer, they may
not wish to change partner. If this partner is struggling, however, you might not be left with an option. One way to combat this situation is lending a helping hand to the struggling party. In order to secure future collaborations, the more stable firm may help the unstable one by extending trade credit. If they manage to turn things around, the supplier will successfully have secured their stakeholder interests in the long-term perspective. As mentioned in the beginning of the chapter, this is especially important in the wholesale industry for utilizing interconnectivity advantages (STF, 2007, p. 7).

Ng et al. (1999, p. 1113) have also presented some evidence that trade credit policies could help companies to identify shortcomings in a customer’s creditworthiness. Niskanen & Niskanen argue that larger firms can use the “...more ‘physical’ relationship between the seller and the buyer...” (2006, p. 83) to gain more information about their customers, than a financial intermediary. The ability to earlier recognize a decline in creditworthiness, acts as a motive for larger firms to help their smaller counterparties. They are also in a stronger position of forcing the smaller firm to pay its debt as the withdrawal of future financing from a financial intermediary might not have an equally immediate effect as that of a supplier (Petersen & Rajan, 1997, p. 663). These are further arguments for a larger company to extend trade credit. For smaller firms, the possibility of finding other external financing than through a financial intermediary are largely based on the relative costs. As smaller firms generally have more difficulties in accessing public equity and debt markets (Berger & Udell, 1998, p. 628), they are likely willing to accept financing through their suppliers. The mere fact that a larger company is willing to extend trade credit to smaller counterparties could also have a signaling effect to financial institutions and thereby reduce the costs for smaller firms (Deloof & Jegers, 1999, p. 947). Larger companies could thereby ensure a long-term collaboration with relatively simple means. But is it reasonable that trade credit exists in too large extent? A society where trade on products is built on credit loans can cause severe economic effects in a market. One recent example is the financial crisis in 2008, where real-estate market collapsed. This is one issue concerning a broader perspective.

Hurter, 2007). However, the points presented provide arguments for why there is an interest among both small and large firms to utilize trade credit. However, smaller firms with a harder time of procuring other forms of financing seems more likely to utilize such strategies. Many authors have also presented evidence smaller firms are indeed relying more on financing through trade credit (e.g. Deloof & Jegers, 1999, p. 947; Niskanen & Niskanen, 2006, p. 82; Schwartz, 1974, p 652). Larger firms, on the other hand, are not as dependent on funding through trade credit. The inherent effects of being large, such as diversification and reputational strength, can ensure a cheaper access to other channels of capital. Lenders are more likely to give a reasonable rate to a well-known, international, firm than a small, local, company. Furthermore, transaction costs are of a lower percentage for bigger sized firms. Investing excess cash holdings in securities with maturity in a week, or even a day, is likely to cost the smaller firms more than the value it brings. Add to that the extra costs of having a treasury department to manage this type of WCM and the net benefit is greatly reduced. Larger firms, that enjoy the benefits of economies of scale, have more reasons to implement such a strategy.

Hence, smaller firms should potentially benefit more from shortening their CCC as much as possible. Nevertheless, Moss & Stine (1993) actually found larger firms to have a shorter CCC. This is in line with presented theory, which this thesis aims to test through following hypotheses:
• $H_0 \ 2a$: GPM in larger firms is not higher for each level of the CCC

• $H \ 2a$: GPM in larger firms is higher for each level of the CCC

• $H_0 \ 2b$: GPM in smaller firms is not more affected by changes in the CCC

• $H \ 2b$: GPM in smaller firms is more affected by changes in the CCC

The first hypothesis, $H \ 2a$, is intended to test if larger firms are more efficient in their WCM. The second hypothesis, $H \ 2b$, will be answered by testing if smaller firms are more sensitive to changes in WCM, by evaluating the slope of the regression model.

2.3.4 Public vs. Private

Large firms are normally performing at best when the ownership is dispersed while smaller firms are benefiting from a concentrated ownership. This is concluded by Miller, et al. (2013, p. 566) in their study of the relationship between family ownership and profitability in Italian firms. Boot et al. (2006, p. 803) discuss major differences along two dimensions. How to raise capital and to what extent the control these sources will get in the company. Obviously, private companies are giving up the easy access to capital to the benefit of autonomy and vise versa for the public firm. In short, different structures of ownership have advantages and disadvantages for different types of companies.

Being public or private has an impact on how the corporate decisions are made. A privately owned company has autonomy over their investors in their decision-making. The public company is exposed to all stakeholders in the business, especially shareholders who demand returns on their investments. Guthrie and Sokolowski (2010, p. 303) argue that the pressure increases with a powerful shareholder. The dependency on shareholders is important, as their opinions of the company are reflected in the market value. In turn, the market value partly sets the credit rating and determines the cost of capital.

Analysts, investors, credit institutes, boards and senior executives, are examples of stakeholders exercising external and internal pressures that come with a public ownership. Earnings numbers are the most common variables to look into when estimating the market values of companies. An interesting observation is that many researchers have found evidence on how companies round up their numbers in order to attract investors and improve their market value (Wu, et al., 2012, pp. 129-132). This concerns earnings management, the information that may give an indication of market value of a firm. Wu et al. (2012) present this in their study concerning earnings manipulation in listed Taiwanese companies. They find evidence, confirming previous research, that it occurs manipulation in firms’ earnings management. Namely, they found negative correlation between earnings and earnings per share (EPS) (Wu et al., 2012, p. 139). By looking at how common it is to round up the numbers concerning EBIT (Earnings before interest and taxes), EAIT (Earnings after interest and taxes) and
EPS they compared the amount of zeros to the amount of nines in the second to fourth digits in the total number written in the income statement. This strategy raises many concerns whether it is ethical or not. Because the shareholders get mislead when evaluating their investments. However, it demonstrates how dependent the public companies are on their stakeholders, as strong pressure exists on them demanding great results. Since manipulation is not an appropriate tool for improving market values, these findings imply that margins are of great importance for public firms since these activities exist in their earnings management to attract and satisfy shareholders.

Shareholder pressure is one of many reasons why companies choose not to go public. As a matter of fact, many CFO’s are considering the benefit of autonomy when evaluating whether to go public or not. Brau & Fawcett (2006, p. 425) found that the major disadvantage to go public is taking on the risks and difficulties that come with a more exposed form of ownership. Boot et al (2006, p. 825) further develop their findings by confirming that autonomy is not the major reason to stay private. Instead it is more about fulfilling their own visions and views of what strategies are optimal to maximize firm value, without being influenced by shareholders. This pressure is not as present in a non-listed company.

However, remaining as a private company comes at the expense of a higher cost of debt. Non-listed companies have higher asymmetric information than listed companies to their stakeholders, implying that a listed company needs to inform their shareholders on what is going on in their company as one has the right to know what his/her money are used for. Non-listed companies do not have to reveal such information to the same extent since there are fewer shareholders. Basically, the lack of outside pressure allows you to be opportunistic and play risky (Boubakri & Ghouma, 2010, p. 2483). For lenders, asymmetric information increases the risk, as less information is known about the company. To monitor their investments in a company they set a higher interest rate to reflect this (Pettit & Singer, 1985, p. 55). Boubakri & Ghouma (2010, p. 2483) explain that non-listed companies are not marked-to-market and it is therefore an inherent risk to value their borrowing activities. Lenders will expect a higher risk premium. In that case, an effective WCM could be a less costly alternative of financing for private companies.

Moreover, while Boot et al. discuss the pros and cons of different structures of ownership for the entrepreneur, Miller et al. (2013) try to explain what is the optimal structure for an Italian firm and when family ownership is most suitable. By looking at the two variables, size and whether or not the company is listed, they try to find how family governance affects performance. In their sample of 2,522 Italian companies, they compared these variables with family firms to listed firms on the Milan stock exchange (Miller et al., 2013, pp. 558-559). It is important to notice that family firms in their paper are non-listed, however, one cannot draw the conclusion that what applies to family firms apply to all non-listed firms that we will examine. There are, nevertheless, many reasonable findings that may help explain how the management of working capital is indirectly affected between public and private companies in their decision-making.
Miller et al. state from previous research that family ownership has a more long-term perspective. The business is an object of family pride that works as a source of income for the family and generations to come (2013, p. 554). A similar concept might be true for the entrepreneur, who dedicates his life to create a stable business, rather than achieving short-term profits. In comparison to what was mentioned earlier, the shareholders of public companies are more likely to demand returns in the short run and might disagree on long-term strategies. Because working capital management has a short-term focus on the operations one can question whether this is considered to the same extent in non-listed firms. It is also doubtful that a founding manager or next generation manager is qualified for small business financing decisions. Miller et al. stress this as an issue since the promotion process in family companies works in generations and is not based on qualification. Furthermore, they describe this as an issue that is increasing as the firm grows in size, implying that administrative complexity becomes challenging for the family owner (2013, p. 556).

Their study concludes that large firms that need to manage their administrative complexity are performing at best when the ownership is dispersed. On the other hand, concentrated ownership is more suitable for smaller firms. It is because the manager and the founder are most likely the same person in a small firm with concentrated ownership. The information asymmetry does not exist since the same person acts as the owner/manager. He/she knows what strengths, strategies and culture the company possesses. However, as the company grows, other qualities are needed in order to run the business, such as managerial skills rather than entrepreneurial (Miller et al., 2013).

As discussed in the beginning of the literature review, previous research has found evidence of a negative relationship between CCC and profitability. Further evidence exist that listed companies, due to higher stakeholder pressure, are more concerned with short-run achievements, such as utilizing earnings management to manipulate margins. With these aspects in mind and that the nature of WCM is short-term, it is reasonable to assume that listed firms emphasize their WCM more. However, non-listed firms have a higher cost of capital for financing their operations. It is therefore equally reasonable to expect non-listed firms to gain more from an improved focus on WCM.

Therefore, it is believed that the listed companies are more efficient in their WCM and that non-listed firms gain more from an improved WCM. To conclude if these assumptions are true we will be testing the following hypotheses:

- **$H_0 3a$: GPM in listed firms is not higher for each level of the CCC**
- **$H 3a$: GPM in listed firms is higher for each level of the CCC**
- **$H_0 3b$: GPM in non-listed firms is not more affected by changes in CCC**
- **$H 3b$: GPM in non-listed firms is more affected by changes in CCC**

The first hypothesis, $H 3a$, is intended to test if listed firms are more efficient in their WCM. The second hypothesis, $H 3b$, will be answered by testing if non-listed firms are more sensitive to changes in WCM, by evaluating the slope of the regression model.
2.4 Causality

It has long been known that any correlation between two variables A and B does not give any indication to which of them affect the other. It could also be that both variables are simultaneously affecting each other or even that there is some other, unknown, variable C affecting both of them (Heath, et al., 1993, p. 29). In some instances, the question of whether A is influencing B or vice versa is pretty straightforward. Moore, et al. (2009, p. 143) offers the example of weather conditions and gas bills. It is no problem to conclude that the influencing factor in this relationship is weather as no matter how much you might increase or decrease gas usage it is not going to have any effect on the weather.

When discussing the WCM-profitability relationship, causality is a highly relevant subject. While the basic theory states that decreasing the CCC will affect the profitability of a firm positively, there are other explanatory factors as well. It is difficult to say that unusually low accounts receivable means that a company is going to have a really strong performance or if it is because of a huge drop in sales (Deloof, 2003, p. 584). A decline in sales could furthermore lead to a build up of inventory or that the company is struggling to pay their bills, which would all decrease the company CCC. In fact, Deloof references one of his earlier works together with Jegers, where they tested finance based models explaining trade credit proposed by Schwartz (1974) and found that an increase in profitability should mean an increase in accounts receivables as well. This influence stems from the trade credit theories discussed previously (Deloof and Jegers, 1996, p. 41).

While most researchers debate whether the CCC or profitability is affecting the other from a theoretical perspective (or at least in which direction the relationship is stronger, as most agree that there can be explanatory factors from both sides), newer research have attempted to increase the knowledge about the relationship between the CCC and profitability by investigating the cause-and-effect aspect. In an attempt to identify the direction of the relationship between actions in cash flow management and performance changes, Kroes & Manikas (2014) included a Granger causality tests in their study. They found a strong significant result for lagged variables in CCC Granger causing financial performance and a non-significant result for the inverse.

While testing the causality is an important part in understanding the relationship between profitability and cash management it is nevertheless nearly impossible to do so. Heath et al. (1993) propose methods of conducting such an investigation, but warn that there are several limitations to this approach, as well as many chances of falling in to pitfalls of mistaken inference. Seeing how a crucial part in most causality tests is lagged variables, it would make more sense to further evaluate this occurrence in a panel study. Due to the lack of data and severity of testing for causality, it will not be tested in this thesis, but the subject will be kept in mind.
3. Scientific method

In this chapter the methodological standpoints will be presented. The philosophical view introduces the main reasoning behind the methodological choices. This is followed by the research approach, research strategy and research design. The chapter ends with introducing the process of secondary data where ethical issues are evaluated.

3.1 Pre-understandings

While writing this paper, we are attending the International Business Program at Umeå School of Business and Economics and are currently in our 8:th semester. Both of us have chosen Finance as our major and have, therefore, accumulated knowledge within this area. In particular, Corporate Finance has been an interesting subject for us, which has influenced the choice of the topic studied. Both of us have experiences of internships, in China and Germany, where we have worked with corporate finance. During these internships we were introduced to cash management and its importance, which is a concept that has been scarcely discussed in the university program. This means that we have a thorough understanding of financial concepts in general but we are relatively new to this topic in particular. We believe this will allows us to have an independent approach to the subject.

Arguably, the pre-understandings will not affect the result since secondary data will be surveyed, implying that it cannot be manipulated as long as the same method is applied to all variables. Statistical tests will be used in order to establish a clear result, which does not give room for any personal interpretation to a larger extent. However, based on the theoretical framework and the test result, we will base an understanding in why the result behaves in one way or another. This, in turn, will allow for the pre-understandings in business knowledge to emerge and have an impact on the conclusion.

3.2 Research philosophy

By clarifying the view of the research philosophy in our paper, we want to accentuate our overall point of departure for the scientific methodological choices. In that way, the readers of this paper will have a better understanding of our argumentation and follow our reasoning. Research philosophy constitutes the different views of the world in terms of what is acceptable knowledge and how social actors affect the social entities.

Whether the research in finance regards discovery, interpretation or communication of new knowledge the source of the knowledge itself can differ in financial studies (Ryan et al., 2002, p. 7). Two examples given by Ryan et al (2002) reflect on how the view on knowledge can differ in financial articles depending on how the social phenomena are studied. The first example illustrates an explanatory study of the social entity, while the other is of interpretation. The explanatory study is statistically testing the knowledge while the other is interpretation of the knowledge after studying the social phenomena. More specifically, ontology is a philosophy viewing the nature of reality while epistemology deals with different views of what is perceived as knowledge (Saunders et
al., 2012, pp. 127-134). It is important to take a position in the different philosophies so that the reader can follow the interpretations of the objects in this study. Also, how the use of previous research is used as it deals with the perception of knowledge. Concerning the concepts presented, a detailed position will be presented in the following paragraphs.

3.2.1 Ontological & Epistemological considerations

Based on our previous understandings in the area we have the intention to be objective since our knowledge in this area is limited. Epistemological stance of positivism concerns the view that existing knowledge from research is acceptable. We want to examine the relationship between the CCC and GPM by observing collected data from an observable reality (Saunders et al., 2012, p. 134). From this sample we will be able to draw generalizable conclusions about the WCM’s impact on profitability from different company characteristics (Friedman, 1953, p. 171).

The primary purpose of this paper is to survey if there are any deviations in CCC and profitability variables in different Swedish wholesale companies. Therefore, we have positivism since we are looking for the general picture in the relationship of the CCC and profitability. If we rather wanted to find deviations, or investigate deeper into why these deviations may exist it would require deeper empiricism to be conclusive. If our aim of the study would be to understand why, a research philosophy like an interpretivist would have to be adopted. Saunders et al. (2012, p. 137), explain “Interpretivism advocates that it is necessary for the researcher to understand differences between humans in our role as social actors”.

For instance, by examining the different companies’ strategies in their short-term operational management the interpretation of “acceptable knowledge” would, perhaps, be different as our personal interpretations in question may be established from interviews as new findings would deviate from the generalized picture and inconsistent with previous research (Saunders et al., 2012, pp. 134-137). For instance that companies have certain reasons to behave differently from the generalized population.

Previous researches related on this topic are quite consistent in its theoretical framework and findings, allowing for what is the acceptable knowledge in accordance with positivism. However, some criticism has been raised towards positivism. For example, in many cases this epistemological consideration draws general conclusions to something but certainty cannot be established if not examining all possible cases (Ryan et al., 2002, p. 18). Nevertheless, Bryman & Bell (2011, p. 37) explain that this philosophical stance is suitable when employing a natural science model. Thus, our study can be applicable to the Swedish wholesale industry since a total survey of our sample criteria will be performed. Therefore, we hope conclusions can be drawn after performing this study.
Moreover, objectivism is our ontological philosophy. Ontology concerns the reality, what we can accept as real or choose to construct to be real (Ryan et al., 2002, p. 14). In our method, we accept the secondary data in an objective manner, as the data is gathered for accounting purposes, which is a set of regulations applicable to all companies. Due to the reason that it cannot be studied in greater detail than it is presented, there is no room for subjective interpretations. The counterpart to objectivism is subjectivism and one has to understand the importance of studying the details in each respondent under this philosophy, which is not suitable since we want to generalize our findings. Nevertheless, as we intend to do with our sample, it is possible to study variables and try to find relationships of the secondary data by categorizing it when analyzing the results (Saunders et al., 2012, pp. 130-132).

### 3.3 Research approach

Research approach concerns the relationship between theory and research in how to approach the research topic. Videlicet, is our research conducted in order to generate a new theory or is the research testing existing theories. Deductive theory is in line with testing existing theory, contributing to strengthen it or revising it through new findings. On the other hand, when using inductive theory, one observes a sample in order to identify patterns and draw conclusions as foundations for new theory (Bryman & Bell, 2011, p. 13).

Testing existing theories and findings that have emerged from previous research is thus naturally followed by a deductive approach. The theory will be tested through the hypotheses and either confirm or reject previous literature specifically on the Swedish wholesale industry’s WCM. The outlined theories are argued to be able to fill the research gap that we have identified. This will be tested with the second and third hypotheses, which test the variables size and if the company is listed or non-listed.

Our approach can also be linked to the variance theory described by Langley (1999, p. 692) in her paper examining strategies for theorizing from process. We believe that this theory is best applicable to our study as she explains it helps to discover phenomena that may explain the relationship between the dependent and independent variables. As mentioned before, there is a desire to find patterns in how our independent variable has an impact on the dependent variable, GPM. Furthermore, this theory focuses more on the broad trends in the relationship that excludes the details since interactions between social entities are not deeply analyzed (Langley, 1999, p. 193). This has carefully been selected with the contrary in mind, namely the process theory. The process theory is more applicable to the philosophical stances that have not been selected. Where she describes that interactions between entities are important in order to find patterns leading to an outcome, more related to investigate why a certain relationship exists (Langley, 1999, p. 692). As argued, we are looking for if the patterns exist and therefore we aim to discover a social phenomena rather than explaining it.


### 3.4 Research strategy

It follows quite naturally that our thesis is of quantitative strategy. Bryman & Bell (2011, p. 27) and Saunders et al. (2012, pp. 162-163) all agree upon that previous choices made in the research philosophy are in line with a quantitative research. The aim of this study is to measure quantitative numbers by using statistical techniques.

Quantitative studies are most common in previous literature regarding WCM and those we are most inspired by are the ones that are similar to Kroes & Manikas (2014). These papers included large samples and similar epistemological and ontological considerations. They investigated “if” the specific variables in the CCC can indicate certain impacts on firm profitability and quantitatively tested their theories on the subject. Much like them, our hypotheses are generated from the theoretical framework and will be tested by looking at the data collected and then statistically tested (Bryman & Bell, 2011, p. 150-151).

Our collected data comes from a secondary source. This makes quantitative strategy even more reasonable, since we have not collected the data ourselves and cannot direct the gathering method in line with our interpretations. If we were to perform a qualitative research on secondary data, the results might be limited. Our confidence in the chosen strategy is also in line with our ontological position of objectivism as possibilities for subjective interpretations are limited.

Further, like Langley (1999), Bryman & Bell explain quantitative research in the way we want to fulfill the purpose of our study (2011, p. 170). Reconnecting to the purpose, quantitative research strategy allows helping in the search for explanatory indicators of how different types of companies are affected by CCC and profitability. However, statistical test will more or less only conclude yes or no answers and not why it may differ. We may be able to find how the variables are affected and differ but not exactly answer the questions of *why*. Like previously mentioned, answering that needs more interpretation of the objects studied. However, our literature review will be used as a framework in trying to analyze the outcome and understand any possible patterns that we might find.

On the other hand, by using a qualitative research strategy that is designed on interviews, a more depth analysis of the companies can find patterns in how and why certain variables behave differently. Thorough analysis of strategic choices in trade credit, inventory and collection would allow for such analysis in an exploratory study (Saunders et al., 2012, p.171). This research strategy has been evaluated carefully in which we concluded that there is a risk of not retrieving the right specific information. For many companies, such information may be very important because it concerns strategic and competitive advantages and therefore, it may not be in their interest to disclose such information. Meanwhile, a qualitative research strategy would conflict with our research philosophy (Bryman & Bell, 2011, p. 27). Based on the evaluation in the previous paragraphs, qualitative study will thus allow for further interpretation and subjective analysis as companies differ, which is not in line with our purpose.
3.5 Research design

It is important for us to consider what time horizon to conduct our study on. Cross-sectional research design concerns the study of a sample in a single point in time, while longitudinal research design allows to study how a sample varies over different time periods (Bryman & Bell, 2011, pp. 53-58).

Cross-sectional and longitudinal research design, both allow for the examination of more than one case (company) when using quantitative, secondary data. In this study, the WCM of the Swedish wholesale industry will be studied through employing a cross-sectional design. Variables measuring the profitability and CCC will be compared to each other. Bryman & Bell (2011, p. 54) explain cross-sectional study to be appropriate, as it allows for detection of association patterns.

However, there are drawbacks related to the choice of cross-sectional design and we considered the option of a longitudinal design at first, since a longitudinal research design allows us to see how the sample varies over time periods. Saunders et al. (2012, p. 190) argue that it is best suited when you want to study changes and development on a set of observable data. Because WCM regards the management of short-term operations we wanted, like Kroes & Manikas (2014), to study our sample on quarterly basis. By adding lagged variables to the regression model when analyzing the data, we wanted to establish patterns explaining the cause and effect relationship (Bryman & Bell, 2011, p. 68). However, quarterly data is not accessible through the database that we are using because it only provides annual information. We also believe that it would not be accessible through a different database since the sample includes non-listed companies that do not have to report quarterly.

Nevertheless, we considered the option to examining our data sample over several years in time. However, this option was rejected, as we believed it would become difficult to manage information due to the size of the population. Furthermore, we would have to consider what to do with the companies that were not active throughout the entire period, as many become active during the measuring period it would interfere with the sample. Lastly, this option would not have the same affect as measuring on a quarterly basis, since it would be surveying more of the long-term perspective, rather than the short-term. One interesting aspect that we forfeit in this option is how the WCM may behave during different economic periods. But since it was not our primary goal with the survey, we decided to have the time horizon set accordingly with a cross-sectional design. That means a snapshot of the sample at one point in time. In this study, that snapshot is of the fiscal year 2012.

3.6 Ethics to secondary data

When using secondary data it is important to consider the original intention with the data. Saunders et al. are clear that when doing an archival study the researcher is using a product of day-to-day activities. It is information concerning the reality and not data gathered for research purposes (2012, pp. 178-179). Basically, our research will look at financial reports that are published due to legal reasons. Considering the fact that the
data is public, it is per se already approved by the participants that we have been given permission. Therefore, we avoid the risks of harming our participants in this study (Bryman & Bell, 2011, p. 128).

Concerning the ethical concept of informed consent, we are sure to not harm anybody because of the public nature of the information available (Bryman & Bell, 2011, p. 133). The same applies to invasion of privacy and deception, since we do not meet our participants and have not asked for their information (Bryman & Bell, 2011, p. 136).

However, we have to underline that we think it is important to give each participant the right to anonymity. As described in the research philosophy, we are interested to get a general picture of our sample. Therefore, it is not necessary to analyze individual companies. However, as we have discussed throughout the chapter, a qualitative strategy would imply these ethical aspects to be much more important because of the interactions with sample participants.

Nonetheless, when we use the secondary data we need to interpret it in a careful manner in order to keep our objective standpoints. In the practical methodological chapter we will carefully explain how our secondary data will be handled. By clarifying these assumptions we increase the transparency of our thesis, making selective choices and subjective interpretations to be limited (Saunders et al. 2012, p. 245). It is worth mentioning that outliers in the sample will be excluded in the statistical analysis, which can be considered as selective. However, in order to get significance in the result it is essential to consider such manipulation. More on the discussion regarding outliers and sample selection will be presented in later chapters.

There are disadvantages when using secondary data, as one can argue that the information lacks the specific numbers suitable for this research, where we cannot go beyond the numbers (Zikmund et al., 2011, p. 160). This has been mentioned previously and is a drawback to the use of secondary data and the choice of quantitative method. Obviously there are many advantages with secondary data as well. Zikmund et al. (2010, p. 160) explain that the usual processing of data can be avoided when using secondary data. Conducting data gathering yourself can be tricky, as you have to account for interferences in sample selection, misinterpretation of questionnaires and data processing that can have a large impact on the result. Additionally, there is a risk that you might inadvertently manipulate the results. Moreover, as the data is gathered for legal purposes, the trustworthiness of the data is high.

3.7 Literature source

The literature used has been carefully selected. The theoretical framework for our topic needs to be reliable as our hypotheses are built on these studies and it lays the foundation for our study. As highlighted in our philosophical stances, deductive theory is dependent on previous studies. In order to review the literature in a correct manner we have only been using peer-reviewed articles. Primarily, our sources have been retrieved from the Emerald and Business Source Premier (EBSCO) database that is provided through the Umeå University library.
Google Scholar has also been used for the literature search. Google Scholar provides information on how many times articles have been cited, which is an advantage in the way it gives an indication on how well written and useful the papers have been. The aim has always been to include well cited and peer reviewed papers. For definitions of basic economic concepts, sources, such as economic textbooks, have also been acceptable.

Words that have been used for the literature gathering have been “working capital”, “working capital management”, “profitability”, “CCC”, “Cash Conversion Cycle”, “wholesale industry” and “trade credit”.
4. Practical method

The practical method will highlight the methodological process in how this research was conducted. Starting by presenting the sample, measures and data collection method. Further, the statistical analyses methods will be presented and explained so that the result section can be understood.

4.1 Sample choice

The industry to analyze was based on previous research. Kroes & Manikas (2014, p. 49), who studied the manufacturing industry, suggest an industry elsewhere on the supply chain. Furthermore, Rehn (2012, p. 53) suggests a capital-intensive industry because of the inherent sensitivity to capital management. The choice came down to the retail- and wholesale industry. The latter was chosen as wholesale companies are operating on a mezzanine level on the supply chain. This means companies can affect the terms and conditions on every deal to a greater extent compared to when selling to customers, where they are usually predetermined under a store policy. Prices are usually set at a certain level, with the exception of price discriminated products, and customer are presented with the option of buying the product or not, with few chances of negotiating. In B2B, on the other hand, companies are more likely to have extensive negotiations with their counterparties because the relationship between seller and buyer are more probable to be on a long-term basis than the ad hoc choices of consumers. The negotiations make terms and agreements become less sluggishly adapted to its real market price in comparison to Business-to-Consumers, where companies might have to try different price levels over a longer period to find the optimal price (Dabholkar et al., 1994, p. 130).

Umeå University supplies access to the Business Retriever database, which holds information on Swedish firms. As the database includes both listed and non-listed firms this enabled for a relatively simple data gathering process, as this information might have been difficult to gather elsewhere. Furthermore, both authors are born and study in Sweden and therefore, choosing this market was close at hand.

In order to fulfill the purpose of the thesis, investigating how certain variables affect companies’ profitability, the sample needed to be scaled down even further. Firstly, the sample should only consist of companies that were active during the period analyzed because otherwise we would not have enough information to include them in our research. Some companies, although active per our definition, had a very low turnover. Since our interest in the wholesale industry was due to its capital intensity, we decided to set a lowest limit of revenue to exclude those of less interest to us.

Lastly the companies will be divided into different groups regarding size and whether it is listed or non-listed in order to analyze the effects these characteristics have, in accordance with our research question.
4.2 Measures

The choice of what metric to utilize in the study was also based on previous researches, which used the CCC or similar measures. For instance, Shin & Soenen (1998, p. 38) argued for the use of the Weighted CCC, which assigns weight to the different components of the CCC. However, they also described the difficulty for an outsider to acquire information regarding the break-up of inventories, making it hard to use this measure. Especially in a quantitative study where there simply is not enough time to acquire it from all firms, even if they would be willing to share that information. It would also result in a much more complicated, but more accurate, measure that would further put a strain on the allotted timeframe. Instead we chose to focus on the ordinary CCC and its components in a similar manner as Kroes & Manikas (2014).

When measuring profitability, previous researchers have used a wide array of measurements. Examples range from Tobin’s q (Kroes & Manikas, 2014), Gross Operating Income (Deloof, 2003), Return on Investment (Ebben & Johnson, 2011) and Return on Assets (Garcia-Teruel & Martinez-Solano, 2007).

Considerations regarding what metric to use have evolved around the nature of the population to be investigated. The first example presented, Tobin’s q, is a measure reflecting the “firm’s market value per dollar of replacement cost of assets.” (Kroes & Manikas, 2014, p. 39). Since a large part of our studied companies are not listed on any exchange, the absence of a marked-to-market valuation makes this an unreliable option. Of course, it is possible to retrieve the information needed to calculate this measure for non-listed companies. However, without an effectively priced market value, there is a risk of the estimate being based on book value or highly influenced by subjective opinions.

For ROI, there is a focus on net profit rather than gross profit. This means costs unrelated to operating activities are included as well, which is not directly attributable to the CCC. The same applies to Garcia-Teruel & Martinez-Solano’s (2007) measure of ROA, which is dependent on net profit. Furthermore, this metric is calculated by dividing it with operating assets. Since it is argued for that the wholesale industry is capital intensive, the focus should be more on an effective logistical network.

As argued above, gross profit is considered to be more suitable in connection to the CCC. Deloof (2003) who used Gross Operating Income focuses on this measure, however, he also included the assets in his calculations by adding depreciation and amortization and dividing it with the operating assets (Deloof, 2003, p 577). To continue the argumentation regarding assets, the wholesale industry is focusing on trading products rather than constructing them, which is heavily weighted towards current assets. This is also a reason why the focus should be on turnover as it measures how well a company is performing in the period of interest. Essentially, non-operational aspects are important for a company, however, this is not the main focus in the construct of WCM. The metrics and their definitions can be found in table 1.
### Table 2. Definition of measures

<table>
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<th>Metric</th>
<th>Calculation</th>
<th>Definition</th>
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| Days Sales Outstanding (DSO) | \[
\frac{\text{Accounts receivables}}{\text{COGS}} \times \# \text{ of days in period}
\] | The average number of days required to collect revenue after a sale is made |
| Days Inventory Outstanding (DIO) | \[
\frac{\text{Inventory}}{\text{COGS}} \times \# \text{ of days in period}
\] | The average number of days that inventory is held before it is sold. |
| Days Payable Outstanding (DPO) | \[
\frac{\text{Accounts payables}}{\text{COGS}} \times \# \text{ of days in period}
\] | The average number of days a company takes to pay creditors. |
| Cash Conversion Cycle (CCC) | \[
\frac{\text{Days Sales Outstanding} + \text{Days Inventory Outstanding} - \text{Days Payables Outstanding}}{\text{Days Sales Outstanding}}
\] | The duration (in Days) required converting cash invested in supplies into cash collected from customers. |
| Gross Profit Margin (GPM) | \[
\frac{\text{Revenue} - \text{Cost of goods Sold}}{\text{Revenue}}
\] | Percentage of revenue remaining after costs directly attributed to production of goods sold. |

4.3 Data collection

The data will be collected from the Business Retriever database, which holds organizational and financial information of Swedish companies. While the data is secondary, we trust it to be accurate. Since the sample consists of accounting information, the values are unlikely to be misleading as limited companies are bound to follow Swedish law when it comes to their accounting practices (SFS 1990:1078). Companies under a certain size are excluded, which further strengthens our trust in the data. It is mandatory for companies over certain size to have an auditor reviewing the books. For all companies remaining in the sample this applies (SFS 2005:551).

A criticism that can be made against the data regards the SNI code definitions. It seems unreasonable that some companies included in the population should be classified as wholesale companies. For instance, one participant, a hairdresser in the northern part of Sweden, seems unlikely to handle any large amounts of logistics. However, as argued in the presentation of the wholesale industry in Sweden, the definition of wholesale is not very clear. Nevertheless, as this is secondary data and we had no chance of collecting similar data ourselves, we were forced to assume that the Business Retriever definitions are correct.
After accepting the assumptions made regarding our secondary data a criterion sampling method (Sandelowski, 2000, p. 248) was used. This was essential because not all firms supplied sufficient information, which could be caused by several factors, such as companies not being active or becoming inactive during the entire period. 1) The company is a limited company. 2) The company has a SNI code of 46.xxx in either its main- or sub class classification, where the number 46 are companies belonging to the wholesale (“Partihandel”) and the x:s represent any number from the subgroupings of the wholesale companies. A full list of SNI codes included can be found in Appendix 1. 3) All companies must have reported numbers on Turnover (2012), EBIT (2012), Accounts Receivable (2011-2012), Accounts Payable (2011-2012) and Inventory (2011-2012), with the definition being a “-“ meaning insufficient reporting.

The first two classifications resulted in a total of 40,682 companies. Due to the size of the data we divided it in smaller groups because the Excel filter function is unable to handle too large quantities. Grouping the companies based on their SNI sub code, so that no workbook exceeded a quantity of 6,000 objects, did this separation. A detailed table of this grouping can be found in the appendix (Appendix 1). The data consists of several variables from firms’ financial – and organizational information from the year 2012. For the Accounts Receivable, Accounts Payable and Inventory variables numbers from year 2011 was also included in order to calculate an average to be used when calculating DSO, DPO and DIO. As not all firms’ financial reports were presented at the time of writing this paper, the year 2013 was not selected as the year to be investigated. A full overview of the selected variables can also be found in the appendix (Appendix 2).

With all data in Excel, we discarded the companies not fulfilling the third criteria. This was partly done to exclude companies with insufficient reporting, as well as companies that started or terminated their operations during this period. Once this selection was done for each workbook, the objects were gathered in a new all-encompassing workbook. Because some of the companies are categorized under more than one SNI code in Business Retriever, resulting in some companies occurring more than once, all duplicates were removed. This left us with a sample of 1,485 firms.

With all companies gathered into one list, they were divided into different size groups. This categorization was based on the European Commission's definitions, which can be found in table 2, where the determining factors are number of employees and either turnover or balance sheet total. In this case only the turnover will be used since the wholesale market is very capital intensive, meaning high levels of revenue per employee and that companies are less dependent on balance sheet assets than in other industries. The companies’ turnover is based on the 2012 value converted to Euro, using the Google Finance exchange rate (www.google.com/finance/converter). All companies that were ranked as size Micro were excluded them from the list. This left us with companies defined as either Small or Medium, with those above the medium level classified as Large.
Table 3. Size definitions

<table>
<thead>
<tr>
<th>Company category</th>
<th>Employees</th>
<th>Turnover</th>
<th>Total Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium-sized</td>
<td>&lt; 250</td>
<td>≤ € 50 m</td>
<td>≤ € 43 m</td>
</tr>
<tr>
<td>Small</td>
<td>&lt; 50</td>
<td>≤ € 10 m</td>
<td>≤ € 10 m</td>
</tr>
<tr>
<td>Micro</td>
<td>&lt; 10</td>
<td>≤ € 2 m</td>
<td>≤ € 2 m</td>
</tr>
</tbody>
</table>

For the ownership structure division, non-listed companies that had an organization number in the column Parent company org. nr (“Koncernmoder org. nr”) were denoted as Group companies and sequentially excluded from the list. These companies were excluded because of the complex cross-shareholdings that exists in group companies. Group companies work more as a financial intermediary to its subsidiary companies, providing necessary financial support because of majority interests exists. A company group is described as an active shareholder that is controlling his portfolio interested in influencing his interests (Rommens et al., 2012, p. 818). We believe that these companies will not reflect the purpose of our study. It is also because of simplicity we chose to exclude them because it requires to understand the different cross shareholdings when analyzing how short-term finances are supplied. Basically, these companies get financial aid in different ways than what we would like to investigate. However, listed companies were not excluded regardless of them belonging to a group or not. Partly because this would leave too few companies in the sample and partly because we believe similar manipulations of the owners are less present when monitored by a market.

4.4 Data calculation

With most companies not including all variables of interest in the reported information acquired from Business Retriever, we needed to calculate them ourselves. Table 3 provides information of how these variables were calculated. The definitions of which financial information to be used and their translation can be found in Appendix 2.
Table 4. Calculations defined in Swedish

<table>
<thead>
<tr>
<th>Variable</th>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSO</td>
<td>$\frac{\text{Medel av S:a kortfristiga fordringar}}{\text{COGS}} \times 365$</td>
</tr>
<tr>
<td>DIO</td>
<td>$\frac{\text{Medel av S:a varulager}}{\text{COGS}} \times 365$</td>
</tr>
<tr>
<td>DPO</td>
<td>$\frac{\text{Medel av S:a kortfristiga skulder}}{\text{COGS}} \times 365$</td>
</tr>
<tr>
<td>COGS</td>
<td>$\text{Omsättning} - \left( \text{EBIT} + \text{Administrationskostnader} + \text{Personalkostnader} + \text{Avskrivningar} + \text{Övriga rörelsekostnader} + \text{försäljningskostnader} \right)$</td>
</tr>
<tr>
<td>Gross Profit Margin (%)</td>
<td>$\frac{\text{Omsättning} - \text{COGS}}{\text{Omsättning}}$</td>
</tr>
<tr>
<td>CCC</td>
<td>$\frac{\text{DSO} + \text{DIO} - \text{DIO}}{\text{DSO}}$</td>
</tr>
</tbody>
</table>

4.4.1 Cost of Goods Sold

One essential variable in WCM is Cost of Goods Sold (COGS). In the wholesale industry, where the main earnings come from companies’ ability to sell products for more than they purchased it for, it is directly related to decisions regarding inventory level. As part of the calculation of DSO, DPO and DIO, as well as the Gross Profit Margin, COGS is also very central in this thesis. Since most of the non-listed companies do not report this number it had to be separately calculated.

The large amount of companies in the sample made it impossible to retrieve information from each company’s annual report or website. A less time-consuming method had to be chosen. Since other reports have not listed how they dealt with this issue (assumedly because they had access to this number, as most reports are on listed companies), another way to estimate COGS was chosen. By adding all costs not related to production to the company’s EBIT we concluded an estimate of the company’s Gross Profit. This was then subtracted from the total revenue to estimate the COGS. In order to keep the effects of this approximation equal for all companies, this method was applied to all companies, even those who have reported their true COGS. To assess how well the estimates reflected the true values we made a comparison between these numbers and our calculated COGS to get a benchmark. Overall we found an overestimate of the total amount of around 10%. For each individual company the overestimate where 37.4%. However, this comparison was highly affected by extreme values in one company. When excluding this company, the individual company overestimate dropped to 14%. 
However, as the COGS are part of the calculation for both the dependent and the independent variable the effects are intertwined. As an increase in COGS leads to a lower GPM and a lower CCC, the effects are working in the same direction for both measures. The reverse is also true, as if the COGS are underestimated for a company there will be an increase in both its GPM and CCC. Although, this does not account for any deviations fully as in the GPM calculation the COGS are decreasing/increasing the value by being subtracted, while in the CCC all components will decrease/increase by being divided by a higher/lower number.

Since we do not know which companies are affected, and to what extent, from over- and underestimates, we have chosen to make the assumption that it is evenly spread out between the companies. However, it is important to keep this in mind when reviewing the results.

### 4.5 Data analysis

After finalizing the selection of our data, we will perform different statistical analyses in SPSS to test our hypothesis. Firstly we will present descriptive statistics, where we will analyze the distribution of the data to verify if it fits to the assumptions made in the subsequent regression analysis. Then we will present the results of our different statistical analyses.

#### 4.5.1 Descriptive statistics

Firstly, a detailed overview of the sample will be presented. Then, the first analysis performed will be a univariate analysis, looking at the distribution, the central tendency and dispersion of our sample. This is done to analyze whether or not the sample follows the assumption of a Gaussian distribution, by examining the mean, median, standard deviation and range. Further investigations will focus on the shape of the distribution by looking at levels of skewness and kurtosis. Any deviations from normality will be dealt with accordingly and argued for in the empirical chapter.

Secondly, an analysis of the standardized residuals variance will be performed. They will be plotted against their expected values in a scatter, to determine if there is evidence of heteroskedasticity in the data. In cross-sectional studies, heteroskedasticity occurs more often when standard deviations of a variable are not constant. An underlying assumption of the regression model used is that estimated residuals are homogenetic and when it is not, there could be a substantial loss of efficiency (Breusch & Pagan, 1979, p. 1287). There are many different tests one can perform in order to test the presence of heteroskedasticity, such as Brown-Forsythe test (Brown & Forsythe, 1974), Breusch-Pagan test (Breusch & Pagan, 1979) or White test (White, 1980).

However, Hayes & Cai argue that “…relatively mild heteroskedasticity is not going to produce profound problems and is unlikely to swing the outcome of an analysis drastically one way or the other.” (2007, p. 710), so these tests will only be performed if there is apparent risk for the sample being heteroskedastic. Instead, we will begin with what they describe as an “‘eyeball’” test (Hayes & Cai, 2007, p. 711), where the
residuals from our model are plotted against the dependent and independent variable, and from that determine the need for any further testing.

4.5.2 Correlation test

In order to test the first hypothesis, the relationship between the CCC and GPM, a correlation test will be conducted. To test the degree of which the variables are dependent on each other the Pearson product-moment correlation coefficient (Pearson’s r) will be used. It is computed by the following formula (Moore, et al., 2009, p. 111):

$$ r = \frac{1}{(n-1)} \sum \frac{(X-\mu_X)(Y-\mu_Y)}{\sigma_X\sigma_Y} $$

**Figure 2.** Pearson product-moment correlation coefficient

This is the most commonly used measure of correlation for testing parametric data, as opposed to Spearman’s Rho or Kendall’s Tau, which could be better suited for nonparametric analyses (Conover & Iman, 1981, p. 124). Pearson’s r has been the method used by other researchers in the area, such as Deloof (2003), Lazaridis & Tryfonidis (2006) and Rehn (2012) etc., and was therefore seen as the most suitable.

4.3.1 Regression analysis

The testing of the other hypotheses, H 2a, H 2b, H 3a and H 3b, an Ordinary Least Squares (OLS) – regression analysis will be performed. This analysis provides an estimate for predicting the value of y for a given value of x (Moore, et al., 2009, p. 119). It fits a regression line to the analyzed sample by minimizing the squared value of the distance between the measurements and the line.

OLS regression is one of the most straightforward ways of estimating parameters as it is built on a relatively easy concept. It is one of the most common methods for analyzing data, as it is relatively simple to control for the inherent assumptions of the model. We chose to use this technique since it suited our level of statistical competence and that it was used by several of the other researchers (e.g. Deloof, 2003; Rehn, 2012).

The formula for the OLS regression model is as follows:

$$ Y = \beta_0 + \beta_1 \times CCC + \varepsilon $$

**Figure 3.** OLS Regression model

In order to distinguish the effects from the characteristics that we want to investigate, dummy variables will be introduced for each characteristic. The dummies will take the value 1, if the company matches the characteristic of the dummy.
Table 5. List of dummy variables

When including these dummy variables, the formula will estimate coefficients for each of the classification groups of companies. This will help testing the hypotheses H 2a and H 3a. The dummies “dLarge” and “dListed” will be omitted from the model to avoid, and fulfill the assumption regarding, perfect multicollinearity (Lazaridis & Tryfonidis, 2006, p. 30). The regression model is formulated in Figure 4.

\[ Y = \beta_0 + \beta_1 \times CCC + \beta_2 \times dSmall + \beta_3 \times dMedium \\
+ \beta_4 \times dnonListed + \epsilon \]

Figure 4. Regression model including dummy variables

To test the remaining hypotheses, H 2b and H 3b, the CCC measure will be multiplied with the dummy coefficients. This will estimate whether or not there is a difference in slope on the regression line between companies of certain characteristic. This indicates if there is a varying degree of change in the dependent variable, GPM, from an increase/decrease in the independent variable, CCC. The regression model is formulated in Figure 5.

\[ Y = \beta_0 + \beta_1 \times CCC + \beta_2 \times dSmall + \beta_3 \times dMedium \\
+ \beta_4 \times dnonListed + \beta_5 \times (dSmall \times CCC) \\
+ \beta_6 \times (dMedium \times CCC) + \beta_7 \times (dnonListed \times CCC) + \epsilon \]

Figure 5. Regression model including cross variables
5. Empirical data

This chapter gives account for the empirical data by presenting descriptive statistics of the sample. A univariate analysis is performed, as well as a test for heteroskedasticity. Methods of dealing with potential outliers will also be discussed. The chapter ends with a description of the final sample.

5.1 Sample description

In the total sample we had observations of 1,485 companies. Of these, 1,271 were classified as small sized, 179 as medium and 35 as large. This is a distribution of 85.6%, 12.1 % and 2.4 %, respectively. The division between listed and non-listed was 42 companies listed on a stock exchange, while 1,443 were not, with a percentage distribution of 97.2 % of non-listed companies versus 2.8 % listed.

<table>
<thead>
<tr>
<th>Group</th>
<th>Nr. of companies</th>
<th>Tot. sample % of group</th>
<th>1,485 Subgroup</th>
<th>Nr. of companies</th>
<th>% of subgroup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>1,271</td>
<td>85.59%</td>
<td>Non-listed 1,260</td>
<td>99.10%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Listed 11</td>
<td>0.90%</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>179</td>
<td>12.05%</td>
<td>Non-listed 169</td>
<td>94.40%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Listed 10</td>
<td>5.60%</td>
<td></td>
</tr>
<tr>
<td>Large</td>
<td>35</td>
<td>2.36%</td>
<td>Non-listed 14</td>
<td>40.00%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Listed 21</td>
<td>60.00%</td>
<td></td>
</tr>
<tr>
<td>Non-listed</td>
<td>1,443</td>
<td>97.17%</td>
<td>Small 1,260</td>
<td>87.30%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Medium 169</td>
<td>11.70%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Large 14</td>
<td>1.00%</td>
<td></td>
</tr>
<tr>
<td>Listed</td>
<td>42</td>
<td>2.83%</td>
<td>Small 11</td>
<td>26.20%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Medium 10</td>
<td>23.80%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Large 21</td>
<td>50.00%</td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Sample distribution

When clustering the size groups together we found that, out of the 1,271 small enterprises 11 companies were not listed on any exchange (99.1 %) and for medium sized companies the numbers were only 169 firms. Though, this corresponded to a slight percentage decrease to 94.4 %. Large sized firms had an opposite distribution with the majority of the companies being listed. The numbers were 21 (60 %) listed versus 14 (40 %) that were not listed.

Among the 42 listed companies half of them were large, with the others being fairly evenly divided between small (26.2 %) and medium (23.8 %) sized. The non-listed companies were more heavily weighted towards smaller firms with 1,260 of the 1,443
companies (87.3 %) in the smallest size group. 169 (11.7 %) of the companies were ranked as medium size and the remaining 11 as large (1 %).

5.2 Descriptive statistics

The sample was analyzed in a univariate analysis in order to see how the sample distribution behaved. The output of this analysis can be found in Figure 6. This is of importance in order to fulfill the assumption of normal distribution in our subsequent bivariate analysis.

For the dependent variable, there is a very small difference between the mean and the median, which indicates that there is a relatively small influence of any outliers in the distribution. Also, skewness of just over one is reasonably an indicator of normality, which is further supported by the seemingly Gaussian appearance of the histogram of the GPM variable. The kurtosis is also at a relatively reasonable level as it is close to that of a normal distribution (Đorić et al., 2007, p. 485). The values of the dependent variable do not have any extreme measures falling longer outside than the logical definition of the term would allow.

However, while looking at the independent variable, CCC, there are many indicators of how the sample is not normally distributed. The difference between the mean number and the median is large. The median, which is not influenced by any outlier effects, has a value of 31.78 while the mean is around negative 48.38, a difference exceeding the interquartile range (IQR) of 67.65. This gives indication of that there are outliers in the sample, which is also clearly depicted in the histogram of the CCC variable. Furthermore, the maximum and minimum numbers in the sample are far outside any reasonable levels since CCC constitutes short-term values, not exceeding 365 days. The strongest evidence of this is the large minimum value that gravely falls below the 1st quartile. This, together with the high standard deviation, indicates that there are extreme values in the sample. Also, the statistics display relevant negative skewness and, in addition, a high level of kurtosis.

All these points give indications on a fairly normal distribution of the dependent variable. However, the independent variable is affected by extreme values that need to be taken under consideration. Details from the analysis can be found in Figure 6.
After reviewing the descriptive statistics of our sample, we concluded that the distribution in the independent variable was not normal in its structure. As argued above, the most reasonable explanation is the existence of outliers. To decide in what manner to handle these extreme observations we performed a five-number summary (Moore et al., 2009, p. 36) to identify the best method.

Two relatively easy methods for dealing with outliers are winsorizing and truncation. The first method involves rounding up or down all values outside of a decided interval, e.g. the 5:th and 95:th percentile, to equal the border value. This method is normally considered to be the more effective solution for normally distributed samples (Lev & Sunder, 1979, pp. 207-208). However, they also argue that a trimming method, such as truncation, is more effective when the distribution is longtailed. As the difference between the minimum value and the 1:st quartile far exceeded the IQR there is strong evidence of a longtailed distribution.
Furthermore, Rogelberg (2008, p. 307) explains that when researchers have potent arguments against some values being excluded, trimming is an acceptable method of handling them. Since the distribution is not Gaussian, we consider truncation to be the best option for improving the robustness of our model.

Deciding on what level of extreme values will be removed we used the 1.5 X IQR rule, which is considered to be a common rule for detecting outliers (Moore et al., 2009, p. 45). The method consists of subtracting or adding 1.5 times the IQR to the 1st and 3rd quartile, respectively. All values above or below these limits are considered outliers.

5.4 Heteroskedasticity

The test of heteroskedasticity is performed to detect any variance in the residuals of the regression model. As was argued in the practical method chapter, we began with a simple, optical, test by plotting the residuals of the regression model against the dependent and independent variable and fitted a linear line to the data. A slope in the fitted line indicates the presence of heteroskedasticity. The results of these tests can be found in Figures 7 and 8.

![Figure 7. Scatterplot of residuals for the dependent variable (SPSS)](image)
There seems to be no variance in the residuals for either the dependent or the independent variable. With basis in the statement by Hayes & Cai (2007, p. 710), confirming that low values of heteroskedasticity, which is also supported by Fox (cited in Rehn, 2012, p. 50), and the near-zero slopes of the fitting lines, we conclude that the data is homoscedastic. Our model should not violate the homogenetic assumption and there is no need for further testing.

5.5 Final sample description

After removing the outliers we got a clear improvement in the distribution of our sample. At an eye’s glance, the histogram of the independent variable has clearly reached a more bell-shaped stature. The esthetic improvement is also backed by clear improvement in the statistics provided in Figure 9. For instance, the skewness has increased from -38.49 to 0.548. The mean has moved much closer to the median (29.7) by increasing to 36.8. The kurtosis level has moved from a highly leptokurtic distribution to a moderate platykurtic one.

Although the sample size decreased by 86 companies, the minimum and maximum values changed dramatically. Also, there is a similar effect in the standard deviation. After the removal of outliers it composes around 20% of the range, which is much closer to what would be found in a standard normal distribution, compared to the previous 2.55%.
The exclusion of outliers also had a positive effect on the dependent variable distribution. The skewness level, although previously not critical, has moved closer to zero (0.73) and the maximum value dropped to 0.82.

**Figure 9.** Descriptive statistics without outliers (SPSS)

With these improvements the total sample size dropped to a number of 1,399 companies. Thus 86 companies were removed in accordance with the \(1.5 \times IQR\) rule. The removal of observations raises questions of whether or not there will be any representable changes to the dispersion of observations. After reviewing the excluded companies we found that they reflect the dispersion of the original sample reasonably well. Out of these 86 companies, 77 were small, 7 medium and 2 large. The division between the excluded companies translates into 89.5% small, 8.1% medium and 2.3% large companies compared to the original sample dispersion levels of 85.3%, 12.3% and 2.4%, respectively. Similarly, 95.3% of the removed companies were non-listed, which is very close to the 97.3% of the original sample.

Similar patterns can be found when analyzing the dispersion in the sub groups. The biggest difference was in the sub division of large companies that were removed. Out of those large companies, 50% were listed, while they represented 60.6% of all large companies in the original sample. However, since there were only two companies from this group removed, this was as representable as possible.
6. Results

This section will present the bivariate analysis performed on the sample. The results will be used to test the hypotheses stated in chapter 2. The chapter will work as frame of reference when analyzing the results in the next chapter.

6.1 Correlation analysis

The first hypothesis regards the relationship between CCC and firm profitability, measured in days compared to GPM.

- **H 1: There is a negative correlation between the CCC and GPM**

In order to test this we performed a Pearson correlation analysis of the variables. Presented in table 7 is the output of the analysis. In the output we are primarily focusing on the variables CCC and GPM to test this relationship. However, the CCC components are included to enable for a more nuanced discussion.

![Table 8. Output of Pearson's correlation (SPSS)](image-url)
The correlation analysis shows a very strong significant correlation among all tested variables with GPM at the 1% significance level. For the first component of the CCC, DSO, we found a surprisingly positive correlation of 44.3%. Further, DIO shows an equally significant, but slightly weaker, positive correlation of 20.7%. In fact, the only component variable that is in line with our assumptions is the DPO, which has a positive correlation of 46.7%.

Nevertheless, the essential finding in this correlation analysis is the relationship between CCC and GPM. Surprisingly, the results show a positive correlation between the variables, which is not in line with our theoretical assumption. Therefore we have to accept the Null hypothesis and reject the alternative hypothesis.

6.2 Regression analysis

In order to test how size and whether or not a company is listed have an impact on the relationship between profitability and WCM, we conducted an OLS regression analysis with dummy variables to indicate any differences derived from these characteristics. Further variables were introduced to display differences in strength of changes within each category. The regression model is expressed in Figure 10.

Figure 10. Regression model

This model was used to test the remaining hypotheses, found below. The results of the regression analysis are listed in Table 8.

- H 2a: GPM in larger firms is higher for each level of the CCC
- H 2b: GPM in smaller firms is more affected by changes in the CCC
- H 3a: GPM in listed firms is higher for each level of the CCC
- H 3b: GPM in non-listed firms is more affected by changes in CCC

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.241(^a)</td>
<td>.058</td>
<td>.053</td>
<td>.13269</td>
</tr>
</tbody>
</table>

\(^a\) Predictors: (Constant), CCCxeListat, dMedium, dListat,
CCCxMedium, dSmall, CCC, CCCxSmall
The first notation is that the coefficient of determination (R Square) is very low, with an explanation factor of 5.8%. This implies that the explanatory power of the model is rather low, as the sum of squares of the regression model is much lower than the total sum of squares.

In the output, the Constant named CCC is representable for the large listed companies of our sample. These companies are shown to not be particularly affecting GPM in any way. However, these values are far from statistically significant. In a matter of fact, only the dummies for small and non-listed companies show highly significant results. To be able to correct for these weak results we proceeded to perform a step-by-step analysis. For each iteration we removed the supplemental coefficient that had the weakest significance. The coefficients removed meant that we could not find significant evidence for hypothesis H 3b and we had to reject it. In figure 11 the final regression model can be found.

\[ Y = \beta_0 + \beta_1 \times CCC + \beta_2 \times dSmall + \beta_3 \times dnonListed + \beta_4 \times (CCC \times Small) + \epsilon \]

**Figure 11.** Final regression model
The regression with the remaining coefficients showed significant results and can be found in Table 9. They indicate that, in accordance with the correlation analysis a higher CCC has a positive relationship with profitability. Also, that smaller companies have less pressure on their WCM decisions since for each given level of CCC they will achieve a higher level in profitability. This leads to the rejection of our second alternative hypothesis since we are forced to accept the $H_0 \, 2a$ hypothesis. Furthermore, hypothesis $H \, 2b$ was also rejected since we found significant evidence that there was no, or minimal, change in slope between the regression line for different sized companies.

When comparing the listed firms to the non-listed firms, we also found a decrease in CCC to negatively affect the profitability of the firm. However, non-listed companies have to struggle harder to achieve profitability since their regression indicates a lower GPM at the same level of CCC. Consequently, there is evidence that support the alternative hypothesis and we therefore accept the $H \, 3a$ hypothesis.

### Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.239a</td>
<td>.057</td>
<td>.054</td>
<td>.13266</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), CCCxSmall, dejListat, dMedium, CCC, dSmall

### ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1393</td>
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<td>26,003</td>
<td>1398</td>
<td></td>
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</table>

a. Dependent Variable: GPM

b. Predictors: (Constant), CCCxSmall, dejListat, dMedium, CCC, dSmall

### Coefficients

<table>
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<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
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<td>B</td>
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<td>.000</td>
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a. Dependent Variable: GPM

**Table 10.** Output of regression, omitting cross-variables
7. Analysis & Goodness of fit

In this chapter we will analyze the outcome of the study in regards to each respective hypothesis. Discussions and reasoning regarding the implications of the rejection or acceptance of hypotheses will be presented. The explanatory power of the model will be evaluated.

7.1 Analysis

The purpose of this study has been to investigate whether the relationship between WCM and profitability varies in effect depending on different characteristics in Swedish wholesale companies. This purpose was formulated in the following research question:

- How do different company characteristics affect the relationship between Working Capital Management and profitability in the Swedish wholesale industry?

The most natural relationship between the CCC and profitability would be a negative one. This is based on the assumption that having money is better than not having it. Consider the different components of CCC:

**DSO** – This measure increases when the company has earned money, not yet collected. It seems pretty straightforward that collecting money would increase profitability.

**DPO** – This measure increases, as the company has to pay money, not yet paid. Ceteris paribus, keeping this money would be better than paying the debt.

**DIO** – This measure increases as the company increase inventory holdings, which means tying money in capital and would preferably be avoided.

These assumptions have been confirmed by many studies that have found a negative relationship between the CCC and profitability. However, it is not always this straightforward, as for instance, not holding inventory could mean missing out on sales opportunities. Further, just as you wish to collect money, your customers are willing to wait with their payables. The same applies when your supplier demands you to pay your debts.

This makes it rather more complex, which concerns how you will optimize your level of CCC. For instance, this was presented by Ng et al. (1999, p. 126) and Long et al. (1993, p. 118) who argued for how an increase in DSO could affect the profitability positively. Because your customers might be more lenient to purchase when they have time to assess the quality of your product.

It also highlights the fact that the CCC is far from the only factor that drives profitability. It is with these basic assumptions in mind that we have performed the analysis of our results.
7.1.1 First hypothesis

When testing our first hypothesis we wanted to investigate whether or not an efficient Working Capital Management could be related to profitability in general. The hypotheses were stated accordingly:

- \( H_0 \): There is no negative correlation between the CCC and GPM
- \( H_1 \): There is a negative correlation between the CCC and GPM

After conducting our correlation analysis we found a positive relationship between the CCC and profitability. This meant we had to reject our first hypothesis, \( H_1 \). Instead, the result confirms a positive correlation at a very strong significance level. This was quite contrary to the results of previous researchers, who mostly found there to be a negative correlation. There were examples of positive correlations between a profitability measure and the CCC or some of its components, but none had a positive correlation as strong as in our results. The results indicated a correlation of 22 % statistically significant at the 1% confidence level, whereas Padachi (2006, p. 52) found a positive correlation of only 3.9 % when investigating the CCC’s relationship with Gross Operating Income. However, he also found a strong, negative correlation between the CCC and Asset Turnover of -23.9 %. Deloof (2003, p. 579) found a positive correlation between number of days accounts payable and profitability, although he also concluded a strong negative relationship between CCC and Gross Operating Income of -18.9%. Further, Rehn (2012, p. 38) proved a negative relationship of -22.9% between CCC and Gross operating profit.

While the previous results indicated that the CCC should correlate negatively to profitability, there are arguments in support of a long CCC in terms of days. As was discussed by Long et al. (1993) and Ng, et al. (1993, p. 118), extending trade credit could lead to an increase in sales volume. They mentioned trade credit from a marketing perspective, where the customers can postpone their payments in order to have time to evaluate the qualities of the products. Assuming that this is an effective method for increasing sales, this would mean profitability increases simultaneously as the DSO. However, one can also argue how sound an economy will be if companies are applying such strategies causing insolvency in a market and how that can be related to a company’s risk taking. The consequences of building up debt could be dramatic if the company starts to struggle. Basically, the use of trade credit should be applied in a sound manner.

Another potential influencing factor for our positive correlation can be explained by the STF (2011) who emphasizes on the fact that the industry is highly impacted on the inventory management, characterized by large quantities and the benefits of economies of scale. Many firms might hold these high levels of inventory to be able to respond to changes in demand or to be able to satisfy the increased variation demanded by customers (Chen, et al., 2007, p. 431). This could explain why we find a positive correlation between DIO and profitability, as the benefits from not having capital tied up in inventory is overshadowed by the benefits of demand adaptability. This notion is
further supported by Hendricks & Singhal’s (2003, p. 520) findings that not being able to meet demand have a direct connection to decreases in shareholder value.

An additional aspect to this is connected to both DSO and DIO. Emery (1984, p. 272) reasons that one potential way of dealing with uncertainty in demand is through the use of trade credit. By allowing an extended period of trade credit companies can ensure that future income remains at a certain level, even though there is a drop in demand. The effects of this, however, could be better measured with a longitudinal study.

Another use of trade credit employed by larger firms is of a more unethical nature. As was demonstrated by Mottner & Smith (2009), suppliers are abused by Walmart’s dominating position. One way Walmart uses to exercise this is to use trade credit moving the inventory holding burden to the suppliers. Also, that Walmart is abusing the worker’s rights can hint why they are unethical to their suppliers. This can be related to their profit maximization. It is reasonable to believe this, since STF (2011, p. 7) underline the importance of interconnectivity advantages in the industry. However, in Sweden this does not seem to be a present problem as smaller firms are using trade credit to their benefit. We believe that the relationship between a large actor and a smaller is fair and ethical since the results indicate benefits. This may be to the reason that the business climate in Sweden is different than in the United States, where unions to a lesser extent influence companies.

The only component of the CCC that is in line with our hypothesis formulation is the DPO, which had a positive correlation of 46.7 %. However, this was also somewhat surprising as the DPO is the most prominent example of where the theoretical basis has not held true in previous research. For instance, Deloof’s (2003, p. 579) findings mentioned above. However, these findings could also be related to the above discussions of our DSO and DIO results. If companies are increasing these components, for various reasons, one way of financing it could be by maximizing DPO.

7.1.2 Second hypotheses

As related to our stated research question, we are interested to see whether different sized companies are different in their WCM and how it affects profitability. The first hypothesis regarding the effects company size has on the relationship between the CCC and profitability was intended to test our assumption that larger firms are more efficient in their WCM. The hypotheses were stated as:

• $H_0 2a$: GPM in larger firms is not higher for each level of the CCC

• $H 2a$: GPM in larger firms is higher for each level of the CCC

Since the results were insignificant, we had to improve the robustness of our model by removing the dummy variable for medium sized companies. This bundled them together with large companies and thereafter increase the significant of the results. Contrary to our expectations, the results showed that smaller firms, in fact, outperformed larger companies with a 8.9% higher GPM for any given level of CCC, leading us to reject this hypothesis.
When comparing different sized companies, the main arguments we have presented in the theoretical framework have focused on financing decisions. As smaller firms have a harder time securing external financing, due to asymmetrical information (Bernanke, et al., 1994, p. 14) we theorized that this would impact their trade credit decisions that, in turn, would influence their WCM. Ebben & Johnson (2011, p. 381) argue that lenders are less willing to loan money to smaller firms, as the risks are higher and they therefore require a higher interest rate.

In contradiction of our stated hypothesis, the results indicated that small firms are actually superior in their WCM. One aspect that needs to be considered in relation to this is that the results also gave evidence of a positive correlation between the CCC and GPM. As it is unreasonable to think that the optimal way of increasing profitability is through, for instance, not collecting on sales or building up large inventory holdings, it is argued that the correlation test rather indicates the benefits of other activities. Price discrimination, sales-increasing strategies and adaptability to demand seems likely to be better drivers of profitability than a low CCC. When considering this, it seems smaller firms are better fitted for usage of such strategies.

As argued by Ng, et al. (1999, p. 1115) and Long, et al. (1993, p. 118), one of these strategies could be giving trade credit as a mean of assuring the buyer of product quality. If the seller is a small, lesser known firm, the buyer may want an extended credit period to do so. This would mean that the buyer would not exercise the option of paying for the product within the timeframe when the product is offered at a discount. For large firms, that are well known, their reputational capital could then act as a disadvantage. The buyer would not feel the need to question the quality of the product and pay for it faster, at the discounted price and the larger firm would miss out on the earnings a smaller company would enjoy (Smith, 1987, pp. 870-871).

Another argument in support of a longer CCC being beneficial for profitability is the monetary policies applied during 2012. With central banks keeping interest rates low to stimulate markets, the relative importance of the financial aspect might have been low during this period. If all firms, regardless of size, can find affordable financing, the importance of it would be smaller in comparison to increasing sales. Smaller firms, who normally are put under pressure when it comes to financing (Moss & Stine, 1993, p. 25), could then benefit from already applying such strategies. Alternatively, they might be able to adapt quicker, as they are usually as exposed to bureaucratic hindrances as larger firms. Although, this would be more suitable to investigate by applying a longitudinal research design but as argued, it is outside the scope of this thesis.

Smaller firms could also benefit from the increased demand of product variety presented by Chen, et al. (2007, p. 431). Once again, if they are less thwarted by “red tape”, they can react more quickly to changes in demand and thereby secure earnings long before more sluggish, large firms have reacted to the changes. This could then counteract their disadvantage at not being able to apply scale economies to the same extent.
The other hypotheses regarding size were tested in order to answer whether or not smaller firms were more sensitive to changes in their CCC. They were stated as follows:

- $H_0\, 2b$: GPM in smaller firms is not more affected by changes in the CCC
- $H\, 2b$: GPM in smaller firms is more affected by changes in the CCC

However, as we tested our model we did not find any significant result for any of the coefficients. By applying the same step-by-step technique as with the simple dummy variables, we bundled up the variables corresponding for medium sized companies with the large ones. This meant an increase in the significance between the remaining coefficient “CCCxdSmall”, landing just short of the 5 % significance level. However, the value of the coefficient was negligible which would indicate that even if there is a difference between how affected small companies are as compared to large, it would take some drastic changes before these effects would give any results in the profitability of the firm. We therefore rejected this hypothesis as well.

### 7.1.3 Third hypotheses

Concerning the difference impacts between how public and private companies are affected by their CCC we presented the following hypotheses:

- $H_0\, 3a$: GPM in listed firms is not higher for each level of the CCC
- $H\, 3a$: GPM in listed firms is higher for each level of the CCC
- $H_0\, 3b$: GPM in non-listed firms is not more affected by changes in CCC
- $H\, 3b$: GPM in non-listed firms is more affected by changes in CCC

In order to test $H\, 3b$, we included dummy variables multiplied with CCC to find any difference in slope when companies are non-listed. This was based on the notion that non-listed companies are under less pressure than listed. Therefore, they would not place as much emphasis on their WCM, but companies doing this benefit from it. However, the coefficient indicated a negligible change in the slope and that, together with the low level of significance, made us reject our $H\, 3b$ hypothesis.

We did, however, find evidence supporting the first hypothesis, $H\, 3a$. Non-listed companies are found to have a correspondingly lower GPM for each level of CCC when compared to listed companies. This implies that listed companies do not need to struggle as hard to achieve a higher GPM. Based on these findings we accepted $H\, 3a$.

In line with our theoretical debate, non-listed firms are less focused on improving margins. Wu et al. (2012) demonstrated how earnings management exists in listed firms, indicating the importance of improved margins. It is believed to be influenced by non-listed firms being more likely to be family owned or run by entrepreneurs. Long-term goals in non-listed companies are explained by Miller et al. (2013) to vary from
listed companies, whereas shareholders usually have less emotional investment in the firm and are mostly looking to make a profit. An entrepreneur, on the other hand, might be more interested in his company succeeding in the long run and focuses more on strategical decisions and less on improving margins.

Furthermore, Boot et al. (2006) demonstrate the advantages that come with private ownership, where the entrepreneur has autonomy over his decisions, while Wu et al (2012) argue for pressure arising when going public. This pressure could come from analysts, investors or credit institutes. Guthrie & Sokolowski (2010) discussed how listed companies are dependent on their shareholders, as the shareholders set their market value, which in turn affects credit ratings and cost of capital. The listed companies simply have to show their stakeholders that they are good at what they do and they do it diligently. External parties will expect the company to know everything about their companies and maximize profit as much as possible. This increases the awareness and focus on short-term profitability. Accordingly, it is natural why listed companies have a more short-term focus.

However, there is also a major reason why smaller firms have a more concentrated form of ownership. Miller et al. (2013) explained how administrative complexity arises when becoming large, changing the most optimal way of ownership. As mentioned above, regarding being responsible towards your shareholders, a concentrated form of ownership is problematizing the administrative work that comes when you grow too large. It was therefore argued by Miller et al., that the most efficient form of ownership is dispersed when becoming large and thus likely you want more managerial people that are responsible for the company.

When more stakeholders put pressure on corporate decisions the asymmetric information decreases as the sources of pressure demands information, otherwise the cost of capital increases. However, as fewer stakeholders are involved in a private company, the access to capital becomes more difficult and expensive. As was described by Boot et al. (2006), a private ownership allows autonomy, however, it comes to the expense of a higher cost of capital. Further, Boubakri & Ghouma (2010) develops this fact in regards to information asymmetry and risks. Namely, that the lender does not know much of a private company and he/she demands a higher risk premium due to the risk exposure. Certainly, the lender has much more information regarding a listed company. Partly, because there are stricter laws on reporting for listed companies and partly due to higher expectations among investors, where a lack of sufficient reporting would decrease the interest in buying the stock. Hence, the non-listed firms borrow money to a higher cost and in order to reach the same level in GPM they have to be more efficient in their WCM.

Furthermore, as we discussed regarding the effect size has on profitability, a majority of the listed companies are either medium or large (73.8 %). Therefore, they can be assumed to have reached a higher level of maturity than their smaller, non-listed counterparts. Thus, when companies leave the initial state of growth, the focus can turn to improving margins in order to achieve a higher profitability (Schwartz, 1974, p. 652). This is in line with Miller et al. assumption that when becoming large a more dispersed form of ownership is preferable.
7.2 Goodness of fit

One critical factor when analyzing our results is the low value of R Square. This measure calculates the “proportion of variation in the dependent variable that can be explained by the independent variables” (Gupta, 2000, p. 12). Consequently, the predicting power of CCC on the profitability measure GPM is very low. There might be several explanations for this. For instance, there might be better statistical models to use when regressing the CCC against GPM that researchers with a deeper understanding of statistical testing and programs could apply. Banos-Caballero et al. (2011, pp. 517-518) argue that the relationship between WCM and profitability might be concave, rather than linear. This is supported by the idea that there is a trade off between the benefits of a short CCC and sales strategies, which increase the CCC that has been discussed in this paper. It is reasonable to argue that there is an optimal level for each firm and other research methods would be more suitable. However, we decided to focus on a linear model, as it is more in line with both previous research and our statistical ability.

Alternatively, the data we are conducting the research on is inadequate. We have presented arguments for why the data should be reliable, but some characteristics of the data have still raised some questions. For example, our lowest value of CCC was -140,023.67 while Rehn’s (2012, p. 32) minimum value was only -469.48 from a sample that also included Swedish wholesale companies. Additionally, some of the non-listed companies reported zeros in fields such as personnel costs. This could be due to the less stringent requirements in their reporting, compared to listed firms, which allow them to include these costs in other parts of their reports. This would impact our calculations of COGS that, in turn, could affect our results.

Another possible explanation for this weak goodness of fit for our model could be bad usage of measures. The most logical measure to question is the COGS, which we have given a thorough explanation for in the practical method chapter. However, one could also question the choice of measuring profitability with GPM. Once again, we have presented our reasoning behind this choice in previous chapter, but acknowledge the fact that it may not have been the best option. However, since there is no correct answer, we do feel confident in our choice.

This leaves us with the option that the CCC simply is not a good factor in determining profitability. Kroes & Manikas (2014, p. 49) mentions that they found evidence that changes in DPO was not significantly related to changes in firm performance. This was in line with Deloof’s (2003, p. 578) argument that it is, in fact, companies with a decline in profitability that have a higher accounts payable, implying that it is profitability affecting WCM decisions and not the other way around. As mentioned, Kroes & Manikas (2014) applied causality testing and found changes in CCC to pre-date changes in profitability. Nevertheless, there is the chance that there are lurking variables affecting both measures at the same time (or affecting profitability slightly after, as evidenced by Kroes & Manikas).

Moreover, argumentations could be presented that it is the use of a linear regression model that is inadequate. Considering the basic financial theory of time value of money, a shorter CCC should improve profitability. However, as argued above, strategic
decisions for increasing sales might counteract this relationship. This opens up the possibility of the relationship being concave, rather than linear. Hence, there might be a trade-off between focusing on liquidity and increasing sales.
8. Conclusion

This chapter highlights the main arguments found in the analysis. Argumentations for whether the research question has been answered or not is presented. The chapter concludes the study with recommendations for future research and a discussion on the fulfillment of the quality criteria.

8.1 Concluding remarks

The purpose throughout the thesis has been to investigate whether companies differ in their WCM and profitability relationship because of characteristics in size and whether or not it is listed. These characteristics have been studied before, however, no one has examined how the company differences affect the relationship between WCM and profitability. We therefore presented the following research question:

- How do different company characteristics affect the relationship between Working Capital Management and profitability in the Swedish wholesale industry?

The thesis examined companies in the Swedish wholesale industry by measuring discrepancies in the relationship between the CCC and the GPM. The result indicated a positive, rather weak, relationship, contrary to what previous work have found. From this result it is possible to deduce that the relationship is affected by other factors than simply the WCM of a company. This is further evidenced by the weak goodness of fit for the estimation model and there seems to be lurking variables that are not accounted for in the investigation. We did, however, find indications of differences between the group characteristics on which we can infer some conclusions.

Our regression analysis indicated that smaller firms are less sensitive to inefficient WCM. The conclusions drawn from this are that they are more apt at utilizing strategies befitted of the Swedish wholesale market. It was theorized that smaller firms would have a harder time finding financing than larger firms, due to asymmetric information. Low interest rates in 2012 have caused this to have less of an impact on the profitability and instead the results are more affected by achieving growth. This is in line with the argumentation that a longer CCC is a sign of such a strategy and that smaller firms are more likely to utilize this. Larger firms, with less incentive to increase their market share, would focus on minimizing margins and thereby decreasing their CCC. When money is cheap, the benefits of high liquidity are marginalized.

One strategy recommended for achieving growth is allowing an extended credit period for customers to evaluate quality of the purchased product, which increases the willingness of the buyer to purchase it. For larger firms, that are well known, there is no need for customers to wait the full credit period, as these companies are trusted to begin with. They therefore pay for their purchase within the discount period causing larger firms to receive less money, but at a sooner point in time. As mentioned above, this access to money is less beneficial during periods with low interest rate and, instead, smaller firms benefited from being less trustworthy. Customers delay paying their debt to satisfy themselves with the quality of the product and the seller is able to collect the full price for the product.
On the other hand, when comparing listed and non-listed companies, we find that listed companies are more profitable in their WCM management. This is evidence of stakeholder pressure demanding a higher focus by listed firms. Non-listed companies have less concern regarding short-term perspectives and rather focus on the long-term in their operations. The long term goals are achieved by using strategies that enable for growth and meeting variations in demand since they are not as well established in a market as large listed companies, which is quite contradictory to our findings regarding company size.

This further strengthens our concern that the relationship between WCM and profitability is not as crucial for firms than previous thought. While effective WCM increases liquidity, there are benefits to having a long CCC as well. This would imply that there is an optimal level of CCC for every company.

Our findings did not support the theories regarding smaller and non-listed firms to be more affected by streamlining WCM strategies. These factors does not seem to be impacted by company size or being private or public. Instead, smaller firms are already better at maximizing their profitability through WCM. The findings indicate that smaller firms should stick to their level of WCM focus, as they are outperforming larger firms with their strategies. Most likely they have an easier task of strategizing and have best benefitted from the low interest rates and during similar economic circumstances, this is a better approach than trying to lower the CCC as much as possible.

Non-listed firms, on the other hand need to emphasize more on their WCM in order to increase profitability compared to listed firms. That they focus on longer-term strategies might be a cause of this as it implies that they are less adapting to prevailing climate of the economy. By focusing a little more on WCM strategizing they could increase profitability in the short run, enabling them to stay afloat to achieve the long-term goals they are aiming for.

8.2 Contribution

8.2.1 Theoretical contribution

The study has brought added knowledge to liquidity in general and the relationship between the WCM and profitability in particular. It has been proven that variations in size and being listed or not does not affect the level of effect that changes in the CCC has on profitability. Furthermore, while smaller firms have been established to improve profitability with a decrease in the CCC by previous studies, this paper shows that this is not always the case. Smaller firms are also said to be more reliant on an effective WCM. However, our findings prove that smaller firms are, in fact, better at balancing the decision between liquidity and commercial maximization in regards to profitability.

Additionally, this study explored how non-listed companies fared against listed companies when it comes to WCM. The results indicated that, while non-listed firms are not more sensitive to changes in the CCC, they are worse at utilizing it to improve
profitability. The thesis provides insight in regards to how WCMs impact on profitability is affected by variations in how and by whom the firm is owned.

8.2.2 Practical contribution

Practically the study contributes with a better understanding for managers of small and non-listed firms on how to optimize their WCM strategies. While a short CCC does provide liquidity advantages, it is not always optimal to focus entirely on shortening the CCC. Instead, placing less strict demands on customers and making sure that the firm is able to meet the demand of the market, the profitability can be increased although the CCC increases.

Especially during times of low interest rates, it is better to focus on market share increasing activities rather than increasing the effectiveness of their WCM. This is especially true for small firms, as the findings indicate that a longer CCC is better for profitability and that they are better at benefitting from such strategies. Non-listed firms need to improve how they reach new clients by offering longer credit terms or possibly by increasing their inventory levels to better respond to market demand.

Furthermore, it should be noted that measured correlation is rather low. As discussed earlier, this is proof of the effects that WCM has on profitability is limited. It is therefore recommended that managers should not put too many resources into their WCM that could be better used for other operations or investments. For instance, focusing more efforts toward improving their logistics network could help companies keep the larger inventory holdings.

8.3 Limitations & Further research

This study is limited to the Swedish wholesale industry, constituting a sample of companies with a turnover above 20 million SEK. The result of our study applies to this sample, however, not all other industries and markets. However, one can speculate that it applies to other capital-intensive industries, as it is believed to have a similar impact. Therefore, as our study is limited, it would be interesting for further research to confirm this study by investigating other markets and industries.

Since the examined period is only measured over one year, our result is limited to a specific time period where the market was characterized by low interest rates. As previous research suggest, WC is a dynamic characteristic to measure the operations in a firm. Therefore, it could suitable to perform a similar study over several years by a longitudinal study. Preferably, by studying time periods quarterly, as this should give the best indications on how the short-term liquidity measure works. In fact, this enables for the measurement of how WC is affected by seasonal trends or when measured yearly, by economic cycles in which we believe has had an impact to our result. We want to speculate on the theory that WCM has an optimal point when it comes to capital management, namely the trade-off between liquidity and profitability.

Future research, in addition to identifying lurking variables, could also focus on the effects that monetary policies have on the relationship between WCM and profitability. Our investigated time horizon concerned 2012, characterized by low interest rates.
Some previous researchers have looked at time periods including less financially stable times. It would therefore be interesting to see if this might have affected our results. By expanding the time horizon to include all parts of the economic cycle it could be established if the relationship is constant or affected by the economic climate.

Additionally, as mentioned, we found indications of the relationship being concave, rather than linear. It would therefore be very interesting to increase the knowledge by studying this. This could be done through the use of a non-linear regression analysis or, alternatively, through a more in-depth research. Through a qualitative research to investigate fewer companies, the possibility to take account of more aspects can be increased. One idea is to investigate how companies plan their WCM in different economic periods and how the relationship between sales and finance department works in a company. However, as we have discussed, it is an area that most likely concerns confidentiality. Moreover, legal concerns regarding accounting practices can be considered and trade credit terms negotiations can be scrutinized.

Furthermore, the question of causality is something no researcher has been able to answer. Garcia-Teruel & Martinez-Solano and Kroes & Manikas attempts have shined some light on the debate, but no conclusive results have been found. A deeper investigation into the directionality of the relationship could therefore be recommended.

8.4 Quality criteria

The quality of this research can be reflected in many different ways. We would argue that the replicability of our study is high since the methodological process has been well described in the practical section. It is in line with Bryman & Bell’s (2011, p. 41) explanations in regards to this criterion. Furthermore, the reliability of the study, which concerns if the results are repeatable, is likely very high. As discussed, companies included in the study are bound by law to follow certain reporting procedures. Those that are not under this obligation were excluded from the sample, through the criterion sample method.

Though, we are of concern that our empirical findings are not that stable in regards to reliability. Since reliability concerns how our findings mirror others, we have found considerable differences that are inconsistent to others. As we have discussed, there may be several reasons for these different appearances. Firstly, our regressions analysis proves that only 5% is explained in terms of R square, meaning that other factors may have an impact on the dependent variable, GPM.

Regarding the validity of the study, we have some concerns on the measurement and internal validity. The former describes whether or not what has been measured really is what was intended to be measured (Bryman & Bell, 2011, p. 42). We presented arguments for there being lurking variables affecting the results in our analysis chapter. However, as we have based our research to a great extent on what others have done before us, we feel this is part of the contribution of our thesis. While we, based on our and previous research, feel certain that this is a part of the overall drivers of profitability but far from the only one. As most of the other researchers have not included this debate
in their articles we consider this to be contributing to the knowledge regarding the relationship between WCM and profitability. The internal validity has similar characteristics. While our literature review has indicated that the causality direction is from WCM to profitability, no conclusion has been made. Therefore, there is an inherent gap in the nature of the relationship that we have helped illuminating, although we have been unable to provide a full answer.

Nevertheless, concerning external validity, we believe the study holds a high standard. By including all companies fulfilling our presented criterion, we have been comprehensive in our research. Lastly, regarding the issue of ecological validity, we also believe we have been successful in meeting the criteria. We have argued around the concept of having money and not having money, explaining that it is most logical to have money in the every day life. However, we have found that profitability is related to not having money, which might seem a bit strange. Although, we have presented arguments for why this might be reasonable. For instance, we have argued that the economical situation might play an important part on the relationship investigated and we have discussed how these factors impacted our findings. As we have measured day-to-day activities of companies and based our reasoning around this and previous research, we would argue that we have presented adequate arguments for this deviation from the basic financial assumption and our results to be applicable to natural social settings (Bryman & Bell, 2011, p. 43).
Reference list


Friedman, M. (1953). The methodology of positive economics. *Essays in positive economics, 3*(8).


SFS 2005:551. Aktiebolagslagen. Stockholm: Justitiedepartementet (Department of Justice)


### Appendix 1: Complete list of SNI codes

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<td>46.772</td>
<td>Partihandel med metallavfall och metallskrot</td>
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| 11 | All SNI codes | Listed companies |
## Appendix 2: Selected variables

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<th>Variable - English</th>
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<td>Company name</td>
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<td>S:a kortfristiga fordringar 2012 (tkr)</td>
<td>Sum of Current Assets 2012 (thousand SEK)</td>
</tr>
<tr>
<td>S:a kortfristiga fordringar 2011 (tkr)</td>
<td>Sum of Current Assets 2011 (thousand SEK)</td>
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<tr>
<td>S:a kortfristiga skulder 2012 (tkr)</td>
<td>Sum of Current Liabilities 2012 (thousand SEK)</td>
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<tr>
<td>S:a kortfristiga skulder 2011 (tkr)</td>
<td>Sum of Current Liabilities 2011 (thousand SEK)</td>
</tr>
<tr>
<td>S:a varulager 2012 (tkr)</td>
<td>Sum of Inventory 2012 (thousand SEK)</td>
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<tr>
<td>S:a varulager 2011 (tkr)</td>
<td>Sum of Inventory 2012 (thousand SEK)</td>
</tr>
<tr>
<td>Rörelseresultat (EBIT) 2012 (tkr)</td>
<td>EBIT 2012 (thousand SEK)</td>
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<tr>
<td>Administrationskostnader 2012 (tkr)</td>
<td>Administrative expenses 2012 (thousand SEK)</td>
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<tr>
<td>Personalkostnader 2012 (tkr)</td>
<td>Personell expenses 2012 (thousand SEK)</td>
</tr>
<tr>
<td>Avskrivningar 2012 (tkr)</td>
<td>Depreciation 2012 (thousand SEK)</td>
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<tr>
<td>Övriga rörelsekostnader 2012 (tkr)</td>
<td>Other Operating expenses</td>
</tr>
<tr>
<td>Försäljningskostnader 2012 (tkr)</td>
<td>Selling expenses 2012 (thousand SEK)</td>
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<td>Omsättning 2012 (tkr)</td>
<td>Revenue 2012 (thousand SEK)</td>
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<td>Parent company org. nr</td>
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<td>Moderbolagsnamn</td>
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### Appendix 3: Complete regression output

#### All coefficients

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<th>Model</th>
<th>Variables Entered</th>
<th>Variables Removed</th>
<th>Method</th>
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<tbody>
<tr>
<td>1</td>
<td>CCCxeListat, dMedium, dejListat, CCCxMedium, dSmall, CCC, CCCxSmall</td>
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</table>

  a. Dependent Variable: GPM
  b. All requested variables entered.

#### Model Summary

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<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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<tbody>
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<td>1</td>
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<td>.058</td>
<td>.053</td>
<td>.13269</td>
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</table>

  a. Predictors: (Constant), CCCxeListat, dMedium, dejListat, CCCxMedium, dSmall, CCC, CCCxSmall

#### ANOVA

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<th>Mean Square</th>
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<th>Sig.</th>
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<tr>
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<tr>
<td>Residual</td>
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<td>1391</td>
<td>.018</td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>26,003</td>
<td>1398</td>
<td></td>
<td></td>
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  a. Dependent Variable: GPM
  b. Predictors: (Constant), CCCxeListat, dMedium, dejListat, CCCxMedium, dSmall, CCC, CCCxSmall

#### Coefficients

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  a. Dependent Variable: GPM
**CCCxMedium coefficient removed**

**Variables Entered/Removed**

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<th>Method</th>
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a. Dependent Variable: GPM
b. All requested variables entered.

**Model Summary**

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a. Predictors: (Constant), CCCxejListat, dMedium, dejListat, dSmall, CCCxSmall, CCC

**ANOVA**

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a. Dependent Variable: GPM  
b. Predictors: (Constant), CCCxejListat, dMedium, dejListat, dSmall, CCCxSmall, CCC

**Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
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a. Dependent Variable: GPM
### Variables Entered/Removed

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a. Dependent Variable: GPM  

b. All requested variables entered.

### Model Summary

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a. Predictors: (Constant), CCCxSmall, dejListat, dMedium, CCC, dSmall

### ANOVA<sup>a</sup>

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a. Dependent Variable: GPM  
b. Predictors: (Constant), CCCxSmall, dejListat, dMedium, CCC, dSmall

### Coefficients<sup>a</sup>

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>.217</td>
<td>.026</td>
<td></td>
<td>8,358</td>
</tr>
<tr>
<td>CCC</td>
<td>.001</td>
<td>.000</td>
<td>.239</td>
<td>3,514</td>
</tr>
<tr>
<td>dSmall</td>
<td>.098</td>
<td>.029</td>
<td>.255</td>
<td>3,418</td>
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<tr>
<td>dMedium</td>
<td>.010</td>
<td>.029</td>
<td>.025</td>
<td>.349</td>
</tr>
<tr>
<td>dejListat</td>
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<td>.026</td>
<td>-.147</td>
<td>-4,668</td>
</tr>
<tr>
<td>CCCxSmall</td>
<td>.000</td>
<td>.000</td>
<td>-.137</td>
<td>-1,918</td>
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</tbody>
</table>

a. Dependent Variable: GPM
**dMedium coefficient removed**

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables Entered</th>
<th>Variables Removed</th>
<th>Method</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>CCCxSmall, dejListat, dSmall, CCC</td>
<td></td>
<td>Enter</td>
</tr>
</tbody>
</table>

a. Dependent Variable: GPM  
b. All requested variables entered.

**Model Summary**

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>.239&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.057</td>
<td>.054</td>
<td>.13262</td>
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</tbody>
</table>

a. Predictors: (Constant), CCCxSmall, dejListat, dSmall, CCC

**ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
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<tbody>
<tr>
<td>Regression</td>
<td>1,484</td>
<td>4</td>
<td>.371</td>
<td>21,100</td>
<td>.000&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>1</td>
<td>Residual</td>
<td>24,519</td>
<td>1394</td>
<td>.018</td>
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<tr>
<td>Total</td>
<td>26,003</td>
<td>1398</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

a. Dependent Variable: GPM  
b. Predictors: (Constant), CCCxSmall, dejListat, dSmall, CCC

**Coefficients**

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.221</td>
<td>.023</td>
<td>9,747</td>
<td>.000</td>
</tr>
<tr>
<td>CCC</td>
<td>.001</td>
<td>.000</td>
<td>.241</td>
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<tr>
<td>1 dSmall</td>
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<td>.013</td>
<td>.232</td>
<td>6,847</td>
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<tr>
<td>CCCxSmall</td>
<td>.000</td>
<td>.000</td>
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<td>-1,955</td>
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</tbody>
</table>

a. Dependent Variable: GPM