MASTERS

FINANCE

MASTER FINAL WORK

DISSERTATION

IMPACT OF WORKING CAPITAL MANAGEMENT ON RETAILERS PROFITABILITY

ANTÓNIO AMARO DOS SANTOS CASTEL-BRANCO

OCTOBER 2018

MASTERS

FINANCE

MASTER FINAL WORK

DISSERTATION

IMPACT OF WORKING CAPITAL MANAGEMENT ON RETAILERS PROFITABILITY

ANTÓNIO AMARO DOS SANTOS CASTEL-BRANCO

SUPERVISION:

PROFESSOR DOUTOR PEDRO RINO VIEIRA

OCTOBER 2018

ABSTRACT

Knowing that retail clients pay for products in the moment they buy the products, and retail companies can negotiate payment periods to suppliers, it would be possible to sell and get the payment of products that are not yet payed to the supplier.

Assuming this premise, there is a possibility in a hypothetical scenario where retailers sell their products at cost prices and still make a profit with short term financial gains that this time gap provides.

Of course, that in this scenario ,we must assume that inventory management is not a complex issue, which in a real scenario is.

The purpose is to test if this strategy of switching from operational margins to financial returns would positively impact profitability.

The study is made with data recovered from 200 companies among the biggest European retailers.

The tests outputs show that profitability and working capital management are correlated but suggest that this type of strategies have a negative impact on retailer's profitability.

Key words: Working capital; Working capital management; Retail Industry.

RESUMO

A indústria retalhista é um exemplo de clássico de níveis baixos de contas a receber (clientes) e essa característica faz esta indústria ser tão particular.

Assumindo que, as empresas retalhistas efectuam as suas vendas, por norma, a pronto pagamentos, e que têm a possibilidade de extender os seus prazos de pagamentos a fornecedores, estas empresas conseguem receber pagamentos de clientes no acto da compra de productos que ainda não estão pagos ao seu fornecedor.

Continuando este exercício hipotético, seria possível para estes retalhistas vender os seus produtos a seu preço de custo e ainda assim retirar rentabilidade financeira devido a esta diferença temporal.

Assim a margem operacional seria, no extremo, nula, mas por outro lado as empresas teriam rendimentos financeiros resultando desta estratégia.

Claro que, este para este cenário, não assumimos a complexidade da gestão de inventário, que num cenário real seria um factor a ter em conta.

O objectivo deste estudo é testar esta a hipótese e ver se poderá ser uma tendência mais rentável bem como perceber as consequências positivas e negativas deste tipo de estratégia.

O estudo foi efectuado a partir da recolha de dados de 200 das maiores empresas retalhista na Europa.

Os resultados demonstram existir relação entre as estratégias adoptadas e a rentabilidade das empresas retalhistas, mas sugere que a hipotese proposta, não beneficiaria a rentabilidade das empresas.

Palavras-chave: Fundo de maneio, Gestão de fundo de maneio, Indústria retalhista

ACKNOWLEDGMENTS

I must thank everyone who somehow supported me through my studies directly or indirectly.

Firstly, to my parents that not only made possible for me and my brothers every step of our education, but also all the support and love in every decision made along the path.

Then I must thank my closest friends and family that I believe every each of them somehow has influence in my life for their example, friendship and support.

To Professor Doutor Pedro Rino Vieira that supervise my work thought the months being available during the process of this dissertation.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1. INTRODUCTION

Usually, corporate finance studies are focused on the long term financial issues like capital structure, dividend policies, or capital budgeting (Chatterjee, 2012).

The optimal level of current assets and current liabilities a company should have is an unsolved question in finance literature. Despite some lack of focus on the subject, working capital management plays a key role in short term investment and financing.

In this paper I will differentiate net working capital and operational net working capital.

Net working capital are the difference between current assets e current liabilities. Operational working capital it's a more restricted concept that excludes the financial assets and liabilities and focus on the day-to day operations of a firm, is the combination (difference) between operational current assets and operational current liabilities.

In current assets, we can include cash, marketable securities, receivables and inventories while in current liabilities we only include short-term obligations that a company must meet (Agha, 2014).

Working capital management has impact in companies activity, profitability and as consequence, in the firm value. The main goal of the working capital management is to balance between liquidity and profitability and trying to figure out at what level this balance is obtaining to minimize risks and maximize returns.

The big challenge of working capital management is the synchronization between current assets and liabilities. In a perfect scenario where payables and receivables match perfectly, the managers work would be easy and there would be not necessary nor to finance operations or making short term investments. But this scenario is as perfect as it is unreal, and working capital is usually a big challenge for companies.

Companies have different periods of days to inventories, payables and receivables and so can follow different strategies to order to better solve the working capital issue, with different levels of risk.

Low levels of working capital, is considered an aggressive strategy, with lower levels of stock and receivables and higher level of payables. This strategy has more risks but can lead to higher profitability.

From the other hand, higher level of working capital is a more conservative strategy. This strategy leads to low risk with higher level of stocks and receivables while levels or payables are lower. Although the risks associated with this strategy are lower, profitability is not the immediate purpose assuming that the cash that the company is holding in stock or receivables could be hold in investments with financial return.

The object of this study is restricted to European retail companies.

Retail activity is characterized by resealing products or services to the final consumers. This activity is characterized by low levels of receivables since final consumers usually pay in the act of buying. So, the main current assets that results from this industry operations are stocks and the main liability are payables (creditors).

In this study there will be provided empirical evidence of relation between working capital management and profitability for 200 of the biggest European retail companies and hopefully, better understand the advantages and disadvantages of different levels working capital and its main items.

The propose of the paper is to test the impact that the main items of working capital have on retail companies' profitability, to support or reject a hypothetical scenario.

Results have showed that higher levels of working capital leads to higher profitability and rejects the hypothetical scenario. The results suggest that European retailers should hold higher levels of stock and have lower levels of payables.

2. LITERATURE REVIEW

2.1 WORKING CAPITAL MANAGMENT

Aravindam & Ramanathan (2013) defined working capital as the cash invested in company's daily operations.

Tagduan & Nicolaescu (2011) defined working capital as the percentage of permanent capital used to finance company's current assets.

The concept of working capital management can be defined as the management of short-term capital, having as main goal the company's profitability and company's growth value (Agha, 2014).

Working capital can be presented in different perspectives, through the liquidity or through the origin of the capitals.

From one hand, working capital is calculated by the difference between current assets and currents liabilities, which give us the possibility to acknowledge the amount of capital which is allocated to operating needs (Aravindan & Ramanathan, 2013).

From another hand, working capital is difference between permanent capitals (equity and non-current liabilities) and non-current assets. If the difference is positive, it means that the company uses the excess of permanent capitals to finance its current assets. If it is negative, it means that a percentage of the non-current asset is being financed by the short period financing, which enhances company's bankruptcy risk (Mota, 2013).

In a perfect and world, companies have the same maturity for capitals used to finance assets and for the assets themselves, but usually, there is liquidity issues which obliges the company to need a positive working capital (Martins et al, 2009).

Working Capital Management, it's an important part of a company successes. Although some companies have good long-term financial situation, due to inadequate working capital they lose their ability to compete and be successful (Nikomaram, 2005). In most cases depends of a good management of inventories, payable and receivables

One of the biggest challenge for company managers is to find a balance between liquidity and profitability. From one hand, lower liquidity allows the company to make profitable

investments and generate more value to the company. From other hand, lower liquidity increases the risk of not being able to cover the company obligations.

The two main objectives of working capital management are to increase the profitability of a company and to ensure that it has sufficient liquidity to meet short-term obligations as they fall due and so continue in business (Pass and Pike 1984)

Because working capital management is so important, a company will need to formulate clear policies concerning the risk-return tradeoff. The policies should be designed and applied taking in consideration managers strategies.

It's easy to understand different sectors have different working capital management because they have different necessities and particularities.

For example, a factory usually has longer operation cycles and invests more cash in its current assets, needing a higher working capital.
From the other side, retail companies that usually don't have the production phase, needing only to sell the products, which mean a lower working capital as they have a shorter operating cycle, when compared to industries.

The market where companies' acts is another aspect that influences the working capital management. A high competitive business requires greater inventory to meet the customers demand and naturally leading to a higher working capital.
Other key factor to achieve the optimal working capital level is the relation with suppliers. A good relationship with suppliers can easily meet the demands in better timings that can drives to low inventory volumes. On the other hand, a bad relationship with suppliers can lead to inventory out of schedule and higher stock volume to prevent any stock rupture. (Nwankwo & Osho, 2010).
The company's dimension is also a really important factor for working capital management.

There is a relation between a company size and its credibility. A bigger company naturally tends to have higher reputation (less perception of risk) among clients and suppliers. Although these big companies are responsible for the intense pressure on supplier's margins. This reputation can be crucial in negotiation towards suppliers, that can turn into not only cheapest prices but also in extended credit (Manoori & Muhammad, 2012)

Aktas et al. (2015) conclude that the increment of dollars invested in net operating capital is less valuable than to have dollars held in cash.

Over-investment in working capital management can lead to firm value destruction for shareholders (Aktas et al, 2015), as too much money stuck in working capital means less money to other projects and investments (Ek and Guerin, 2011).

In order to have higher working capital levels, companies need financing and consequently, financing expenses, which can lead to financial risks.

So, we can assume that working capital management goal is to minimize the amount allocated in the company operational activities and instead, have it for other kind of investments.

From the other hand, Blinder and Maccini (1991) and then Jakpar (2017) argue that over-investment in working capital management has positive impacts, and even it represents a cost, the profitability of companies that make this investment tend to be higher.

Concluding, past studies on working capital management and profitability tend to be divided in two different perspectives with different arguments from each part.

2.1 CYCLES

Cash Conversion Cycle = Inventory days + Trade receivables days − Trade payables days

Usually Cash conversion cycle (CCC) is used to understand how fast a company is completing the cash cycle, the gap between payments and receivables.

CCC is the period between the outlay of cash on raw materials and the inflow of cash from the sale of finished goods and represents the number of days of operation for which financing is needed.

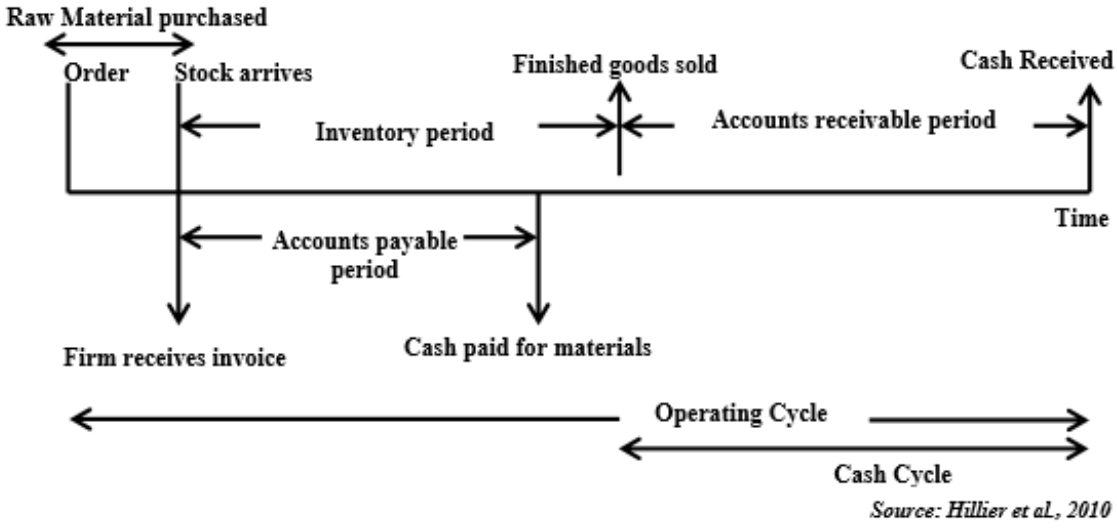
The inventory conversion period is the average time taken to use up raw materials, plus the average time taken to convert raw materials into finished goods, plus the average time taken to sell finished goods to customers.

The trade receivables period is the average time taken by credit customers (current assets) to settle their accounts.

The trade payables deferral period is the average time taken by a company to pay its trade payables (current liabilities).

Longer Cash Conversion Cycle days represents higher amount of cash investment in working capital and as consequence more financing need for operational cycles.

Figure 1- Cycles periods



Source: Hillier et al., 2010

We can define operation cycle as the time interval between the order of inventory and the date that cash is received, this means the average number of days that takes for a hole operational cycle.

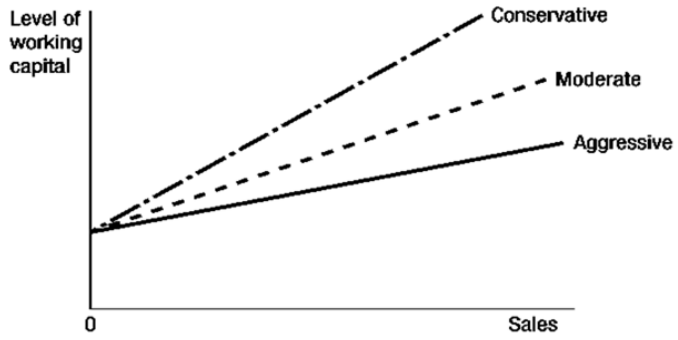
From other hand, cash cycle begins when companies pay suppliers for raw materials purchased and ends when cash is collected from customers (Hillier et al, 2010). This cycle can even be negative since clients can pay for products that still haven´t been paid to suppliers.

So, in order to decrease operational working capital needs, and turn companies more efficient and profitable managers should make efforts to reduce cash conversion cycle. This is by increasing payables and decreasing receivables.

2.3 WORKING CAPITAL STRATEGIES

The working capital level policies of a company can be characterized as aggressive, moderate or conservative., according to how working capital level grows when sales are higher.

Figure 2- Working capital different strategies



A company should have working capital policies on the management of inventory, trade receivables, payables, cash and short-term investments to minimize the possibility of managers making bad decisions.

The inverse relationship between working capital management and profitability is proved through the studies of Hager (1976). The author stated that firms holding lower levels of working capital accounts tend to reduce the cost of holding unproductive assets, such as marketable securities. The firms will also have lower service costs on their inventory keeping. On opposition, these firms tend to increase their payables.

Aggressive policies privilege return and as consequence have higher risks. This kind of policy, implies less investment in working capital accounts. Low levels of inventories mean higher risks of stock ruptures that can be cause by a simple delay of a supplier. Other risk is liquidity, that can be cause by a simple client payment postpone.

This risk can affect directly not only the company operation but the rest of the relation with other suppliers and clients associated with a loss of reputation.

Deloof (2003) points that negative relationship too, demonstrating that a reduction in accounts receivables and inventories increases profitability.

In the opposite way, conservative policies preserve a safety working capital levels in order to face increasing assets.

Conservative working capital policy implies a higher investment, higher levels of inventories, extending credit to customers and reducing supplier's financing. This results into lower profitability and risk.

However, Petersen et al. (1994), points to a greater profitability due to higher sales provided by these policies.

These higher sales are directly related with the high levels of inventories as companies with more inventories, have lower risks of being forced to interrupt operations. Along with this, the customers' fidelity will increase, and the prices fluctuations will decrease, raising the profit margins (Petersen et al,1994).

According to Smith (1986), this extended credit also strengthens the relationship between buyer and seller, which increases sales in periods of low demands and reduction of transaction costs.

This is a less risky option which focus on a working capital level that minimizes the risk of stock rupture or lack of financial liquidity. This lack of risk is compensated with the over investment in working capital, that could be allocated in other types of investments, more higher returns.

Table 1- Working Capital strategies trade-off

	Profitability	Risk	Accounts Payable	Inventories	Accounts Receivable	WCM Investment/ Length
Linear Relation						
Conservative Policy	*Lower*	*Lower*	*Shorten*	*Higher levels*	*Extend*	*Higher Investment /Longer*
Aggressive Policy	*Higher*	*Higher*	*Extend*[7]	*Lower levels*	*Shorten*	*Lower Investment/Shorter*

2.4 FINANCING WORKING CAPITAL

Usually, companies have positive net working capital, which means that there is an excess of current assets compared with current liabilities. This asset excess must somehow be financed, and the way companies fund those assets are part of managers strategy.

If its consensual that long term(non-current) assets should be finance by long run liabilities, current assets can be financed according to the companies polices and managers strategies.

Conservative managers prefer to finance higher proportions of current assets with longer terms liabilities. This kind of strategy have lower liquidity risks associated. But from other hand, this long-term liability can cause excess of liquidity for some periods which could be held in more profitable investments.

An aggressive strategy would be in the opposite way, where current liabilities would face against current assets, that can prevent companies from excess of liquidity, which can be more efficient and profitable. From the other hand, the company is more exposed to liquidity risks and can be seriously affected by delays of stock suppliers of client payments.

Companies that gives longer periods of payments to their clients tend to have more current assets, and by consequence, more financing need. In an opposite way, longer supplier's payment periods lead to higher current liabilities that can be used to finance current assets

By extending periods for payables, companies transfer the financing needs to their suppliers, and as consequence financial costs, which can affect the final price and margins of the products or services sold.

The opposite happens with clients. Usually, clients that pay in shorter periods can negotiate better, have commercial discounts and as consequence higher margins.

Managers make their decisions considering this tradeoff between financial needs and operational margins and always having in mind companies' policies and strategies.

2.5 RETAIL INDUSTRY

Retail refers to the activity of reselling. A retailer is any person or organization who sells goods or services directly to consumers or end-users.

Retail is the process of selling consumer goods or services to customers through multiple channels of distribution to earn a profit. Retailers satisfy demand identified through a supply chain.

The term retailer is typically applied where a service provider fills the small orders of a large number of individuals, who are end-users, rather than large orders of a small number of wholesale, corporate or government client.

Retail sector have characteristics, that other industries don't have. Retail companies by nature have small receivables accounts because sells directly to final consumer that pays their products at the purchase moment.

So, retail companies working capital depends almost exclusively of inventory (current assets) and payables (current liabilities).

The retail is a high competitive industry, and this turns the managers task even more exigent knowing that price and payment periods are a key factor form the company's viability and profitability.

In some parts of the world, the retail business is dominated by smaller family-run or regionally-targeted stores, but this family-run business are being over the years increasingly being taken over by billion-dollar multinational conglomerates.

The retailing industry is going through a major shift (Kahn 2018), and this changes are happening fast and in a radical way.

The emerge of big powerful retailers like Amazon or Alibaba have changed customers' expectations for convenience in shopping.

The explosion of social media and data storage and analyses are key factors of consumers preferences and behaviors. The fast progress of artificial intelligence and the analyses allows retailers to better understand the patterns of consumers behavior as individual and as

groups. At the same time, the social media has a big impact on consumers behavior and their relations with retailers. Nowadays marketing and branding can be advertised and communicate on a customize knowing already consumers preferences and influencing their behavior.

Another transformation that shifts the traditional retail characteristics is that products can now go directly from the factory to the consumer, eliminating layers from the distribution channels.

Online retail is a trend in this industry which makes it even more competitive and represent a big threat for physical traditional retailers. This is a growing channel than makes possible for consumers that used to buy products in local retailers to consume products from retailers even with no physical stores as at the same time it can reduce many costs associated with physical traditional stores.

Working capital policies depends of the strategies that managers want to adopt but since this is a so aggressive industry, managers should be aware of their competitor's conditions and strategies too to protect their own deals.

3. RESEARCH QUESTIONS

Knowing retail is such a competitive industry, it would be interesting to understand what kind of strategies companies would take in order compete to each other and observe if those strategies are profitable.

Question: It would be more profitable for a retail company reduce the working capital level and replace operational margins for financial returns?

For this paper, multiple tests will be made to study the impact of different variables in company's profitability and hopefully to conclude something about working capital management strategies.

This possible impact in profitability will be observe though regressions that will show if there is evidences of correlation between variables in order to answer the research question and support one the hypothesis

And we can predict different hypothesis:

Hypothesis 1: There is no statistical evidence that Working Capital Management affects company's profitability, that would demonstrate that company's strategies and policies doesn´t affects the firms profitability and value.

Hypothesis 2: There is statistical evidence that Working capital level impact company's profitability.

a) This impact can be negative, this would mean that retailers would focus on short term financial management as their "core business", knowing that negotiation with supplier not only in a low-price perspective but mainly delaying payments, and sell those products as fast as possible even if that would compromise operational margins. In this scenario, the profit margins from goods or services sold would decrease but it would be replaced for financial return.

b) This impact can be positive, there is a statistical evidence that companies with high levels of Working Capital are more profitable. This hypothesis suggest are more benefits on having higher levels of current assets a lower level of liabilities. Among these benefits are higher operational margins, that is the core business of retail, instead of short term financial return.

Hypothesis 3: The relation between working capital Management and profitability for the companies in study can´t be understanding with simple linear regression, and this would show that exists optimum levels of working capital that would be represented by a concave function. This hypothesis would also demonstrate that would be companies in the sample both under and over investing in working capital and the optimum level somewhere in between.

4. DATA AND SAMPLE

This study has been done with a sample collected from 200 of the biggest retail companies in Europe.

The companies selected are retailers that at presented higher sales at the latest available financial statements at the date the sample was selected.

The data used for different companies are not all from the same year. I decided to use the most recent year available from each company, knowing that it will not impact the test purpose since the study is not about evolutions from year to year but about the sector in common aspects.

5. TEST

To achieve any conclusion about this questions and hypothesis, multiple tests were made, simple linear regressions that will test the correlation between data variables.

$$Profitability\ i = \beta 0 + \beta 1\ (variable)i$$

Where :

$Profitability\ i = \frac{Net\ income\ i}{Sales\ i}$;

$H0: \beta 1 = 0$

$H1: \beta 1 \neq 0$

We will use a 99% confidence level and analyzing the significance value on the regression output it's possible to have make conclusions about the test results.

If the p-value < 0.01, we have statistical evidence to reject the null hypothesis at this confidence level and we can conclude that $\beta 1 \neq 0$ and expect a correlation between variables. But if, otherwise the p-value ≥ 0.01, we can´t reject the null hypothesis at the confidence level of 99%.

This means there is no statistical evidence that allow us to reject $\beta 1 = 0$ and so, it's not possible to conclude any correlation between the variables for the used confidence level.

If the null hypothesis is rejected, we should expect a correlation between variables, and this correlation can be positive or negative and with different slope, depending on $\beta 1$ value.

For a better visual and analytic analyses, the tests output will be presented not only the graph but also with the output of the linear regression made. Some outliers were removed from some graphs with a more appropriate scale.

5.1 IMPACT OF NET WORKING CAPITAL LEVEL ON PROFITABILITY

Net Working Capital level = (Current Assets-Current Liabilities) / Sales

Profitability= Net Income / Sales

Figure 3- Net Working capital profitability

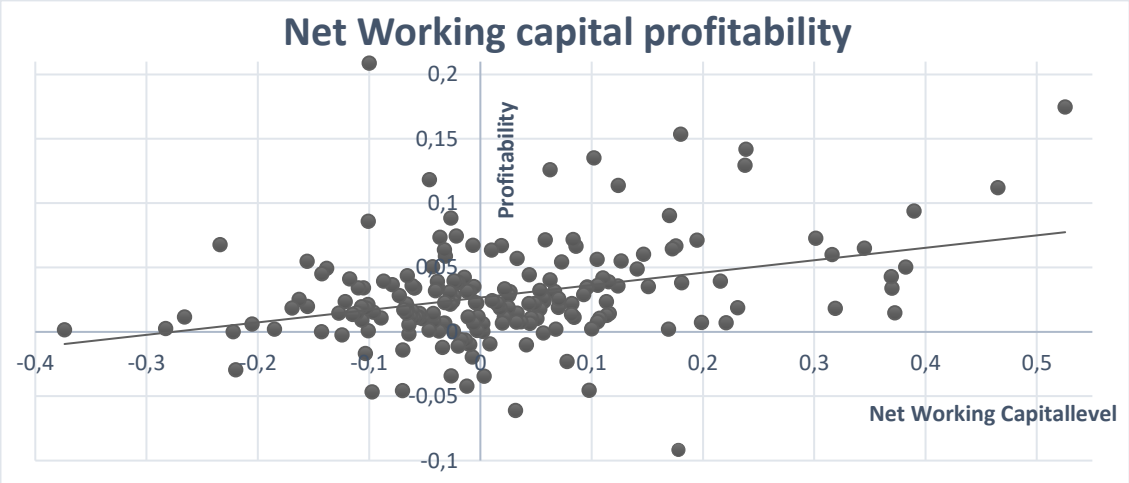


Table 2-Net working capital level on profitability regression output

Regression Statistics	
Multiple R	0,388716399
R Square	0,151100439
Adjusted R Square	0,146813067
Standard Error	0,054496183
Observations	200

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,104666275	0,104666	35,24314091	0,000000013
Residual	198	0,588027116	0,00297		
Total	199	0,692693391			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0,021071022	0,003898655	5,40469	1,85464E-07	0,013382807	0,028759238
X Variable 1	0,128184975	0,021592346	5,936593	1,28455E-08	0,085604493	0,170765458

The null hypothesis($H0: \beta 1 = 0$) is rejected at a confidence level of 99%.

Observing the p-value we can conclude the net Working Capital level is correlated somehow with profitability.

The regression output suggests that there is a positive correlation between net Working Capital and profitability, so, higher the net assets level, higher profitability.

Since neither the nature of assets or liabilities are discriminated, this output was not hard to predict since in theory, having more assets and less liabilities it's always a good symptom of a financial health and profitable company.

So, to have a better understanding, we must divide current assets into two different categories; financial current assets and operational current assets (Operational Working Capital).

5.2 IMPACT OF OPERATIONAL NET WORKING CAPITAL LEVEL ON PROFITABILITY

Operational Net Working Capital level= (Receivables + Stock – Payables) / Sales

Profitability= Net Income / Sales

Figure 4- Operational net working capital level profitability

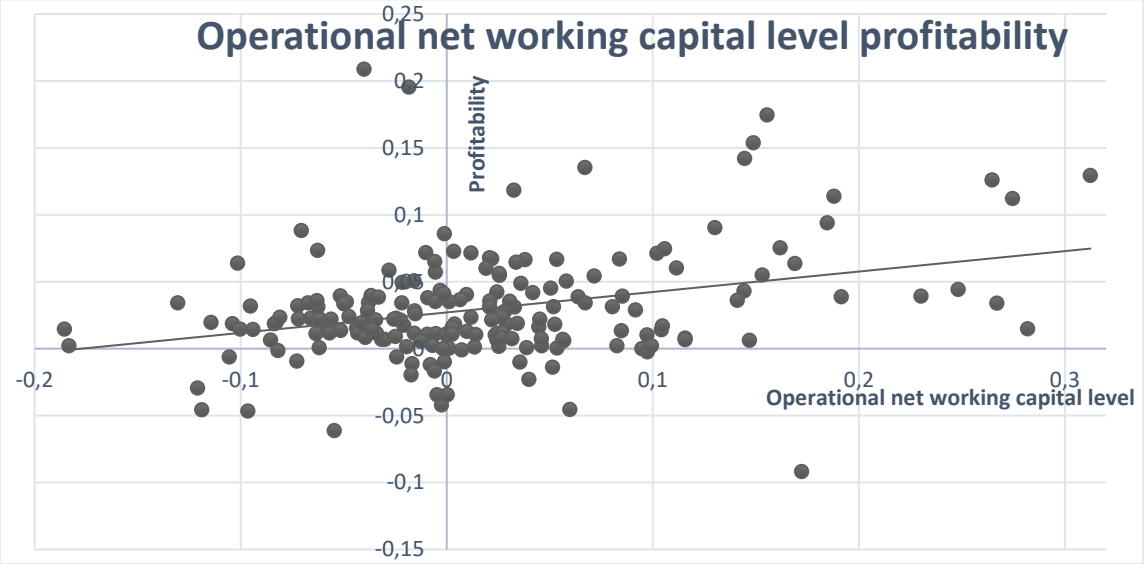


Table 3-Operational net working capital level on profitability regression output

Regression Statistics	
Multiple R	0,371314
R Square	0,1378741
Adjusted R Square	0,1335199
Standard Error	0,0549191
Observations	200

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,095504485	0,095504	31,66483459	0,000000062
Residual	198	0,597188906	0,003016		
Total	199	0,692693391			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0,0207389	0,003943051	5,259609	3,72959E-07	0,012963142	0,028514674
X Variable 1	0,1947851	0,034615214	5,627152	6,19662E-08	0,126523247	0,263046859

Pretty similar with the previous test, there is statistical evidence of correlation, and we can observe a positive correlation of operational net working capital level and profitability.

The regression suggests a positive correlation between operational net working capital level and profitability.

This result goes against hypothesis 2a), that expected a negative correlation, so that a lower level of operational working capital would drive to higher profitability.

This means that higher levels of operational working capital have a positive impact in companies' performance and suggests that money hold in stock or in getting shorter period of payments to suppliers have positive effects. This effects are better relationship and customers satisfaction and more negotiation power with suppliers which can affect the price and the margins as consequence.

So, to resume, until now, we have statistical evidence to conclude that retail companies have positive correlation not only between net current assets level but also between operational Net working Capital level and profitability.

So, to truly understand what impacts these results we should study working capital in more detail (stock, receivables and payables).

5.3 IMPACT OF STOCK LEVEL ON PROFITABILITY

Stock level= Stock/ Sales

Profitability= Net Income / Sales

Figure 5- Stock level profitability

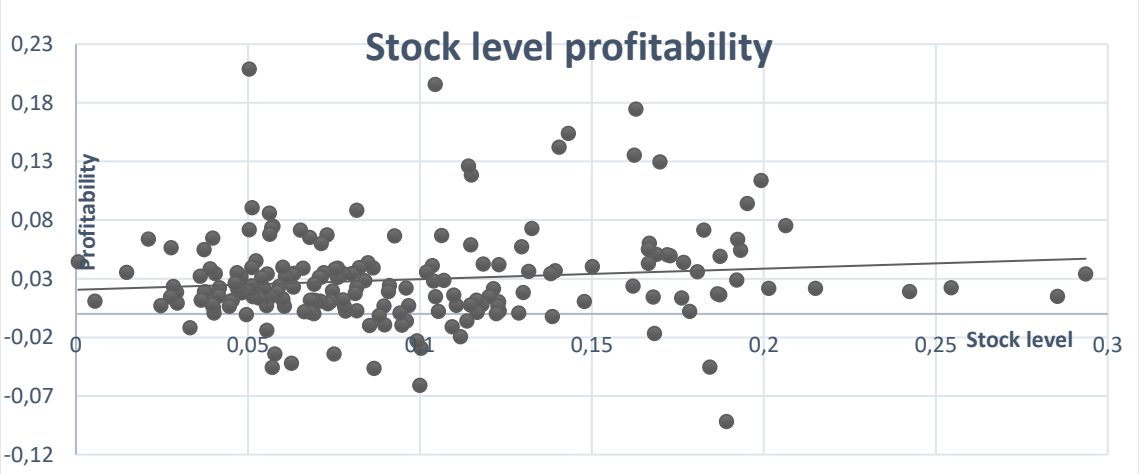


Table 4-Stock level on profitability regression output

Regression Statistics	
Multiple R	0,215259326
R Square	0,046336578
Adjusted R Square	0,041520096
Standard Error	0,057761105
Observations	200

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,032097041	0,032097	9,62042	0,002205164
Residual	198	0,66059635	0,003336		
Total	199	0,692693391			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0,005519229	0,007380095	0,747853	0,455436	-0,009034446	0,0200729
X Variable 1	0,191196243	0,061642798	3,10168	0,002205	0,069635568	0,31275692

H0 is rejected, so with a 99% level of confidence, we can assume stock level have a correlation with profitability.

Like the previous tests made, the correlation is positive, suggesting that higher level of stocks lead to more profitability.

This output goes against the starting hypothetical scenario and supports the idea that holding more stock have benefits even comparing with all the costs resulting from it.

A high stock level policy has as a consequence buying in more quantities and that gives retailers more negotiation capacity that leads to better deals, operational margins and possible stronger relations with suppliers.

Holding more stock reduces not only the risk of ruptures but also products price fluctuations, and this allows retailers to have better relations with clients.

We should observe the others working capital components to better understand their role in profitably.

5.4 IMPACT OF RECEIVABLES LEVEL ON PROFITABILITY

Receivables level= Debtor/ Sales

Profitability= Net Income / Sales

Figure 6- Receivables level profitability

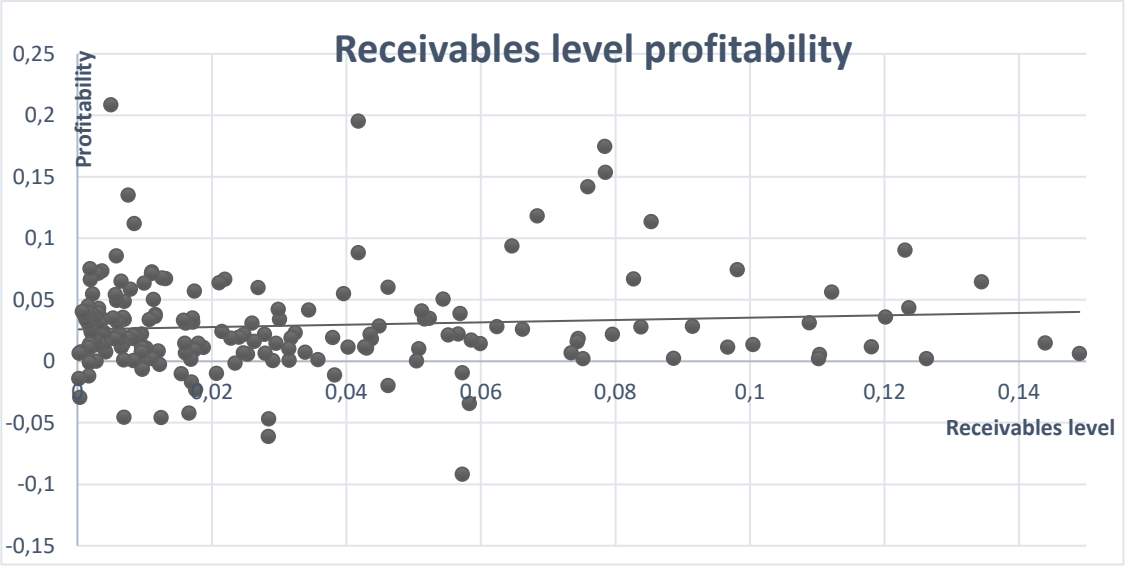


Table 5-Receivables level on profitability regression output

Regression Statistics	
Multiple R	0,13231235
R Square	0,01750656
Adjusted R Square	0,01254447
Standard Error	0,05862769
Observations	200

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,012126678	0,012127	3,528062892	0,061808041
Residual	198	0,680566713	0,003437		
Total	199	0,692693391			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0,01929202	0,005012628	3,848684	0,000160174	0,009407028	0,02917701
X Variable 1	0,12725176	0,06774787	1,878314	0,061808041	-0,006348222	0,26085175

For a confidence level of 99%, observing the p-value, the null hypothesis is not rejected.

There is no statistical evidence at this confidence level that receivables level and profitability are somehow correlated.

From this output we can´t take any conclusions or make any assumption with the results of the regression, since those could be based on wrong presumptions.

This result can be easily explained by the sector in study.

Retail industry by nature doesn´t have significant receivables level, since their customers are final consumers that pay for products at acquisition moment. As it's easy to observe by the concentration of companies that have receivables level lower than 2% of sales.

So, there is no evidence that debtor levels have impact on profitability for retail companies.

5.5 IMPACT OF PAYABLES LEVEL ON PROFITABILITY

Payables level= Payables/ Sales

Payables= Net Income / Sales

Figure 7- Payables level profitability

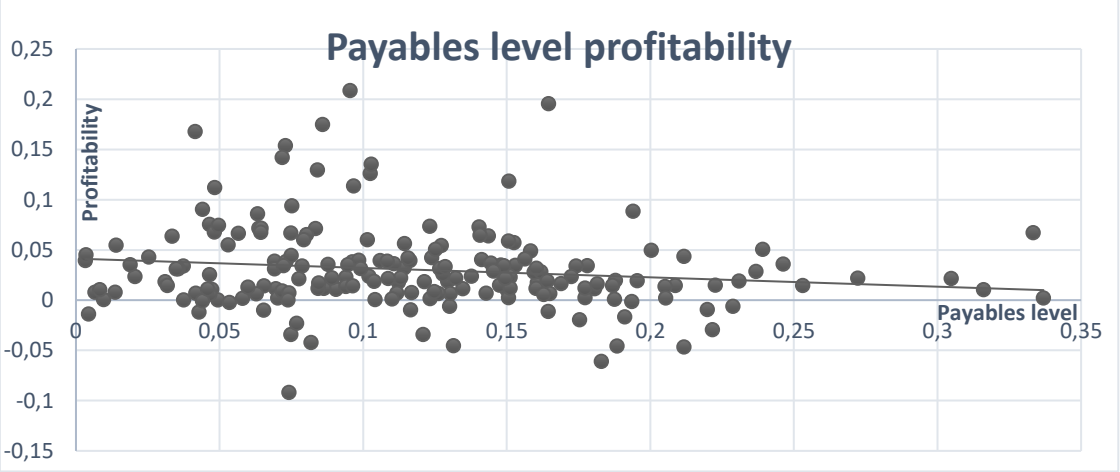


Table 6-Payables level on profitability regression output

Regression Statistics	
Multiple R	0,260452507
R Square	0,067835508
Adjusted R Square	0,063151265
Standard Error	0,056962885
Observations	201

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0,046989579	0,04699	14,48163526	0,00018833
Residual	199	0,645709279	0,003245		
Total	200	0,692698858			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	0,04972368	0,00773449	6,428824	9,33075E-10	0,034471601	0,06497576
X Variable 1	-0,206876623	0,0543629	-3,80547	0,00018833	-0,3140779	-0,0996753

Observing the p-value, we have statistical evidence to rejects the null hypothesis:

$$H0: \beta 1 = 0$$

We can observe a negative correlation between payables level and profitability. This test, like the ones before rejects the idea that lower working capital levels leads to higher profitability and retailers don't get positive returns extending payment periods.

This correlation gives us an idea that companies that owe less to suppliers are more profitable. This can be explaining by the fact that short payment periods to suppliers allows retailers to reduce products cost and have bigger operational margins.

Recalling that the companies chosen for this test are the biggest retailers in Europe, longer payment periods would have necessary a big impact in product prices. Those longer periods would cause many financial issues to suppliers that would have to get financing to financial institutions to face this period and support those costs.

6. FINAL CONCLUSIONS

Before the study my suggestion was that retail companies could be more profitable if they minimize the operational Net working capital as much as possible. And that means, less stock, less receivables and more payables.

This idea would imply that retailers would have less operational margins and more financial by consequence of that working capital strategy.

In theory, higher levels of working capital is a positive symptom of a healthy company and the first correlation made suggest that. But that result was already expected.

The main doubt was about the composition of that positive working capital, what would be more profitable, higher levels of operational net working capital, or financial working capital.

The output of the correlations has shown that more profitable companies have higher levels of operational working capital.

The results show that higher levels of stock have positive consequences on profitability, and that can be explain by less prices fluctuations, lower product cost and better relations with suppliers. Is interest to observe this knowing that stock management and costs are one of the main costs for retailers this size.

About receivables the correlation is not conclusive for a confidence level of 99% and we don't have statistical evidence to suggest that profitability can be explained by debtor's level, which makes sense and was excepted since the low levels of receivables it's as particular characteristic of retail sector, and the impact of this item on working capital management and profitability is not a determinant factor.

About payables level, we can observe a negative correlation that suggests that companies with lower levels of payables tend to be more profitable. Like with stock, this working capital investment seems to have good returns, better relations with suppliers and lower product costs are a key factor to operational activity.

Profitable retailers invest in operational working capital to have higher margins and less financial risks focusing on their core business.

These results can be explained also with the low returns of financial investments in a short-term period, that discourage managers to take operational risks to make those investments.

In this test, we can observe that the correlation can be expressed with simple linear regression but it's easy to understand this conclusion can only be assumed at this level of working capital and profitability.

It's not predictable that companies with higher levels of working capital would have higher profitability for any level of working capital, so we can say that the function in a theoretical scenario would have necessary to be concave.

So, tests made can suggest that the biggest retail companies in Europe have insufficient working Capital funds to maximize their operations profitability.

Looking to the graphs produced for different variables we can observe that most of the companies could turn more profitable and increase their value with higher Working Capital investment.

In any case, it would be interesting to observe this evolution through the years to see if there is any trend of change the structure of current assets and liabilities between financial and operational. And if it there that trend is observed, if there is relation with retailer's short-term capital market returns or retailers operational margins.

7. BIBLIOGRAFY

Agha, 2014. Impact of working capital management on profitability vol.10*. European Scientific Journal,pp 374-380.*

Aktas et al. (2015). Aktas, N., Croci, E. & Petmezas, D. (2015). Is working capital management value-enhancing? Evidence from firm performance and investments, Journal of Corporate Finance, pp. 98-113.

Aravindam & Ramanathan (2013) Working Capital Estimation/ Working Capital Management and Profitability: Evidence from

Kahn, Barbara E., Inman, J. Jeffrey and Verhoef, Peter C .(2018) "Manufacturing Sector in Malaysia Management - A Financial Modeling Approach. Academic Journal - Advances in Management", Vol. 6, Nº 9, pp. 4-10.

Blinder, Alan S., and Louis J. Maccini. 1991. "Taking Stock: A Critical Assessment of Recent Research on Inventories." Journal of Economic Perspectives, 5 (1): 73-96.

C.L. Pass, R.H. Pike, (1984) "An Overview of Working Capital Management and Corporate Financing", Managerial Finance, Vol. 10 Issue: 3,pp.1-11, https://doi.org/10.1108/eb027318

Chatterjee, Saswata, The Impact of Working Capital on the Profitability: Evidence from the Indian Firms (August 6, 2012). Available at SSRN: https://ssrn.com/abstract=2125228

Deloof (2003) Does Working Capital Management Affect Profitability of Belgian Firms? Journal of Business Finance & Accounting, Vol. 30 Nº 3 & 4, pp. 573 - 587.

Ek and Guerin, 2011, Is there a right level of working capital? Journal of Corporate Treasury Management, Vol. 4,no. 2, pp. 137-149.

Gomes, D. (2013). How does working capital management affect firms' profitability? – Evidence from Portugal. Tese (Mestrado em Finanças) – Instituto Superior de Economia e Gestão.

Hager, C. (1976). Cash Management and the Cash Cycle. Management Accounting, Vol. 57, pp. 2-19.

Jakpar S, Tinggi M, Siang TK, Johari A, Myint KT, et al. (2017) Working Capital Management and Profitability: Evidence from Manufacturing Sector in Malaysia. J Bus Fin Aff 6: 255. doi: 10.4172/2167-0234.1000255

Mansoori, E, Joriah Muhammad(2012), Determinants of working capital management: Case of Singapore firms, "Research Journal of Finance and Accounting" , Vol 3, No.11, pp.15-23.

Martins, A., I. Cruz, M. Augusto, P. Silva & P. Gonçalves (2009). Manual de Gestão Financeira Empresarial. Coimbra Editor.

Mota, E. (2013). O impacto da Gestão Financeira de Curo Prazo no Desempenho das Empresas – Análise ao Mercado Português. Tese (Mestrado em Finanças) – Faculdade de Economia do Porto. (Nikomaram, 2005)

Nwankwo, O. & G. Osho (2010). An Empirical Analysis of Corporate Survival and Growth: Evidence from Efficient Working Capital Management. International Journal of Scholarly Academic Intellectual Diversity, Vol. 12, Nº1, pp. 1-13.

Petersen, M. A. & Rajan, R. G., 1997. Trade Credit: Theories and Evidence. Review of Financial Studies, Volume 10; No.3, pp. 661-691.

Smith, K. V., 1986. State of Art of Working Capital Management. Financial Management, Volume 2; No.3, pp. 50-56.

Tagduan & Nicolaescu (2011) . Increasing Importance of Working Capital in the Conditions of Current Economic Crisis. Agricultural Management / Lucrari Stiintifice Seria I, Managemen; Vol. 13 Issue 3, pp. 270-275.

Weinraub, H. J. & Visscher, S., 1998. Industry Practice Relating to Aggressive Conservative Working Capital Policies Journal of Financial and Strategic Decisions, Volume 11, Number 2,Fall 1998

Data base

Amadeus data base

https://amadeus.bvdinfo.com/version-2018828/Login.serv?Code=InvalidIpAddress&LoginParamsCleared=True&LoginResult=nc&product=amadeusneo&RequestPath=home.serv%3fproduct%3damadeusneo