ISCTE Business School
University Institute of Lisbon

"THE IMPACT OF WORKING CAPITAL ON PROFITABILITY IN THE EUROPEAN TOURISM"

Marisa Tomás Campina

Dissertation submitted as partial requirement for the conferral of
Master in Finance

Supervisor:
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Abstract

Working Capital Management represents an important issue to take into consideration since it relates to corporate financial strategy and influences liquidity and profitability of companies. It is expected that an efficient working capital management to affect positively firms' profitability and to contribute for value creation for shareholders. Analysing a sample of 59,131 European Touristic firms, the present research investigates the relation between working capital management and profitability for the period 2009-2016. Cash Conversion Cycle (CCC) is used as a working capital measure and ROA as a profitability measure. The results obtained suggest that companies are able to achieve higher profitability levels by decreasing the number of days in accounts receivable, inventories and payables. In conformity to previous studies, a negative relationship is found between CCC and profitability.

Keywords: Working Capital, Liquidity, Profitability, Tourism, Europe
J.E.L classification: G31, G32, M40, Z30

Resumo

O *Working Capital* (WC) desempenha um papel fundamental no que respeita à definição da estratégia financeira das empresas uma vez que influencia a liquidez e a rendibilidade destas. É expectável que um *WC* eficiente afete positivamente a rendibilidade e que contribua para a criação de valor para os *shareholders*. Analisando uma amostra de 59,131 empresas europeias a operar no sector do turismo, o presente estudo investiga a relação entre o WC e a rendibilidade para o período 2009-2016. O *Cash Conversion Cycle (CCC)* é usado como medida de WC enquanto a rendibilidade dos ativos é mensurada através do return on assets (*ROA).* Os resultados obtidos demonstram que as empresas conseguem atingir níveis mais altos de rendibilidade quando reduzem o número de dias associados aos recebimentos de clientes, aos inventários e ao pagamento aos fornecedores. Estando em conformidade com estudos anteriores, foi encontrada uma relação negativa entre o CCC e a rendibilidade.

Palavras-chave: *Working Capital*, Liquidez, Rendibilidade, Turismo, Europa
Classificação JEL: G31, G32, M40, Z30

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Developing this thesis has become one of the biggest challenges of my life. It involved a lot of research work, gathering previous studies in the area of working capital and profitability, and elaborating the interpretation of the results I have obtained. I would like to take this opportunity to express my sincere gratitude to the people that have been by my side and have supported me during the entire process.

Firstly, I would like to thank my supervisor, Professor Luís Laureano, for his patience and aid in choosing my thesis theme. Since the beginning, his guidance and advice were extremely helpful. I would like to highlight his outstanding availability in sharing his knowledge about this subject and his constructive criticism of my work.

Secondly, I would like to show appreciation to my friends and colleagues. This journey would have been much harder without their support, motivation and advice.

Finally, I would like to express my gratitude to my entire family. They are the ones that believe in me the most and their encouragement has giving me strength in difficult times.

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List of Abbreviations

APR – Accounts Payables Rate

ARR – Accounts Receivables Rate

CCC – Cash Conversion Cycle

GDP – Gross Domestic Product

GDPR – GDP Growth

GLS – Generalized Least Squares

INVR – Inventories Rate

LEV – Leverage

OLS – Ordinary Least Squared

ROA – Return on Assets

ROE – Return on Equity

SME – Small and Medium Enterprises

UNWTO – World Tourism Organization

VIF – Variance Inflation Factor

WC – Working Capital

WCM – Working Capital Management

1. Introduction

This chapter conveys a general overview of the thesis. It is presented the problem statement and motivations behind the current study of the working capital and profitability in the European tourism sector. It is also clarified the objectives that this investigation aims to accomplish and detailed the methodology followed, besides the structure of the thesis.

1.1. Problem statement and motivation

Since the beginning of the millennium, Europe has been suffering several events, such as terrorist attacks, political instability and financial crisis, that affect directly or indirectly the tourism sector. However, tourism is one of the key pillars of the european economy and it plays an important role for the countries' development. Its influence has been fundamental in contributing to the economic recovery with the creation of jobs, GDP and to the balance of payments. Europe is the most visited continent and predictions indicate that it will continue to be so for at least until the next decade. It becomes important to understand if European companies, mainly in the Tourism Industry, have a solid financial situation that will allow to support the upcoming years of continuing growth.

Traditionally, several researches in the corporate finance field have focused on the study of long-term financial decisions, investigating topics as investments, capital structure, company valuation and dividends. Nonetheless, short-term investment and resources represent the biggest share of items on a firms' balance sheet (García-Teruel and Martínez-Solano, 2007).

Hence, Working Capital Management (WCM) embodies an important role in the daily financial decisions of companies. In fact, Deloof (2003) defends that most firms have a vast amount of cash invested in working capital and use short-term payables as a financing source. It is expected that the management of working capital impacts significantly firms' profitability. The ultimate objective of WCM is to enable to create an equilibrium between liquidity and profitability, while conducting the day-to-day business operations (Baidh, 2013).

Thus, the motivations for the elaboration of this study is to provide relevant information for managers about the financial situation, whether in Europe in general or concerning the regions in which their countries belong. With this information, it is possible to adequate their financial strategy and develop policies that will help sustain their growth. Additionally, this study contributes to the existing literature on Working Capital and the relation between WC and its constituents with profitability, in the European Tourism Industry framework.

1.2. Objectives

The present thesis aims to contribute for the literature on Working Capital Management in the following ways:

- analyse how working capital influences firms' returns;
- examine the relationships and evolution between working capital and profitability, over the last 8 years, for European Touristic companies;
- explore if there are significant differences in working capital across European Regions;
- investigate how working capital varies among different firm sizes.

1.3. Methodological Approach

To better understand how companies manage their working capital, first, it is presented a literature review where is possible to ascertain previous studies in this area and theories developed. After, resorting to AMADEUS database, it was possible to gather information for 59,131 European firms in the Tourism Industry, for the period 2009 – 2016, which corresponds to 473,048 firm-year observations. The next step was to perform a descriptive analysis to comprehend the sample composition and its characteristics. Aiming to examine the relationships between variables involved in the study, Pearson Correlation Matrix is carried out. After that, the models followed are regressed using Fixed-effects models, to avert unobservable heterogeneity, and through Instrumental Variables to bring robustness to the results controlling for eventual endogeneity problems.

1.4. Thesis Structure

This thesis presents the following organization: Chapter 1 is a brief introduction to WCM and main objectives of this study; Chapter 2 provides the literature review where it is developed the concept of working capital, empirical researches and the effect on firms' profitability; Chapter 3 explores the tourism context in Europe which is helpful to frame the current investigation; in Chapter 4 it is described the data sample, the variables involved and the methodology used; Chapter 5 delivers the results obtained where it includes the descriptive analysis of the sample, Pearson Correlation Coefficient and Regression analyses performed. At last, Chapter 6 presents the main conclusions as well as recommendations for future research.

2. Literature review

In this chapter are presented the fundamentals that are being used in the execution of the present study. Having as support previous literature, it is possible to understand the concepts regarding Working Capital Management and how it influences firms' profitability.

2.1 Importance of Working Capital Management

Gitman (1988: 4), states that *"Finance can be defined as the art and science of managing money"*. Because it influences the lives of organizations and individuals, its main concern is about the transactions of money among stakeholders, being persons, companies, markets, investors or creditors. Although each one has its own objectives in a firm, the financial analysts should be able to draw conclusions about the problems that the firm has to overcome and define strategies for the future to achieve the defined goals (Gitman, 1988). Simultaneously, they should select the indicators which will allow to understand the performance of the company and make decisions that will influence its capital structure (Silva, 1987).

According to Neves (2004: 36), *"financial analysis is a process based on a group of techniques that aim to evaluate and interpret the economic-financial situation of the company"*[1]. One of the most important objectives of the Financial Analysis is to assure the right financial balance that will allow companies to face their obligations, avoiding treasury breakages.

Nowadays, the field of finance is broad and is increasingly in development. However, in the beginning, the financial function was very rudimental. Initially, its main activities were caring out the receipts and payments, ensuring the maintenance of the balance of cash and cash equivalents arising from the normal operation of the company. It was limited to what is called today as cash management. Due to the intensification of the complexity of transactions, it emerged the need to extend the scope of activity. Currently, it also dedicates to the financing decisions, selecting the funding sources that will allow to gather funds timely and at the lowest possible cost. By doing so, there must exist the concern to meet the criteria related to profitability and financial equilibrium (Neves, 2004).

Since this subject is concerned with the creation of value for shareholders, it implies the scrutiny of the impact of the decisions made at two perspectives: profitability and risk.

[1] Free translation from the author: "A análise financeira é um processo baseado num conjunto de técnicas que tem por fim avaliar e interpretar a situação económico-financeira da empresa".

Profitability is related to the maximisation of shareholders' wealth and it describes the relationship between revenues and cost. According to Gitman (1998), profitability rises if revenues increase or cost diminish. Investments in current assets should occur if an acceptable return is achieved. It reveals the capacity of the company to generate profit and a series of positive cash flows. On the other hand, risk reflects the variability of that cashflows and reflects the probability of firm to pay for its commitments (Gitman 1998). A company can choose to hold more cash than required for operational needs or precautionary reasons, which reveals the importance of liquidity for a company to maintain in business.

From this line of reasoning, arises the concept of Working Capital (WC) and Working Capital Management (WCM) which takes care of the daily operations of a company. As Filbeck and Krueger (2005) mentioned, WC is the difference between funds in cash or readily convertible into cash (Current Assets) and companies' obligations for which cash will be soon required (Current Liabilities):

$$WC = \text{Current Assets} - \text{Current Liabilities} \quad (1)$$

WC has an extreme relevance for managers since they invest a significant amount of time and effort to obtain the optimal balance between liquidity and profitability and, consequently, risk and return. The ultimate goals of WCM are to increase profitability and guarantee that it provides sufficient liquidity to face short-term obligations, while creating conditions to continue the day-to-day operations (Baidh, 2013; Pass and Pike, 1984). Baños-Caballero et al. (2014) found that until a certain level of WC, corporate profitability rises but, after that, the relationship between them is negative. So, managers should keep as close to the optimal level as possible avoiding deviations that could destroy firm value.

2.2. Working Capital and Cash Conversion Cycle

The level of WC is an important issue to take into consideration since it impacts the operational risk of a company (Koralun-Bereznicka, 2014). As Deloof (2003: 573) mentioned, "Firms may have an optimal level of working capital that maximizes their value." However, in cases when its determinants are misunderstood, because financial managers failed to effectively plan and control current assets and liabilities, it may lead to the raising of expensive loans, high interest payments, greater restrictive covenants applied by banks or, on the limit, bankruptcy (Rafuse, 1996).

Baidh (2013) mentions that the principle of an efficient WCM relies on speeding up client's collections and slowing down expenditures to suppliers as much as possible. A popular way to measure WC is through the Cash Conversion Cycle (CCC). It was first introduced by Gitman (1974) as a crucial element of WCM but Richards and Laughlin (1980) extended the concept reflecting the net time interval between cash expenditures or purchases and the recovery of cash receipts from sales (Shin and Soenen, 1998). CCC indicates the time a firm takes to collect from receivables and to maintain its inventory subtracting the time taken to pay its currents obligations (Deloof 2003; García-Teruel and Martínez-Solano, 2007). Additionally, it is also an indicator of how long a firm would last if it was about to end its operations (Lazaridis and Tryfunidis, 2006):

$$CCC = Number\ days\ in\ Account\ Receivable + Number\ days\ in\ Inventory - Number\ days\ in\ Account\ Payable \quad (2)$$

According to Gentry et al. (1990), a shorter CCC is a consequence of a fast process of stock, conversion of receivables into cash and the deferment of payables. It results in the improvement of the profitability.

As pointed out by Petersen and Rajan (1997), firms whose sales decrease or have negative profits, extend trade receivables to their clients. Large stock and a generous trade credit can lead to an increment of sales. This happens because larger stock reduces the risk of a stock-out and trade credit allow customers to access products before paying (Deloof, 2003; Lazaridis and Tryfunidis, 2006). On the other hand, a delay in payment to suppliers rises the accounts payable, which lessens the length of CCC originating a more efficient WCM and, consequently, a higher profitability (Enqvist et al., 2014). As such, a low CCC allows managers to reduce to the minimum holdings of relatively unproductive assets, like cash and marketable securities, preserves firms' debt capacity because less short-term borrowing is required to provide liquidity and it increases present value of net cash flows of companies' assets (Jose et al., 1996).

Therefore, profitability can be hurt if the investment costs in CCC rise quicker than the benefits of maintaining more stock and/or conceding customers with more trade credit (Deloof, 2003). As mentioned by García-Teruel and Martínez-Solano (2007:6) *"the longer the cash conversion cycle, the greater the net investment in current assets, and hence the greater the need for financing of current assets"*. When firms have a shorter time span of CCC, they are able to reach higher levels of profitability by managing the credit policy and the levels of inventory (Shin and Soenen, 1998). Conversely, firms with a larger length of CCC should

reduce the investment in the WC components. As such, managers create value for their shareholders by reducing the CCC to a reasonable minimum.

2.3. Working Capital components

According to Deloof (2003) there is a strong relation between CCC and firms' profitability. The three components that form CCC are accounts receivables, inventory and accounts payables and they can be managed in dissimilar ways with the objective to maximise profitability or boost companies' growth.

Accounts receivables arises from the credit firms grant to its clients which can be used as a vehicle to entice new costumers and raise more orders (Lazaridis and Tyfonidis, 2006). Sagner (2011) describes that this category contains all credit sales that is predictable that the clients pay at a specified date. Those credits are continuously renewed as the oldest ones are being liquidated, originating new ones with sales. This means that the company has receivables permanently, regardless the time granted. (Mota and Custódio, 2006). As mentioned by Awad and Jayyar (2013), managing accounts receivable signifies establishing a collection policy and monitoring frequently this account.

To avoid sales or production ruptures, a company must possess inventory (Mota and Custódio, 2006). Firms can more easily achieve financial and operational objectives with the efficient use of resources and availability of materials, minimizing the costs associated. Managing inventory impacts profitability directly by instigating sales and/or saving costs, namely expensive storage, opportunity costs to invest in inventory and lower purchases prices (Awad and Jayyar, 2013).

Meurier et al. (1991) explain that most of the necessities related with the operational cycle renewable themselves: raw materials become product in process which become in finished products. These ones originate credit conceded to clients through sales. However, Deloof (2003) draws the attention to the fact that granting credit to customers and keeping inventories means that money is trapped in WC.

Accounts payable represent the amount owed to creditors derived from purchases (Sagner, 2011). Petersen and Rajan (1997) mention that suppliers may signify a cost advantage over financial institutions in providing credit. A firm has access to the products bought, without having the commitment to pay immediately but at an agreed deadline. This represents an

inexpensive and flexible source of funding to a company whereas allows to make use of the money in the meanwhile (Deloof, 2003).

According to studies carried out by Deloof (2003) and García-Teruel and Martínez Solano (2007), increasing corporate profitability is possible by reducing the number of days of accounts receivables and inventory. A company with high levels of receivables and inventory, may require higher levels of costly capital in which longer receivables cycles rises storage costs, contributing of an increase of the risk of inventory obsolescence (Ebben and Johnson, 2011).

2.4. Cash Conversion Cycle and Firm size

Baidh (2013) affirms that WCM is essential to the financial health of corporations of all sizes. As pointed out by Zariyawati et al. (2017), size differences have a strong influence in the connection between CCC and operating performance and must be taken into consideration.

Small and medium enterprises (SME) companies tend to resort to owner financing, short-term bank loans and trade credit to raise financing to their investments and operational needs - accounts receivables and inventory. This occurs because they have poorer conditions to access long-term capital markets. (Koralun-Bereznicka, 2014; Petersen and Rajan, 1997). Due to the hindrances to raise capital, small firms should be more careful when managing cash and working capital.

On the other hand, larger firms tend to be more profitable and present shorter CCC (Jose et al., 1996). Larger firms and the ones with high credit ratings tend to present lower cash to total non-cash assets ratios since they have better conditions to access short-term debt in the market. Thus, firms hold liquid assets to enable them to invest in situations when cashflow is scarce or the outside funds are too expensive (Koralun-Bereznicka, 2014).

Several authors concluded that a more efficient CCC leads to higher returns in both small firms (García-Teruel and Martínez Solano, 2007) and large firms (Deloof, 2003; Lazaridis and Tryfunidis, 2006; Shin and Soenen, 1998). This is in concordance with Ukaegbu (2014) that defends that exists a positive relationship between profitability and size, where large corporations tend to be more profitable than small ones. An effective WCM affects positively returns by diminishing capital costs and helping firms to attain higher levels of asset turnover (Ebben and Johnson, 2011).

2.5 Working Capital Management policies

Choosing a working capital policy depends on the tradeoff between risk and return associated to alternative policies (Bei and Wijewardana, 2012). It is denominated as aggressive policy to the one with high risk, high return WC investment and financing strategies. This results in minimizing capital in current assets against long term investment. It is expected that since there is more risk associated, profitability will also be higher. On the other hand, a conservative policy involves lower risk and returns in which a firm has a higher capital in liquid assets. This is the case that companies bet more on short-term components.

As mentioned by Jose et al. (1996:5), *"an aggressive (conservative) approach to liquidity management results in a lower (higher) CCC by reducing (increasing) the inventory period and accounts receivables period while increasing (reducing) the accounts payables period."* Several authors suggest that lowering CCC is synonymous of a better performance (Deloof, 2003; García-Teruel and Martínez Solano, 2007; Shin and Soenen, 1998).

2.6 Working Capital Management and Profitability: Previous Studies

As previously discussed, WC is used as a way to study firms' liquidity. Jose et al. (1996) explains the evolution of the measures to ascertain this topic mentioning that, traditionally, it was used current ratios, quick ratios, net working capital and ratio of net working capital to current liabilities. However, these static ratios do not represent meaningful indicators from a cash-flow perspective. Richards and Laughlin (1980), have been aware of this limitation and encouraged the use of ongoing liquidity management measures as CCC. Ongoing liquidity management uses cashflows to cover commitments avoiding default. In recent years, CCC has become a more popular tool when investigating organisations' cash management, since it combines balance sheet and income statement data and enables to create a time dimension framework. When reducing CCC, managers diminish holdings of relatively unproductive assets and preserve organizations' debt capacity. As such, minimizing CCC allows companies to manage WC efficiently and, consequently, achieve higher returns. As mentioned by Deloof (2003), firms can reach an optimal WC level that maximizes their value and it contributes for shareholder value creation.

The relationship between WCM and profitability has been studied through many researches, applied for different companies' sizes. In the field of large firms, Shin and Soenen (1998) explore this relationship in a sample of American listed corporations for the period 1975-

1994 using the net trade cycle, which is similar to CCC but all WC components are expressed as a percentage of sales. In this study, they found a negative relation between net trade cycle and market measure of stocks returns and profitability. Jose et al. (1996) study not only CCC but also ROA and ROE for a sample of Compustat firms for the period 1973-1993. Deloof (2003) investigated how WCM influenced profitability of Belgium firms for the period 1992-1996. In his research, the author uses Gross Operating Income as a profitability measure instead of ROA. Moreover, Lazaridis and Tryfonidis (2006) study this theme with a sample of listed companies in Athens Stock Exchange, for the years 2001-2004, and they reached the conclusion that CCC and Gross Operating Profit establish a negative relationship.

Regarding small firms, García-Teruel and Martínez-Solano (2007) analyse a sample of Spanish SME companies for the period 1996-2002. They realized that reducing the number of days in receivables and inventory allow to decrease CCC and, therefore, rise firms' profitability. Although accounts payable and profitability present a negative relation, they were not able to confirm if the number of days in payables affect returns because it loses significance when controlling for eventual endogeneity problems. Pais and Gama (2015) study how WCM influences non-financial Portuguese SME using a sample for the period 2002-2009. Their results also reached the conclusion that days in receivables, inventory, payables and cash conversion cycle vary inversely with regard to profitability.

Therefore, several authors found a negative relationship between WC determinants and profitability during their investigations which elucidates that reducing working capital components increases firms' profitability (Deloof, 2003; García-Teruel and Martínez-Solano, 2007; Jose et al., 1996; Lazaridis and Tryfonidis, 2006; Pais and Gama; 2015; Shin and Soenen, 1998). In fact, Baños-Caballero et al. (2014) found an inverted U-shaped relation that confirms the existence of an optimal level of investment of WC that allows to create an equilibrium between costs and benefits, maximizing business' performance.

3. Tourism sector

This chapter intends to provide a better understanding of the tourism sector and how it is characterized. Its concept and importance are presented. either in the international panorama and in Europe in particular. Also, it is presented predictions regarding the evolution of tourism.

3.1. Concept and importance of tourism

World Tourism Organization (UNWTO, 2008:1) describes tourism as *"social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes"*.

Tourism is a complex system that does not work without the complementarity of other activities. There must exist accommodation, that in turn needs transportation, commerce, construction, and several other areas in which it creates a direct or indirect impact. It is notorious the improvement of infrastructures such as roads, housing and sanitation networks but also the increase of transportation facilities with the rise of air, sea and land routs to support touristic growth (Cunha, 2003).

Tourism flows rose mainly among developed countries, but its influence have spread through developing countries as well. The economic importance is different among them whereas each one has their own stage of development. So, the greater the economic development the more income would be available to be placed to leisure activities, contributing for the growth of this sector. Consequently, there is a reduction of poverty, an increase of employment and social inclusiveness not only for the tourism sector but also to others.

There is an appreciation of the material patrimony, through the promotion of the monuments and places to visit, and of the immaterial patrimony like the history, traditions and culture of the countries. It intensifies the necessity to preserve what characterizes each nation and people, increasing the diversity of the world.

Several reasons lead people to travel. They can choose to do an individual trip, according to their preferences and determining their own path or do a group journey in which they join a pre-stablish plan where, usually, accommodation and transport are included and the itinerary cannot be changed. Either way, the identification of the types of tourism help to adequate the supply with the existent demand:

- Cultural tourism: the motives behind it are to increase knowledge about new places, religions, or even ethnic realities. There are included monuments, churches, and cultural attractions;
- Nature tourism: is related with ecological and environmental issues like land, water, and air or even trips to natural parks to contemplate the nature;

- Resting tourism: dedicated to people who want to relax both physical and mentally in a way to obtain a health benefit. In this, are included health resorts and thermal stays;
- Business tourism: occurs when people need to move to other places in order to participate in meetings, congresses, industrial complexes or even scientific sessions;
- Sports tourism: it happens when there are sport events and people go watch participate in a match.

Although there are several motives that encourage people to travel, these types of tourism are not independent which means that they can be conjugated. For example, if the first reason to travel is to participate in a sport's show, people can take advantage of it and visit the city (Cunha, 2003).

3.2 International tourism

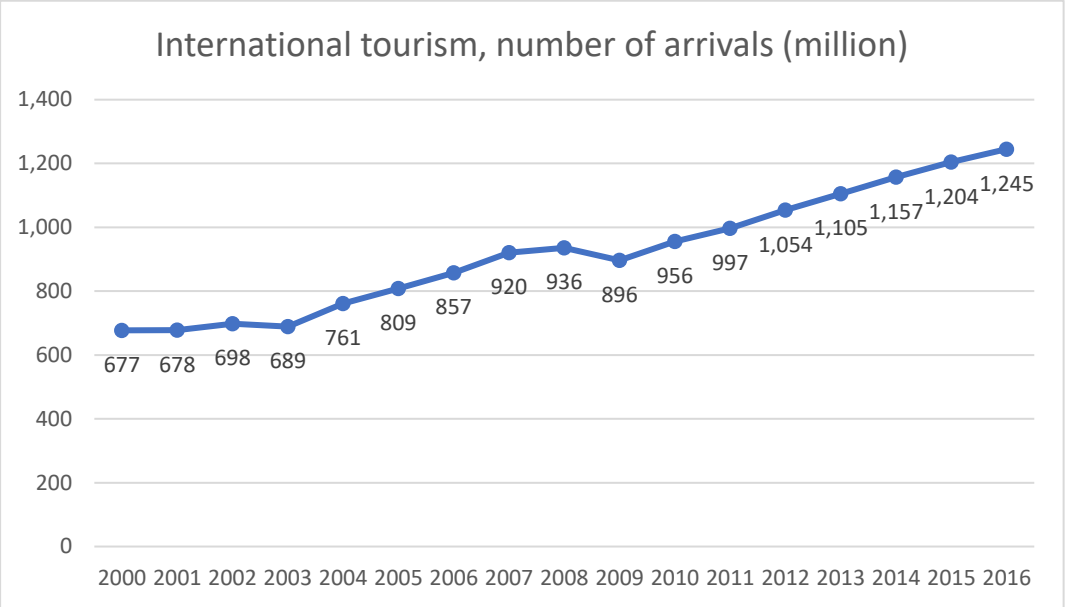
Due to an ever-increasing number of destinations worldwide, countries have been investing in tourism. Hence, UNWTO (2008: 2) mentions that *"international tourism comprises inbound tourism plus outbound tourism, that is to say, the activities of residents visitors outside the country of residence, either as part of domestic or outbound tourism trips and the activities of non-resident visitors within the country of residence on inbound tourism trips."*.

Recent studies, published on UNWTO World Tourism Barometer, showed that 2017 reached the best results of the past seven years, overcoming the sustained and consisting trend of 4% growth since 2010. International tourists' arrivals reached a total of 1,322 million (overnight visitors) across the world which corresponds to a 7% increase. The highest growth was registered in Africa and Europe (8%), followed by Asia and Pacific (6%), Middle East (5%) and, at last, Americas (3%).

Mediterranean destinations have registered a strong growth due to the results of southern Europe and north of Africa (13%). However, this happened not only because of the emergence of new places to visit but also due to a significant recovery of some destinations that were having a decline, such as Turkey, Egypt, and Tunisia.

Tourism is presenting a solid growth trend that is expected to continue for the next years, becoming even more diversified. Besides its efforts to expand the destination offers, there is also a focus on recovering those places that suffered from safety issues.

Figure 1 – International Tourist Arrivals



Source [2]*:* Adapted from World Tourism Organization, Yearbook of Tourism Statistics, Compendium of Tourism Statistics and data files (2018)

Since the beginning of the millennium there is an increasing trend of the number of international tourism arrivals. In 2009 there was slight drop that can be interpreted a consequence of the financial crisis. However, the tourism sector has been recovering and, in 2016, it reached a total number of arrivals of 1,245 million which transmits the idea of the continuation of this sector's growth.

[2] International tourism data from 2018: https://data.worldbank.org/indicator/ST.INT.ARVL?end=2016&name_desc=false&start=2000&type=shaded&view=chart

3.3 European overview

Europe has also been revealing an increasing trend and 2017 was the year with the highest results of the last ten years. It was accounted a total of number of international tourist arrivals of 671 million, which represents a rise of 8%. It is a sign of recovery relative to the drop of 2016, particularly in countries that were affected by safety problems and political instability.

Establishing a parallelism, Southern and Mediterranean Europe grew by 13%; Western Europe 7%; Northern, Central and Eastern Europe 5%. That growth happened not only due to a better performance of those countries but also to the higher number of new touristic destinations.

Spain and Portugal remain to grow as destinations with a rate of more than 10%. This is a continuity of the previous year, which they have benefitted from the displaced travel from Turkey. Another reason for this result is the higher number of short trips, which includes short business trips and short leisure trips (like weekend travels), besides the usual annual vacations, according to UNWTO (2017a).

Table 1 – International Tourism Receipts and Expenditure

	Receipts (million EUR)		**Expenditure (million EUR)**		**Balance (million EUR)**
	2011	**2016**	**2011**	**2016**	**2016**
EU-28	86,767	112,299	87,031	99,054	13,246
Austria	14,267	17,400	7,531	8,799	8,601
Belgium	9,154	10,492	14,804	17,614	-7,122
Bulgaria	2,669	3,285	647	1,227	2,058
Croatia	6,608	8,627	632	853	7,774
Czech Republic	5,822	5,703	3,435	4,447	1,256
Cyprus	1,835	2,489	942	1,061	1,428
Denmark	4,887	6,373	7,209	8,283	-1,910
Estonia	897	1,345	579	1,048	297
Finland	2,745	2,467	3,502	4,692	-2,225
France	39,334	38,301	32,029	36,464	1,837
Germany	27,930	33,818	61,686	72,085	-38,267

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	Receipts (million EUR)		Expenditure (million EUR)		Balance (million EUR)
	2011	2016	2011	2016	2016
Greece	10,505	13,207	2,266	2,006	11,201
Hungary	4,243	5,121	1,781	1,954	3,167
Ireland	3,010	4,685	4,817	5,619	-934
Italy	30,891	36,358	20,584	22,547	13,811
Latvia	553	783	549	628	155
Lithuania	943	1,090	616	913	177
Luxembourg	3,497	3,669	2,715	2,545	1,124
Malta	911	1,307	239	369	938
Netherlands	9,230	12,697	14,836	16,336	-3,639
Poland	7,680	9,908	6,055	7,204	2,704
Portugal	8,146	12,680	2,974	3,849	8,831
Romania	1,019	1,568	1,408	1,930	-362
Slovak Republic	1,745	2,483	1,567	2,023	460
Slovenia	1,974	2,190	818	854	1,337
Spain	44,711	54,660	12,493	17,437	37,223
Sweden	7,316	11,407	10,048	13,083	-1,676
United Kingdom	27,610	37,413	40,065	58,396	-20,983
Iceland	-	2,173	-	1,146	1,027
Switzerland	12,359	14,692	9,884	14,926	-234
Montenegro	-	835	-	60	775
Republic of Macedonia	172	253	81	163	90
Albania	-	1,528	-	1,139	389
Serbia	710	1,040	791	1,085	-45

Source: Adapted from Eurostat (2016)

According to the previous table, that covers business and pleasure international travel data, both receipts and payments rose for most of European countries from 2011 to 2016. In 2016, Spain registered the highest international receipts (EUR 54,660 million), followed by France (EUR 38,301 million) and United Kingdom (EUR 37,413 million). Germany stands out for being the country with the highest expenses (EUR 72,085 million), which resulted in the

biggest deficit (EUR -38,267 million). The next countries are United Kingdom (EUR 58,396 million) and France (EUR 36,464 million).

Tourism is affected by external factors, such as terrorism attacks and political instability, that can create an impact in the number of visitors due to the feeling of insecurity. Europe has been affected by those events specially since the beginning of the millennium:

Table 2 – Terrorism attacks in Europe

Date	Location	Deaths number
March 11, 2004	Madrid – Train bombings	129
July 7, 2005	London – Train/Bus	56
July 22, 2011	Norway – Attacks	77
January 7, 2015	Paris – Charlie Hebdo	12
November 13, 2015	Paris and Saint Denis – Bataclan theatre and Stade de France	137
March 22, 2016	Brussels – Bombing at airport	31
July 14, 2016	Nice – Truck attack	87
July 22, 2016	Munich – Shooting at Station	10
December 20, 2016	Berlin – Christmas Market Attack	13
June 3, 2017	London – Bridge Attack	11

Source: Global Terrorism Database (2018)

Political situation and financial conditions are key factors that determine tourism destinations. Countries that are dealing with instability are more likely to suffer a decrease in the number of arrivals. Some events that have been marking Europe for the last decade are enumerated next (World Economic Forum, 2015):

- G20 recession (August 2008 – July 2009)
- Repercussions of Lehman Brothers collapse (September 2008)
- Greece anti-austerity movement (June 2010 – February 2012)
- Eurozone recession (December 2011- June 2013)

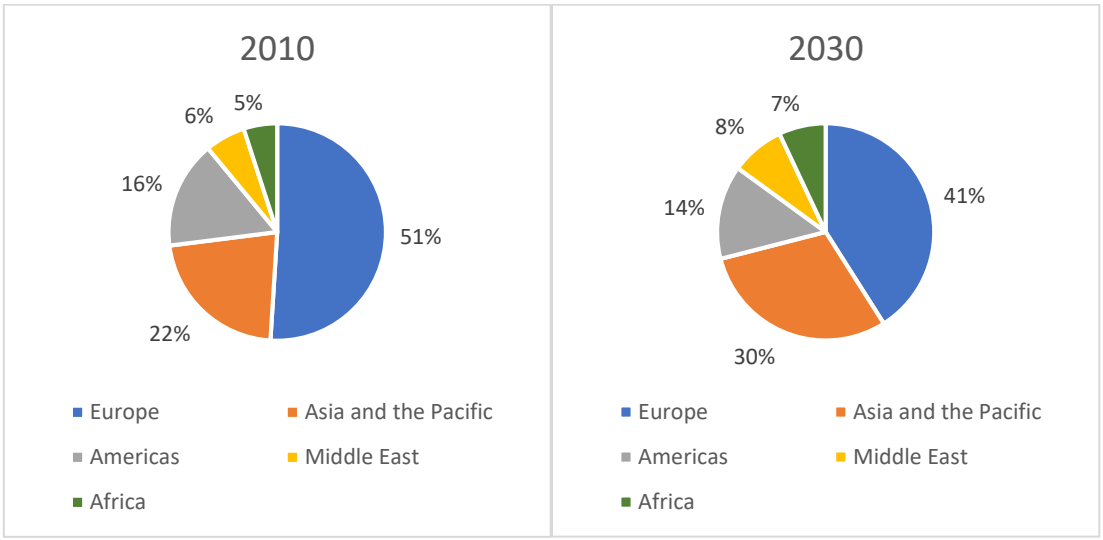
The next big event will be Brexit, which has date of entry into force in March 2019.

3.4 Predictions for the tourism sector worldwide

UNWTO developed a report named Tourism Towards 2030 (with 2010 as the base year and the end in 2030) that forecasts the continuation of substantial growth. It is expected that international tourists' arrivals increase by an average of 3.3% per year. During 2010-2020 the growth would be of 3.8%, reaching 1.4 billion international arrivals in 2020, and during 2020-2030 an increase of 2.9% to 1.8 billion in 2030, which represents a 91.49% increase when compared to 940 million in 2010 (UNWTO, 2017b).

Arrivals in emerging destinations (Asia; Latin America; Central and Eastern Europe; Eastern Mediterranean Europe; Middle East and Africa) will raise at a double rate of 4.4% per year against 2.2% of advanced economies. By 2030, it is projected that 57% of international arrivals to be in emerging economies. Accordingly, Asia and Pacific will be the regions with the strongest growth (4.9% a year) reaching 535 million in 2030. Middle East and Africa will more than duplicate their arrivals number, from 61 million to 149 million and from 50 million to 134 million, respectively. Europe (from 475 million to 744 million) and Americas (from 150 million to 248 million) will grow but at a slower pace.

Figure 2 – Tourism Market Shares



Source: UNWTO (2017b)

Regarding tourism market shares, Asia and Pacific (from 22% in 2010 to 30% in 2030), Middle East (from 6% to 8%), and Africa (from 5% to 7%) will all increase. By contrary, Europe (from 51% to 41%) and Americas (from 16% to 14%) will suffer a decline justified by the slower growth of the mature destinations in North America, Northern Europe and Western Europe.

For economies around the world, tourism has become a key driver for social-economic progress with the creation of jobs, infrastructures and revenues earned. UNWTO's Tourism Towards 2030 demonstrates that there is still a potential for further expansion in the next decades, not only for the existing destinations but also for new ones. Although Europe is a small area, it has a vast diversity in cultural resources and destinations and it is predictable that it will still be growing, but at a slower pace.

4. Empirical Research: Data Sample, Methodology

This chapter provides a description of the sample and the variables involved in the study. Furthermore, it is explained the methodology implied that allow to understand the relationship between working capital management and profitability in the European tourism sector.

4.1. Data Sample

The sample derives from AMADEUS database, from Bureau van Dijk company, that allows to gather economic and financial information about European countries. It is considered touristic firms that are classified according to the NACE Rev. 2 classification[3], following Kuscer and Trobec (2014). Accordingly, tourism sector incorporates Passenger transportation; Accommodation; Food and Beverage; Travel agency & Tour operator; Gambling and Sports & Amusement.

The research sample uses a panel data of European companies in the tourism sector. Because this thesis aim is to compare the impact of WC in profitability across Europe, countries

[3] NACE 2 rev. classifications considered for tourism sector: Passenger transportation (49.00, 49.10, 49.31, 49.32, 49.39, 50.00, 50.10, 50.30, 51.00, 52.00); Accommodation (55.00, 55.10, 55.20, 55.30, 55.90); Food & Beverage (56.00, 56.10, 56.20, 56.21, 56.29, 56.30); Travel Agency & Operators (79.00,79.10, 79.11, 79.12, 79.90); Gambling (92.00); Sports & Amusement (93.00, 93.10, 93.11, 93.12, 93.13, 93.19, 93.20, 93.21, 93.29).

were grouped into regions according to United Nations Geoscheme for Europe. As such, their organization is represented in the next table:

Table 3 – European countries organization

Eastern Europe	Northern Europe	Southern Europe	Western Europe
Bulgaria	Estonia	Bosnia and Herzegovina	Austria
Czech Republic	Finland	Croatia	Belgium
Republic of Moldova	Iceland	Greece	France
Poland	Ireland	Italy	Germany
Hungary	Latvia	Malta	Luxembourg
Russian Federation	Lithuania	Montenegro	Netherlands
Ukraine	Norway	Portugal	Switzerland
	Sweden	Serbia	
	United Kingdom	Slovenia	
		Spain	

Source: United Nations (2018)

European countries that did not have enough information concerning their companies during the period of analysis were not included in this study.

With the objective to have an equilibrium between the existed information cross countries, the period of analysis considered is 2009 – 2016. Whereas AMADEUS has the limitation of only contemplate information of the previous 10 years, 2008 was not taken into account since it would be impossible to obtain the sales growth rate for that year. The year of 2017 was excluded since not all companies have disclosed their financial data up to date which would cause missing data. The information was then polished (Appendix 1). It was excluded observations with negative values, missing observations, error in accounting data and extreme values and limiting the impact of outliers, by winsorising 2.5% in the top and bottom of observations. This procedure allows the sample to be balanced for those eight years in analysis and the filters used are aligned with previous studies (Deloof, 2003; Baños-Caballero et al., 2014; Paid and Gama, 2015)

Therefore, after applying the several filters and excluding the non-relevant information, the final sample considers a total number of 473,048 firm year observations representing 59,131 companies.

4.2. Variables

4.2.1. Dependent Variable

With the aim to analyse the effect of working capital on firms' profitability, return on assets (ROA) is used as dependent variable. As pointed out by Jose et al. (1996), authors use ROA, rather than return on equity (ROE), to capture operating efficiency and prevent against capital structure differences. Following García-Teruel and Martínez-Solano (2007) ROA is defined as the ratio of earnings before interest and tax to assets.

$$\text{ROA} = \frac{EBIT}{Total\ assets} \quad (3)$$

Some authors used this variable differently. Deloof (2003) measures profitability by stablishing a relation between gross operating income (sales minus cash costs of goods sold) divided by total assets minus financial assets and Enqvist et al. (2014) measures it as a ratio of net income to total assets. However, According to Preve and Sarria-Allende (2010), using EBIT is more reliable to analyse operating performance, since it does not contemplate the influence of interest costs.

4.2.2. Explanatory variables

WC can be measured using Accounts Receivable Rate (ARR), Inventories Rate (INVR) and Accounts Payable Rate (APR) as explanatory variables. Taking as reference Deloof (2003), Lazaridis and Tryfonidis (2006) and Mun and Jan (2015) these variables are calculated as the following to originate the Cash Conversion Cycle (CCC):

$$Accounts\ Receivable\ Rate\ (ARR) = \frac{Accounts\ Receivable}{Sales}\ \chi\ 365 \quad (4)$$

$$Inventory\ Rate\ (INVR) = \frac{Inventory}{Sales}\ \chi\ 365 \quad (5)$$

$$Accounts\ Payable\ Rate\ (APR) = \frac{Accounts\ Payable}{Sales}\ \chi\ 365 \quad (6)$$

$$Cash\ Conversion\ Cycle\ (CCC) = ARR + INVR - APR \quad (7).$$

Accounts Receivable Rate (ARR) indicates the average number of days that a firm takes to receive from customers. The higher the value, the higher the investment a firm has to do in accounts receivable. Inventory Rate (INVR) represents the average time that a firm holds stock. Longer storage periods indicate bigger investment in inventory. Regarding Accounts Payable Rate (APR), it measures the average time a firm delays the payment to its suppliers and the higher the value, the longer it takes a firm to pay for its commitments. Combining the previous periods, it is determined the Cash Conversion Cycle (CCC). The longer the CCC, the bigger the net investment in current assets and, therefore, the greater the financing needs for current assets (García-Teruel and Martínez-Solano, 2007).

Besides these variables, there were included control ones that might also affect the firms' profitability, as it is described below:

SIZE: The differences between profitability and WC are mainly explained by size factors (Zariyawati et al., 2017). As previously mentioned, size has an extreme influence on a performance of a business since small firms tend to endure more financial constraints, relying more on internal funds, while larger ones are able to lower financing costs due to better conditions to access capital markets (Baños-Caballero et al., 2014). Size is measured as the natural logarithm of total assets (Baños-Caballero et al., 2016).

LEVERAGE (LEV): There are situations in which the internal funds are not sufficient and the alternative is to resort to external funds. According to several authors, there is a negative relation between profitability and leverage (Deloof, 2003; García-Teruel and Martínez-Solano, 2007; Lazaridis and Tryfonidis, 2006; Mun and Jan 2015). When firms are highly levered and in economic distress, they face a significantly bigger loss in sales if they choose to cut their trade receivables (Molina and Preve, 2009). This variable is calculated by the ratio of total (long-term plus short -term) debt to total assets, as suggested by Baños-Caballero et al. (2016).

GROWTH: As described by Petersen and Rajan (1997), firms with high growth opportunities use more trade credit as a financing source due to difficulties in accessing other forms of finance, tend to grant less trade credit to customers (Molina and Preve, 2009) and increase their inventory as a precaution to face future sales (Baños-Caballero et al., 2010). This variable measures the sales growth and it is calculated by the difference of one year's sales minus the previous year's sales divided by that previous year's sales (Deloof, 2003; García-Teruel and Martínez-Solano, 2007; Mun and Jan, 2015).

GDP: Firms are also influenced by the macroeconomic environment. When there are poor economic conditions, with recessions and economic crises, companies face a higher pressure in WC positions since it reflects on a higher likelihood of longer periods to collect receivables and increase inventories, due to crimping sales (Enqviest et al., 2014). In order to introduce the effect of the economic cycle on the levels invested in working capital, it is incorporated information about the annual Gross Domestic Product, denominated as GDP growth (GDPR), of the countries analysed (García-Teruel and Martínez-Solano, 2007). These data were collected from the information available on the International Monetary Fund (IMF)[4].

4.3. Methodology

In order to provide empirical evidence of the relation between WC and profitability, this study is conducted using the methodology of Panel Data, over a sample of 473,048 companies operating in the tourism sector across Europe for the period 2009-2016.

Times-series and cross-section data do not control heterogeneity, since it may imply biased results (Moulton, 1986). Quoting Wooldridge (2009: 10), *"a panel data (or longitudinal data) set consists of a time series for each cross-sectional member in the data set."* This methodology allows to gather information, such as financial data, about the same group of firms over a set period of time and different geographical units. Not only but also, since it comprises information on both intertemporal dynamics and the individuality of entities, it is able to control the impact of missing or unobserved variables (Hsiao, 2007). As mentioned by Baltagi (2005:5) *"Panel data give more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency."*

As mentioned by García-Teruel and Martínez Solano (2007), when estimating models using panel data, firstly, it is required to determine whether there is a correlation between the unobservable heterogeneity, η_i, of each firm and the explanatory to eliminate the risk of biased results. In the case of existing a correlation (fixed effects), it is obtained the consistent estimation by means of the within-group estimator. On the other hand, no correlation indicates that random effects are a more efficient estimator. Hausman test will be used to ascertain the most suitable model between fixed-effects and random-effects and, therefore, obtain the most efficient estimator of β. If the null hypothesis is rejected, then the fixed effects must be

[4] IMF 2018 data: http://www.imf.org/external/datamapper

considered, and the model is estimated by Ordinary Least Squares (OLS). Otherwise, if the null is accepted, we have random effects, and the model is estimated by Generalized Least Squares (GLS). As we are going to see in the chapter 5.5, the methodology followed was Fixed-effects and, for that reason, η_i was included in the model. Furthermore, since it was measured the year effects, the respective year dummy variable is also considered (García-Teruel and Martínez Solano, 2007).

A multivariate analysis will be executed to determine the effect of WC on corporate profitability. The four models considered were the following:

$$ROA_{it} = \beta_0 + \beta_1 ARR_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \beta_5 GDPR_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (8)$$

$$ROA_{it} = \beta_0 + \beta_1 INVR_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \beta_5 GDPR_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (9)$$

$$ROA_{it} = \beta_0 + \beta_1 APR_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \beta_5 GDPR_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (10)$$

$$ROA_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 GROWTH_{it} + \beta_5 GDPR_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (11)$$

Since panel data involves two dimensions, $_i$ represents each company and $_t$ the different years. β is the coefficient that reveals the impact of explanatory variables on the dependent one. ROA measures return on assets; ARR the number of days in accounts receivable; INVR the number of days in inventories; APR the number of days in accounts payables; CCC is the cash conversion cycle; SIZE is the company size by book assets; LEV is the debt level; GROWTH is the annual sales growth from one year to the next one and, at last, GDPR is the annual GDP growth. The variable η_i (for unobservable heterogeneity) is used to capture specific characteristics of each firm. The parameter λ_t represents the time dummy variable that changes over time but remains the same for all firms in each of the time periods considered. At last, ε_{it} (unobserved factors or errors) is introduced in the model as an explanation for every variable that is not covered directly by the model.

A series of descriptive statistics analysis is performed aiming to provide a framework of the sample. Posteriorly, a correlation analysis is executed to understand the link between the explanatory variables and the dependent one and, then, a regression analyses that will be preponderant for the enforcement of this study.

First, with the intend of providing a generalized understanding of the sample, the variables are determined and analysed taking into consideration their means and medians. To perceive the yearly behaviour, each variable is examined regarding the yearly evolution during the sample period, by the same manner, looking into the mean and median.

The relation between WC and ROA can be studied analysing the geographic distribution. By grouping the countries that compose the sample according to European regions (Eastern; Northern; Southern and Western Europe) it is possible to understand if there are differences among them. Furthermore, firm size will also be taken into consideration to see if it is determinant in the relation that is being established.

Next, the Pearson correlation matrix is helpful to understand the linear relationships among variables and the respective significance level. This method was used by several authors in their researches (Baños-Caballero et al., 2016; Deloof, 2003; García-Teruel and Matínez-Solano, 2007). By doing this, it is possible to realize how strong or weak the connection between the variables is and the impact they have on ROA.

Afterwards, it will be implemented an Univariate Analysis, calculating the average value accordingly to each quartile of the variable ROA. The advantage of this analysis is to take the measure of significant differences among the most and less profitable firms.

Aiming to control for eventual effects of endogeneity problem, the regression model was also made resorting to 2SLS (Two-Stage Least Squares). According to Mun and Jan (2015:5) *"endogeneity issue occurs when an independent variable is correlated with errors, ε_{it}, which is often caused by omitted variables, measurement errors, or simultaneity between dependent variables and independent variables."*. The most efficient way to deal with endogeneity is through instrumental variables, that have a strong correlation with endogenous independent variables but are not correlated with errors. Following this reasoning, the variables ARR, INVR, APR and CCC were regressed as instrumental variables (Pais and Gama, 2015).

5. Empirical research: results

In this chapter, it is conducted an empirical study that will allow a better understanding of the impact of WC on the profitability of the touristic European firms. It is organized in three segments as the following: firstly, it is performed a descriptive analysis that will be helpful to understand the composition and characteristics of the sample, necessary for the interpretation of the results; Secondly, it is analysed the Pearson Correlation Coefficients to understand the linking between variables. A multivariate analysis is carried out through Fixed Effects Regression and Instrumental Variables, to provide better insights about the relations between WC components and firms' profitability.

As one of the main contributions of this thesis is to study this connection taking into account different European regions, the results are first presented in general and, then, specified according to each region.

5.1 Sample Description

5.1.1. Descriptive Statistics Analysis

With the objective to better understand the composition of the sample Table 4 illustrates the number of European firms accordingly to NACE Rev. 2 classification for the period 2009 – 2016. As it is observable, from a total number of 59,131 firms, Food & Beverage (38.68%) sector is the most representative and Gambling (2.16%) presents the lowest weight in the sample.

Table 4 – Sample Composition

Sector	Number of firms	Weight
Passenger transportation	9,195	15.55%
Accommodation	15,226	25.75%
Food & Beverage	22,870	38.68%
Travel Agency & Operators	4,241	7.17%
Gambling	1,277	2.16%
Sports & Amusement	6,322	10.69%
Total	59,131	100.00%

Comparing regions, as described on Table 5, Southern Europe is the region with the highest weight (61.34%) since it is composed by countries with a higher number of firms dedicated to the tourism sector. On the other hand, Eastern Europe has the lowest representation (6.46%).

Table 5 – Sample Composition by European regions

Region	Number of firms	Weight
Eastern Europe	3,818	6.46%
Northern Europe	7,993	13.52%
Southern Europe	36,269	61.34%
Western Europe	11,051	18.69%
TOTAL	59,131	100.00%

In Appendix 2 it is described in detail the number of firms considered in each country.

Table 6 presents the descriptive statistics for all the variables involved in this study. The mean value for ROA is 0.0549 (with a standard deviation of 0.1232), which means that on average an European touristic company will generate an EBIT to Total Assets of 5.49%, even though the median is 3.79%.

Concerning WC determinants, on average, the collection receivables period from clients is 44.98 days; inventory is maintained for 13.49 days and the payment for suppliers is delayed by 31.24 days which results on a CCC of 27.23 days. However, the median value for ARR is 10.95 days; INVR is 2.98 days; APR is 14.98 days and for CCC is 5.40 days. The difference between the mean and median values indicate that the sample demonstrates a positive asymmetric distribution, meaning that there are more observations below the mean. Nevertheless, the data with higher values push the mean to the right, lengthening the tail towards this direction.

On average, debt finances 51.92% of total assets. Sales grew at a 3.16% rate annually, even though GDPR revealed a negative evolution, declining 4.98% per year during the period of analysis.

Table 6 – Overall descriptive statistic of the variables, 2009 – 2016

Variable	Mean	Median	SD	10th perc.	90th perc.	Obs.
ROA	0.0549	0.0379	0.1233	-0.0673	0.2084	473,048
ARR	44.98	10.95	80.11	0.00	134.75	473,048
INVR	13.49	2.98	29.13	0.00	34.76	473,048
APR	31.24	14.98	47.26	0.00	80.64	473,048
CCC	27.23	5.40	83.74	-33.18	127.75	473,048
SIZE	6.2227	6.1115	1.8164	3.8712	8.7169	473,048
LEV	0.5192	0.5402	0.2848	0.0996	0.8961	473,048
GROWTH	0.0316	0.0105	0.2275	-0.2000	0.2632	473,048
GDPR	-0.0498	0.7000	2.8093	-3.6000	2.7000	473,048

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth

Analysing Eastern Europe on Table 7, a country included in this region has an average ROA of 0.0531 which means that a company will generate a return on assets of 5.31%, that is below the overall result. On average, they take 37.49 days to receive from clients, their inventory is kept for 23.93 days and they delay the payments to suppliers for 33.45 days, which results in a CCC of 27.97 days. On average, companies have a small dimension (5.647) and 36.33% of assets financed thought debt. Although the negative GDPR (-0.4252) firms were able to grow their sales by 1.84%.

Table 7 – Descriptive statistic for Eastern Europe, 2009 – 2016

Region	Variable	Mean	Median	SD	10th perc.	90th perc.	Obs.
	ROA	0.0531	0.0313	0.1679	-0.1754	0.3143	30,544
	ARR	37.49	8.39	78.12	0.00	99.93	30,544
	INVR	23.93	8.84	37.14	0.00	73.00	30,544
	APR	33.45	13.04	54.03	0.00	93.26	30,544
Eastern Europe	**CCC**	27.97	9.48	83.21	-27.46	116.82	30,544
	SIZE	5.6469	5.3471	2.1315	2.8904	8.8124	30,544
	LEV	0.3633	0.2991	0.2914	0.0223	0.8182	30,544
	GROWTH	0.0184	0.0000	0.3136	-0.4000	0.4235	30,544
	GDPR	-0.4252	0.7000	5.2305	-7.8000	5.1000	30,544

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth

Northern Europe presents a ROA of 0.0752 that is above the results for the overall Europe. On Table 8, it is observable that the receivables from clients takes 17.98 days, inventory is held for 8.80 days and payments to suppliers take 18.19 days, resulting in a CCC of 8.59 days. Firms in this region are bigger (6.5918) than the overall, although they are still considered small sized. Debt finances 56.42% of total assets. GDPR presents a positive mean of 1.1897 which can be possibly justified by the fact that countries that belong to this region have a more stable economic environment. This allows companies to grow by 5.56%.

Table 8 – Descriptive statistic for Northern Europe, 2009 – 2016

Region	Variable	Mean	Median	SD	10th perc.	90th perc.	Obs.
Northern Europe	**ROA**	0.0752	0.0534	0.1425	-0.0746	0.2781	63,944
	ARR	17.98	6.38	38.61	0.00	41.70	63,944
	INVR	8.80	2.92	20.76	0.00	18.25	63,944
	APR	18.19	10.42	30.36	0.00	38.23	63,944
	CCC	8.59	1.99	45.56	-18.49	40.56	63,944
	SIZE	6.5918	6.3535	1.9813	4.1589	9.7363	63,944
	LEV	0.5642	0.6019	0.2726	0.1497	0.9000	63,944
	GROWTH	0.0556	0.0329	0.2452	-0.1979	0.3220	63,944
	GDPR	1.1897	1.8000	3.4726	-1.7000	3.2000	63,944

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth

In what Southern Europe takes concern, represented on Table 9, ROA (4.28%) is below the overall value meaning that firms in this region are not very profitable. They wait 59.77 days to receive from clients, their inventory is maintained for 15.69 days and they pay to suppliers after 34.40 days, that results in a CCC of 41.06 days. Firms are small (6.1497) and 51.8% of total assets are financed with debt. Because it includes countries that suffered the most with economic crises (like Portugal; Spain; Italy and Greece) and were dealing with financial recovery, GDPR presents a negative trend (-0.5036). However, sales were able to grow by 2.88% probably due to the fact that there are more companies operating in the tourism sector in this region of Europe.

Table 9 – Descriptive statistic for Southern Europe, 2009 – 2016

Region	Variable	Mean	Median	SD	10th perc.	90th perc.	Obs.
	ROA	0.0428	0.0312	0.1095	-0.0645	0.1694	290,152
	ARR	59.77	19.73	90.82	0.00	182.50	290,152
	INVR	15.69	2.70	32.44	0.00	44.51	290,152
	APR	34.40	14.79	51.59	0.00	95.63	290,152
Southern Europe	**CCC**	41.06	15.01	95.08	-35.77	156.43	290,152
	SIZE	6.1497	6.0638	1.7837	3.7842	8.5610	290,152
	LEV	0.5180	0.5409	0.2947	0.0833	0.9073	290,152
	GROWTH	0.0288	0.0052	0.2273	-0.2013	0.2622	290,152
	GDPR	-0.5036	0.0000	2.4337	-3.6000	1.9000	290,152

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth

Finally, analysing Western Europe on Table 10, firms generate a ROA of 8.09% which is well above the overall value. Probably this is a result that countries belonging to this region, such as France and Germany, being the main wealth creators for Europe. After 18.58 days firms receive from clients, for 6.04 days inventory in maintained and the payments to suppliers occur 29.57 days later. Consequently, CCC has a negative value of -4.95 days and this means that firms are getting paid sooner by their customers then they pay their suppliers. Firms are still small (6.3942) and 54.47% of total assets are in form of debt. GDPR has a mean value of 0.6728 which allows companies to growth by 2.77%.

Table 10 – Descriptive statistic for Western Europe, 2009 – 2016

Region	Variable	Mean	Median	SD	10th perc.	90th perc.	Obs.
Western Europe	**ROA**	0.0809	0.0616	0.1266	-0.0463	0.2513	88,408
	ARR	18.58	2.52	46.03	0.00	49.92	88,408
	INVR	6.04	2.75	13.20	0.00	12.94	88,408
	APR	29.57	19.01	37.11	5.34	57.35	88,408
	CCC	-4.95	-7.03	45.17	-36.87	30.42	88,408
	SIZE	6.3942	6.2442	1.5944	4.4773	8.5595	88,408
	LEV	0.5447	0.5553	0.2352	0.2136	0.8571	88,408
	GROWTH	0.0277	0.0142	0.1713	-0.1205	0.1745	88,408
	GDPR	0.6728	1.1000	1.5027	-2.9000	2.1000	88,408

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth

In order to better understand the differences across Europe, Table 11 aggregates the mean values for the main variables used in the present study according to each region. As it is observable, Western Europe is the region that presents the highest profitability (8.09%) in contrast to Southern Europe that presents the lowest return on assets (4.28%). Southern Europe reveals the highest period for ARR (59.77 days) meaning that, in this region, clients take more time to pay for their purchases unlike Northern Europe in which firms collect their receivables earlier (17.98 days). Regarding INVR, Eastern Europe keeps inventory longer (23.93 days) in opposition to Western Europe that holds it for less time (6.04 days). Concerning APR, Southern Europe delays the payment to suppliers the most (34.40 days) contrary to Northern Europe that fulfils its commitments sooner (18.19 days). Finally, Southern Europe reveals the highest CCC (41.06 days) since clients pay the invoices later in comparison to the payment to suppliers. On the other hand, CCC is the lowest for Western Europe (-4.95 days) and since it is a negative value it means that companies take longer to pay to suppliers than to receive from their customers, considering the time in inventory.

Table 11 – Mean values for the main variables per regions, 2009 – 2016

Variable	Eastern Europe	Northern Europe	Southern Europe	Western Europe
ROA	0.0531	0.0752	0.0428	0.0809
ARR	37.49	17.98	59.77	18.58
INVR	23.93	8.80	15.69	6.04
APR	33.45	18.19	34.40	29.57
CCC	27.97	8.59	41.06	-4.95

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle

In Appendix 3 it is described in detail for each country the mean values of the main variables considered.

5.1.2. Variables evolution

This section presents the annual evolution of ROA and the components of WC. By doing this analysis, it will be possible to better understand the behaviours of this variables and capture trends and statistical validation.

Table 12 examines the evolution of ROA during the period of 2009-2016. It is observable that until half of the time analysed, it has demonstrated a decline since in 2009 the mean value for ROA was 0.0633 and in 2012 was 0.0451. From that year forward, there was a rise of its values ending up with 0.0581. It indicates that on average, ROA decreases annually by 0.11% despite the recovery of the most recent years.

Table 12 – ROA Annual Evolution (2009-2016) and Mean Trend

Year	Mean	Median
2009	0.0633	0.0441
2010	0.0620	0.0414
2011	0.0585	0.0394
2012	0.0451	0.0311
2013	0.0461	0.0321
2014	0.0499	0.0356
2015	0.0565	0.0399
2016	0.0581	0.0403

ROA	Coef.	Std. Err.	t stat.	P>|t|
year	-0.0011	0.0001	-13.5300	0.0000

The same analysis can be made for the different regions of Europe. As demonstrated in Table 13, Eastern Europe in 2009 has a mean value for ROA of 0.0576 and in 2014 of 0.0441, which reveals a decrease during this time. After that there is a slight recovery reaching 0.0505 in 2016. During this time, profitability decreased annually by 0.12% for this region. Northern Europe reveals an increasing trend during the period of analysis: in 2009 it obtained a value of 0.0695 and in 2016 of 0.0728, although the fact that 2012 had revealed the highest value for ROA (0.0781). Annually, profitability decreased by 0.02%. Regarding Southern Europe, this was the region with the biggest loss of profitability until 2012, probably due to the consequences of the financial crises. In 2009, ROA had a mean value of 0.0521 and dropped by half in 2012 (0.0267). From that year forward, this region has been increasing and in 2016 reached a 0.0540 value for ROA. Because of the recovery, it grew 0.03% annually. At last, Western Europe is the region with the highest values for profitability during the first two years in analysis, once in 2009 it had a mean value of 0.0975 and in 2010 of 0.1031 for ROA. However, its outcomes have been decreasing and, in 2016, obtained a ROA of 0.0631 which is confirmed by the drop of 0.60% annually.

Table 13 – ROA Annual Evolution (2009-2016) and Mean Trend by European Regions

		Eastern Europe	Northern Europe	Southern Europe	Western Europe
2009	**Mean**	0.0576	0.0695	0.0521	0.0975
	Median	0.0318	0.0508	0.0370	0.0781
2010	**Mean**	0.0561	0.0754	0.0472	0.1031
	Median	0.0317	0.0518	0.0330	0.0822
2011	**Mean**	0.0552	0.0824	0.0421	0.0962
	Median	0.0332	0.0575	0.0308	0.0756
2012	**Mean**	0.0590	0.0781	0.0267	0.0767
	Median	0.0349	0.0565	0.0227	0.0580
2013	**Mean**	0.0480	0.0766	0.0304	0.0751
	Median	0.0277	0.0536	0.0245	0.0570
2014	**Mean**	0.0441	0.0719	0.0400	0.0686
	Median	0.0256	0.0522	0.0302	0.0510
2015	**Mean**	0.0540	0.0748	0.0495	0.0672
	Median	0.0352	0.0531	0.0357	0.0493
2016	**Mean**	0.0505	0.0728	0.0540	0.0631
	Median	0.0317	0.0522	0.0371	0.0480

ROA	**Coef.**	**Std. Err.**	**t**	**P>|t|**
year (Eastern Europe)	-0.0012	0.0004	-2.9600	0.0030
year (Northern Europe)	-0.0002	0.0002	-0.6500	0.5130
year (Southern Europe)	0.0003	0.0001	3.0600	0.0020
year (Western Europe)	-0.0060	0.0002	-32.5000	0.0000

Regarding the ARR variable, in Table 14, the values have oscillated since there was a drop in 2010 (42.44 days to receive from clients) and until 2013 (47.53 days) it has registered an increase over the years. However, it decreased again reaching the value of 41.83 days in 2016. The main trend indicates a reduction over the years in analysis, indicating that on average there is a decline of minus than one day to receive from the sales (0.0555 days). This is an indicator that firms are cutting the trade credit to their clients and demanding an earlier payment.

Table 14 – ARR Annual Evolution (2009-2016) and Mean Trend

Year	Mean	Median
2009	44.58	10.66
2010	42.44	10.39
2011	45.08	11.58
2012	47.49	12.28
2013	47.53	11.92
2014	46.26	11.12
2015	44.64	10.60
2016	41.83	9.18

ARR	Coef.	Std. Err.	t stat.	P>|t|
Year	-0.0555	0.0508	-1.09	0.2750

Concerning inventories, Table 15 shows that the values were very close to each other. However, it is observable a decrease 4.84% in which there was a yearly reduction of 0.0542 days.

Table 15 – INVR Annual Evolution (2009-2016) and Mean Trend

Year	Mean	Median
2009	13.42	3.11
2010	13.43	3.12
2011	13.40	3.04
2012	13.94	3.07
2013	14.05	3.05
2014	13.64	3.00
2015	13.26	2.84
2016	12.77	2.62

INVR	Coef.	Std. Err.	t stat.	P>|t|
year	-0.0542	0.0185	-2.93	0.0030

APR is the variable that presents the higher decrease (19,06%) through the period analysed that can be observed in Table 16. It can be confirmed by the yearly reduction, on average, of 0.6358 days to pay to suppliers.

Table 16 – APR Annual Evolution (2009-2016) and Mean Trend

Year	Mean	Median
2009	34.07	15.66
2010	31.01	14.84
2011	31.84	15.75
2012	32.24	15.83
2013	32.47	15.95
2014	30.66	14.60
2015	30.08	14.58
2016	27.57	12.74

APR	Coef.	Std. Err.	t stat.	P>|t|
year	-0.6358	0.0300	-21.21	0.0000

Finally, in Table 17, CCC has been rising since there is a growth of 12.93% between 2009 and 2016. In fact, CCC has been increasing on average 0.5261 days per year.

Table 17 – CCC Annual Evolution (2009-2016) and Mean Trend

Year	Mean	Median
2009	23.93	4.52
2010	24.86	5.21
2011	26.64	5.37
2012	29.20	6.31
2013	29.11	5.76
2014	29.24	5.89
2015	27.82	5.30
2016	27.03	4.98

CCC	Coef.	Std. Err.	t stat.	P>|t|
year	0.5261	0.0531	9.90	0.0000

5.1.3. Size

As already mentioned, size has a big influence in the WC of the firms (Baidh, 2013; Zariyawati et al., 2017). Table 18 intends to demonstrate how European touristic firms are organized in terms of dimension, being possible to distinguish between Small, Medium and Large firms. Cumulatively, mean and median values were obtained to ROA and each component of WC (ARR; INVR; APR and CCC) which allow us to understand what type of firms are more profitable and have a better WC conditions.

In this analysis, a firm that is yearly located in the first quartile are referred as a small firm; the ones in the second and third quartiles are medium sized and, finally, in the fourth are large companies.

Table 18 – Mean and Median by Firm Size in overall Europe

		Small	Medium	Large
Observations		117,735	237,015	118,298
ROA	**Mean**	0.0564	0.0594	0.0445
	Median	0.0508	0.0397	0.0279
ARR	**Mean**	54.06	37.84	50.25
	Median	10.84	7.28	19.18
INV	**Mean**	14.19	14.14	11.50
	Median	0.00	3.55	2.77
APR	**Mean**	17.80	32.97	41.15
	Median	4.01	16.54	22.91
CCC	**Mean**	50.45	19.00	20.60
	Median	19.16	2.11	3.36

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle

According to the previous table, there is a higher number of companies operating in the touristic sector in Europe with a medium size (237,015 firms) and it is not observable such a big

difference between a small (117,735 firms) and large (118,298 firms). Thus, it is easy to realize that are more SME than large touristic firms in Europe (total of 354,750 firms).

A company with a medium dimension presents a higher mean value of ROA (0.0594). It shows that on average 5,93% of total assets of this type of firms will generate return, although the value of the correspondent median (0.0397).

Looking at ARR, smaller firms provide more credit to their customers (54.06 days). SME tend to maintain stock approximately for 14 days (14.19 days in small and 14.14 days in medium), against 11.50 days in large firms. As the size increases, APR also rises. A larger firm tend to pay to suppliers by 41.15 days due to better negotiation conditions. At last, CCC is higher in smaller firms (50.45 days) than in larger ones (20.60 days) since they tend to present shorter CCC, which validates what Jose et al. (1996) have defended.

Table 19 – Mean values for the main variables according to firm sizes and regions

	Mean values	Eastern Europe	Northern Europe	Southern Europe	Western Europe
Small	**Total number**	13,078	12,936	76,171	15,550
	ROA	0.0761	0.0603	0.0514	0.0615
	ARR	25.53	14.31	74.71	10.01
	INV	27.68	11.08	13.77	7.49
	APR	23.39	10.56	17.47	20.75
	CCC	29.81	14.82	71.00	-3.25
Medium	**Total number**	10,729	31,207	143,344	51,735
	ROA	0.0403	0.0890	0.0424	0.0926
	ARR	44.58	17.05	49.60	16.41
	INV	23.54	8.48	17.67	5.80
	APR	39.22	17.11	37.24	29.43
	CCC	28.91	8.42	30.03	-7.22
Large	**Total number**	6,737	19,801	70,637	21,123
	ROA	0.0287	0.0631	0.0342	0.0667
	ARR	49.43	21.85	64.29	30.21
	INV	17.26	7.81	13.76	5.55
	APR	43.80	24.87	46.88	36.41
	CCC	22.89	4.80	31.17	-0.66

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle

Table 19 intends to frame Europe according to firm sizes and regions. As it is observable, small companies are in majority in Southern Europe (76,171). In this size group, ROA (7.61%), INVR (27.68 days) and APR (23.39 days) reveal the highest values in Eastern Europe. On the other hand, in Southern Europe, clients tend to pay later (74.71 days) which results in the biggest CCC (71.00 days) among the regions.

Regarding medium firms, although they are in higher number in Southern Europe (143,344), they have a bigger profitability in Western Europe (9.26%). The receivables are higher in Southern Europe (49.60 days) but Eastern Europe holds inventory longer (23.54 days) and pay later to the suppliers (39.22 days). However, Southern Europe is the region with a higher cash conversion cycle (30.03 days) which is not a good sign regarding the management of the WC.

At last, for large firms, Southern Europe continues to demonstrate to have a higher number of touristic companies (70,637) despite ROA being higher in Western Europe (6.67%). ARR is bigger in Southern Europe (64.29 days) such it is for APR (46.88 days) and CCC (31.17 days). Eastern Europe is the region that maintains inventory for longer time (17.26 days).

5.2. Correlation

Pearson Correlation Matrix is commonly used to examine the relationship among the variables used in a regression model. Several authors have used this method to verify the correlation coefficients between the explanatory variables and the dependent variable and the correspondent significance level, that indicates if the relation is statistically significant (Baños-Caballero et al., 2016; Deloof, 2003; García-Teruel and Martínez-Solano, 2007).

Table 20 – Pearson Correlation Matrix

	ROA	ARR	INVR	APR	CCC	SIZE	LEV	GROWTH	GDPR
ROA	1								
ARR	-0.0814	1							
INVR	-0.1292	-0.0053	1						
APR	-0.1444	0.2823	0.118	1					
CCC	-0.0413	0.7955	0.2763	-0.2532	1				
SIZE	-0.0389	-0.0182	-0.033	0.1826	-0.1319	1			
LEV	-0.1032	-0.0632	0.0585	0.2478	-0.18	0.1794	1		
GROWTH	0.2003	-0.0605	-0.0511	-0.0389	-0.0537	0.0405	0.0538	1	
GDPR	0.0609	-0.0658	-0.0348	-0.0637	-0.0391	0.0546	-0.0145	0.1154	1

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth; Every coefficient is statically significant at 1%

As presented in Table 20, it is possible to perceive that there is a significant negative relationship between ROA and ARR (0.0814). This shows that a reduction in the receivables is associated with higher profitability. It is also an indicative that giving costumers less time to make the payments, with a more restrictive credit policy, performance improves. As it is for INVR (-0.1292), in which keeping inventory for less time, the return on assets rises. Relatively to APR (-0.1444), paying suppliers earlier, increases firms' profitability. This negative relation is explained by Deloof (2003:581) "less profitable firms wait longer to pay their bills" and, in this case, profitability affects accounts payable policy and not *vice versa*. Since ROA and CCC have a significant negative correlation (-0.0413), decreasing the time lag between expenditure for purchases or raw materials and collection of sales of finished goods, increases profitability. These results are aligned with García-Teruel and Martínez-Solano (2007) and Deloof (2003) studies.

Regarding control variables, SIZE is significantly negatively correlated with ROA (-0.0389) which is against what previous studies have concluded (Deloof, 2003; García-Teruel

and Martínez-Solano, 2007) but in conformity with what Baidh (2013) have found. LEV and ROA (-0.1032) also represent a significant negative relationship. However, GROWTH (0.2003) and GDPR (0.0609) are the ones that represent a significant positive relation with ROA, which indicates that a favourable economic environment is propitious for a firm to grow and, consequently, to increase its profitability.

It is also possible to compare the explanatory variables with each other. ARR and CCC represent the highest significant positive relationship (0.7955) which indicates that increasing the credit to costumers impacts positively the CCC. Another interesting fact is the relation between SIZE and LEV since it indicates that larger firms tend to rely more on external funds and smaller ones in internal funds as pointed out by Petersen and Rajan (1997) and Bereznika (2013). Because explanatory variables do not present high correlation values, multicollinearity should not be a problem.

5.3. Firm characteristics by ROA Quartiles

The next table presents a comparison of mean values of variables in function of ROA. In other words, this intends to demonstrate the mean values of the variables involved in the study accordingly to the most profitable (fourth quartile) and least profitable (first quartile) firms as suggested by García-Teruel and Martínez-Solano (2007).

ROA quartiles were calculated annually and for each one it was computed a lower limit, the smallest value of all years, and an upper limit, the highest value among them all, causing an overlapping between ranges of ROA in quartiles. Then, firms were organized in each quartile considering their ROA values.

Table 21 – Mean values by ROA quartiles

		1st quartile	2nd quartile	3rd quartile	4th quartile
Range ROA		-0.25 to 0.003	-0.007 to 0.044	0.031 to 0.116	0.092 to 0.412
ROA	**Mean**	-0.0778	0.0192	0.0658	0.2135
	Median	-0.0467	0.0190	0.0633	0.1810
ARR	**Mean**	51.97	51.79	42.44	33.73
	Median	13.31	14.36	11.05	6.33
INV	**Mean**	17.70	17.76	11.13	7.36
	Median	4.20	3.73	2.78	2.11
APR	**Mean**	38.44	39.69	28.19	18.65
	Median	16.78	19.24	15.31	11.17
CCC	**Mean**	31.23	29.86	25.37	22.44
	Median	7.65	7.66	5.25	2.62

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle

Analysing Table 21, it is possible to realize that ARR; INVR; APR and CCC have the lowest values in the fourth quartile, meaning, in the most profitable firms. These findings are aligned with the correlation matrix illustrating that when firms reduce their WC components, profitability increases. Even though extending the deadlines for customers could rise profitability and increase sales, due to better payment conditions, it can work reversely and hurt profitability, as shown in the 1st quartile that has the highest value for ARR (51.97 days). So, shortening the time granted to customers to make the payments for their purchases increases profitability. Holding inventories for less days, has also a positive impact on profitability. Regarding payables, extending the number of days to pay for firms' suppliers damages profitability. García-Teruel and Martínez-Solano (2007) explained that this negative relation between profitability and APR could be a result of high implicit financing costs of vendor whereas firms forgoes discounts for early payment. Nevertheless, since ROA does not contain financial costs, this justification does not make sense. On the other hand, Deloof (2003) defends that less profitable firms tend to postpone their payments to suppliers.

Thus, the same reasoning applies to CCC variable since by shortening the cash conversion cycle, firms are able to increase their profitability.

5.4. Regression Analysis

So far, we have been establishing a parallelism between literature and data analysis to examine the impact of WC on profitability. Regression analysis is now used to scrutinize with more detail the relationship between them.

As mentioned in the methodology approached, Hausman test was conducted to decide whether Fixed-effects or Random effects was the most suitable one. The test was applied to every model (8), (9), (10), (11). Since, the null hypothesis was rejected in each one, this means that Random effects was inconsistent and Fixed-Effects was preferred (Appendix 4). Thus, fixed effects capture the effects of variables that are particular to each firm and that are constant over time (Deloof, 2003).

Besides that, all explanatory variables were tested for multicollinearity. To do so, variance inflation factor (VIF) is used to detect if one variable has a strong linear association with the remaining ones (presence of multicollinearity among variables) and it measures increments in the variance of an estimator if predictors are correlated (Lazaridis and Tryfonidis, 2006). A rule of thumb indicates that there is a problem if VIF is higher than 5 or 10 (Montgomery and Peek, 1982). As VIF increases, it also increases the multicollinearity problem). All variables have a VIF ranged between 1.01-1.1 (Appendix 5) which shows that there is absence of multicollinearity between the predictors in this regression model.

Table 22 shows the results obtained after regressing the models. The signal and significance of the relationship found is consistent with previous analyses: the profitability of European touristic firms decreases when the number of days in accounts receivable, inventory, payables and cash conversion cycle rise.

Table 22 – Effect of Working Capital on ROA using fixed-effect regression for overall Europe

	Models			
Variables	**(8) ARR**	**(9) INVR**	**(10) APR**	**(11) CCC**
ARR	-0.000052			
	(-13.02)			
INVR		-0.000379		
		(-26.06)		
APR			-0.000145	
			(-27.77)	
CCC				-0.000016
				(-4.42)
SIZE	0.021840	0.022199	0.022497	0.021404
	(23.59)	(24.04)	(24.33)	(23.14)
LEV	-0.186756	-0.185002	-0.181809	-0.187718
	(-89.27)	(-88.67)	(-86.39)	(-89.75)
GROWTH	0.099239	0.098591	0.098645	0.100186
	(112.87)	(112.52)	(112.32)	(114.28)
GDPR	0.001635	0.001600	0.001642	0.001635
	(15.82)	(15.46)	(15.90)	(15.81)
Constant	0.039470	0.038950	0.035421	0.040741
	(7.12)	(7.04)	(6.40)	(7.36)
Observations	473,048	473,048	473,048	473,048
R-squared	0.125	0.127	0.127	0.125
Year dummies	Yes	Yes	Yes	Yes
Number of firms	59,131	59,131	59,131	59,131

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth; Results obtained with fixed-effects estimations; Robust t-statistics in parentheses; Every coefficient is statically significant at 1%

The Regression for model (8) analyses the relation between profitability and ARR. Although extending the period for customers should raise sales due to better conditions and, consequently, increase profitability, the coefficient for this model is negative which indicates that it can work reversely and affect ROA negatively. With a significance level at 1%, when

ARR increases one day, ROA of European touristic firms drops 0.0052%. So, a more restrictive credit policy, granting less time for customers to fulfil their payments, increases profitability. These findings are consistent with the ones found by Deloof (2003) and García-Teruel and Martínez-Solano (2007).

Looking at regression for model (9), it is investigated the link between inventory and ROA. The results obtained indicate a negative relation in which an increase of one day in inventory originates a fall of 0.0379% in profitability with a significance level at 1%. Thus, as outlined by García-Teruel and Martínez-Solano (2007), reducing the days in inventory impacts profitability positively.

The connection between accounts payable and ROA is described in the regression for model (10). As it shows, there is a negative relationship between the two variables which reveals that when APR increases one day profitability falls 0.0145% with a significance level at 1%. As previously mentioned, Deloof (2003) justifies this by defending that less profitable firms pay their bills later. Moreover, it can also indicate that more profitable firms resort to cash discount instead of trade credit on payables to finance their business, as pointed out by Enqvist et al. (2014).

Examining the regression for model (11), also for a significance level at 1%, CCC and ROA present a negative relationship indicating that if CCC increases one day profitability decreases 0.0016%. This result is aligned with the correlation analysis and previous studies as Deloof (2003), Enqvist et al. (2014), García-Teruel and Martínez-Solano (2007) and Lazaridis and Tryfunidis (2006). They indicate that firms can surge their profitability by increasing WC efficiency, meaning, minimizing the CCC.

Analyzing control variables, SIZE is positively associated with profitability for every model in the regression. This demonstrates that when firms increase their sizes profitability also rises. However, this relationship was found negative in the correlation analyses. Pais and Gama (2015) justify this fact by saying that it is probably due to unobservable characteristics of the companies, for using the fixed-effect methodology. Regarding LEV, Table 22 indicates a negative relationship with ROA which means that when firms increase their debt profitability falls, as spotted in the correlation analysis. GROWTH reveals a positive relation with profitability, representing good opportunities for companies to increase their ROA. At last, the economic environment is also an important factor to take into consideration: GDPR has a

positive connection with profitability and it is expected that the profitability rises in higher economic conditions.

In Appendix 6, it is described the regression using fixed-effects for the four models according to the different European Regions. For the model (8), which analyses the effect of days in receivables on profitability, if ARR increases one day, ROA decreases 0.0125% in Eastern Europe; 0.0026% in Northern Europe; 0.0051% in Southern Europe and 0.0023% in Western Europe. However, only Eastern and Southern Europe reveal significance level of 1% and the others do not present statistical significance. Thus, an increase in receivables will have a higher negative impact in Eastern Europe.

Regarding model (9), inventories and profitability also reveal a negative relationship for every region. For a significance level of 1%, if INVR rises one day, in Eastern Europe ROA drops 0.0301%; in Northern Europe 0.0347%; in Southern Europe 0.0381% and in Western Europe 0.0810%, that turns out to be the region that suffers the most with a rise of days in inventories.

Analysing model (10), an extension of one day in payables ROA declines 0.0216% in Eastern Europe; 0.0273% in Northern Europe; 0.0105% in Southern Europe and 0.0355% in Western Europe. Therefore, for a significance level of 1%, APR and ROA establish a negative relationship for every region, but Western Europe is the region that suffers the most with an extension of days in payables.

Finally, model (11) studies the relationship between cash conversion cycle and profitability. For a significance level of 1%, when CCC upsurges one day ROA falls 0.0059% in Eastern Europe but, in contrast to previous results, it rises 0.0072% in Northern Europe and 0.0137% in Western Europe, which indicates that in these regions CCC and ROA have a positive relationship. For a significance level of 5%, ROA drops 0.0032% in Southern Europe.

Concerning control variables, according to the overall results and for a significance level of 1%, SIZE and GROWTH establish a positive relationship with ROA and LEV a negative one for every European region. Although for overall Europe, GDPR and ROA have a positive connection, for Northern Europe and with a significance level of 10%, when GDPR increases ROA decreases, and do not have statistical significance for Eastern Europe.

5.5. Robustness test

As mentioned by García-Teruel and Martínez-Solano (2007), it is important to ensure that the relation found in this study is due to the effects of the cash conversion cycle on profitability and not *vice versa*. In fact, Deloof (2003) alerts to that issue that can cause potential endogeneity problems. This means that the number of days accounts receivable, days in inventory and days in accounts payable may be influenced by return on assets, which represents the dependent variable. This issue can cause that discoveries of the study to be inversely interpreted. The negative relationship that ROA establishes with ARR could be explained by the fact that less profitable firms incentivize their customers by granting them a longer payment deadline as an incentive to raise sales, since they have access to the products without the obligation to pay earlier. In situations where there was a sudden drop in sales and, consequently, a fall in profitability, firms my find their stock levels rising. Likewise, the increasing APR, as already pointed out in previous chapters, could be explained by the fact that less profitable firms tended to defer their payments, since they do not have the capacity to face its obligations earlier (García-Teruel and Martínez-Solano, 2007).

Although Deloof (2003) discusses this problematic in his article, he does not control for it. Thus, following García-Teruel and Martínez-Solano (2007) and Pais and Gama (2015), the four models were estimated using 2SLS (Two-Stage Least Squares) with instrumental variables for the first lag of variables (ARR, INVR, APR and CCC).

To control for endogeneity problem of the original variables of the model, Durbin-Watson and Hausman tests were performed. These tests confirmed the presence of endogeneity. Besides that, F-test was carried out to verify the existence of weak instruments. Since it revealed statistical significance, those instruments are not week and can be used appropriately (Appendix 7).

Table 23 – Effect of Working Capital on ROA with instrumental variables for overall Europe

	Models			
Variables	**(8) ARR**	**(9) INVR**	**(10) APR**	**(11) CCC**
ARR	-0.000160			
	(-57.28)			
INVR		-0.000533		
		(-76.39)		
APR			-0.000353	
			(-62.29)	
CCC				-0.000136
				(-47.91)
SIZE	-0.001291	-0.001689	0.000106	-0.001935
	(-12.46)	(-16.35)	(1.00)	(-18.49)
LEV	-0.049807	-0.043441	-0.034342	-0.053439
	(-75.09)	(-65.73)	(-49.64)	(-79.16)
GROWTH	0.104951	0.104168	0.103619	0.105928
	(125.69)	(125.29)	(124.31)	(126.76)
GDPR	0.003444	0.003984	0.003541	0.003759
	(34.07)	(39.91)	(35.24)	(37.29)
Constant	0.086316	0.084869	0.072845	0.088531
	(100.66)	(100.49)	(86.51)	(100.98)
Observations	413,917	413,917	413,917	413,917
R-squared	0.062	0.070	0.068	0.060
Year dummies	Yes	Yes	Yes	Yes
Number of firms	59,131	59,131	59,131	59,131

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth; Results obtained with instrumental variables for the first lag of variables: ARR, INVR, APR and CCC; Robust z-statistics in parentheses; Every coefficient is statically significant at 1%

In Table 23 it is evinced the regression for the four models using instrument variables. As it is observable, every coefficient is statistically significant at 1% and the results for the four main variables confirm what Table 22 has shown.

Concerning control variables only SIZE presents differences in the signal. It transmits that ROA and SIZE turn out to have a negative relationship for the models (8), (9) and (11), which invalidates the previous findings.

Appendix 8 shows the regression for the four models using instrument variables, according to the different European regions. As in the previous table, ARR, INVR, APR and CCC establish a negative relationship with ROA for every European region, with a significance level of 1%, except for Southern Europe with 5% in model (8). However, CCC loses significance in Eastern Europe when controlling for eventual endogeneity problems. As seen in the correlation matrix, SIZE have a negative relation in every region except for Western Europe. LEV has a negative connection with ROA in every region except in Northern Europe that increasing debt profitability rises, yet it does not have statistical significance for model (8), (9) and (11). As previously, for a significance level of 1%, GROWTH and ROA have a positive relation in every model and region. Finally, GDPR and ROA demonstrate a positive relation for Eastern and Southern Europe but a negative one for Northern and Western Europe, with a significance level of 1%.

6. Conclusions

In this chapter it is displayed the general conclusions resulted from the investigation on the relation between WC and profitability of European touristic firms. Besides, it is also presented limitations and recommendations for future researches.

6.1 General conclusions

Working Capital Management is related with the daily business operations, since it is concerned with readily availability of cash and organizational commitments in which cash will be soon required. In other words, it is associated with the current assets and current liabilities. WCM plays an important role when managing a firm since managers give great emphasis to achieve the optimal balance between liquidity and profitability.

The present empirical research examines the influence of Working Capital Management on profitability for companies operating in the Tourism Industry across Europe. Aiming to understand which components of WC contributes the most for that relationship, it was studied a sample of 59,131 European firms under econometric and statistics technics, covering a period of 2009-2016, which resulted from several filters. Due to the characteristics of the study, panel-data treatment was followed for being considered the most suitable one. The use of fixed-effects

regression demonstrated the existence of unobservable heterogeneity and Durbin-Watson and Hausman tests prove the existence of endogeneity among the variables involved in this research.

The results obtained with this investigation, demonstrate a negative relationship between ROA (used as a profitability measure) and CCC (as working capital measure). A reduction in the receivables is associated with higher profitability which indicates that granting less time to costumers to make the payments will increase firms' returns. The same reasoning is applied to inventory. In case of a sudden drop in sales allied with a mishandle of inventory will lead to a withholding of excess capital, decreasing companies' profitability. Accounts payables also demonstrates a negative relationship with ROA and, as justified by Deloof (2003), it happens because less profitable firms delay their payments to suppliers. When cash conversion cycle is handled correctly, by managing the accounts receivable, inventory and accounts payables, managers can achieve a more efficient working capital and, consequently, obtain higher levels of profitability.

When analysing European regions, Eastern Europe has the biggest time of inventory, Northern Europe is the one in which clients pay faster for their purchases, Southern Europe reveals the lowest ROA and the highest CCC in contrast to Western Europe that presents the highest ROA and the lowest CCC.

Regarding control variables, SIZE is negatively correlated with ROA which indicates that increasing firm size decreases profitability. LEV also demonstrates a negative relationship with return on assets. On the other hand, GROWTH and GDPR are the only variables that present a positive relationship with ROA, revealing that a favourable economic environment enables a firm to grow and, therefore, to upsurge its profitability.

Having as reference recent methodologies and previous investigations, this thesis tries to contribute for the existent literature by fulfilling the gaps and comparing the results obtained with previous findings in the field of working capital.

Since tourism plays an important role for the development of European countries, this study aims to contribute for the awareness of managers regarding the way they control working capital and how it influences their profitability. With the results obtained, it is expected that they are in the possession of relevant information that allows sage choices while managing accounts receivable, inventories and payables, adjusting the financial strategy to their reality.

6.2. Limitations and recommendations for future research

Although this research contributes for the understanding of the working capital in the tourism sector in Europe, it has some limitations which can be seen as suggestions for further investigations.

This study only focused in one industry and the findings may not be valid when selecting other industries. Since tourism presents low levels of inventories, it is suggested that in future studies researchers explore sundry industries with different WC conditions than this one.

There are several variables, besides the ones used, that influence working capital. A recommendation would be to incorporate firms' age, that was not included in this study because the information was not available for every firm and would cause a reduction of the sample. Besides, it would be interesting to comprehend how the management of working capital affects profitability during each stage of the business cycle. Profitability was measured with ROA expressed as operating result divided by firms' assets, which means that interest costs and tax were not considered in this analysis. However, debt represents more than half of firms' assets in Europe and it could be relevant to understand how different the results would be if financing conditions and fiscal component were incorporated. For that, ROA could be measured as Net income to total assets.

Finally, this study could be adapted to other continents such as Asia and Pacific and Middle East that have been revealing increasing trends in tourism market shares, which will imply a tighter management of working capital to support those growth prospects.

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8. Appendixes

Appendix 1 – Filters used in the sample

Aiming to enable the sample to be balanced, there were applied several filters. It was excluded observations in which the total assets were equal or less than zero and when sales; non-current liability; current liability; ARR; INVR and APR were less than zero. Cases that firms have insufficient information related to ROA; ARR; INVR; APR; SIZE; LEV and GROWTH were not considered. Accounting errors, such as the sum of non-current assets with current assets do not totalize the assets of a firm, were also an elimination factor. Finally, the sample was winsorized by 2.5% in the top and bottom of observations to foil the effect of outliers.

Appendix 2 – Number of firms by European country

Country	Number of firms
Austria	4
Belgium	470
Bosnia and Herzegovina	216
Bulgaria	22
Croatia	1276
Czech Republic	580
Estonia	814
Finland	1008
France	10282
Germany	178
Greece	653
Hungary	93
Iceland	1
Ireland	225
Italy	13312
Latvia	45
Lithuania	6
Luxembourg	4

Malta	4
Montenegro	2
Netherlands	6
Norway	2458
Poland	270
Portugal	8882
Republic of Moldova	12
Russian Federation	1408
Serbia	238
Slovenia	102
Spain	11584
Sweden	1649
Switzerland	107
Ukraine	1433
United Kingdom	1787

Appendix 3 – Mean values for the main variables by European countries

	Mean values				
Country	**ROA**	**ARR**	**INVR**	**APR**	**CCC**
Austria	0.0713	8.82	10.27	5.15	13.94
Belgium	0.0452	27.38	7.63	27.80	7.21
Bosnia and Herzegovina	0.0674	132.43	17.55	72.67	77.30
Bulgaria	0.0386	72.75	41.42	61.24	52.93
Croatia	0.0657	71.15	18.05	41.87	47.34
Czech Republic	0.0380	23.75	8.37	20.85	11.27
Estonia	0.0436	14.74	17.38	9.95	22.18
Finland	0.0690	17.12	6.63	16.81	6.94
France	0.0845	18.07	5.91	29.68	-5.70
Germany	0.0114	15.88	8.65	25.31	-0.79
Greece	0.0320	90.54	7.56	60.74	37.35
Hungary	0.0507	25.18	10.43	27.21	8.40

Iceland	0.2500	19.39	0.00	0.61	18.78
Ireland	0.0137	18.39	5.42	20.24	3.57
Italy	0.0435	42.38	12.59	48.43	6.53
Latvia	0.0502	11.04	9.80	17.87	2.97
Lithuania	0.0760	45.21	8.33	38.22	15.32
Luxembourg	0.0389	74.28	7.77	85.59	-3.55
Malta	0.2276	61.71	6.48	74.36	-6.17
Montenegro	0.0105	98.68	8.74	49.59	57.83
Netherlands	0.0406	125.22	1.98	21.00	106.20
Norway	0.0937	18.41	6.66	18.59	6.48
Poland	0.0467	33.08	9.11	23.77	18.42
Portugal	0.0518	99.13	13.01	20.68	91.46
Republic of Moldova	0.0140	60.29	20.58	27.61	53.26
Russian Federation	0.0841	49.10	32.81	43.30	38.61
Serbia	0.0629	64.46	22.06	67.05	19.47
Slovenia	0.0408	63.77	15.90	66.08	13.59
Spain	0.0321	45.09	21.35	24.79	41.65
Sweden	0.0673	18.43	11.09	17.88	11.64
Switzerland	0.0141	25.98	6.61	32.92	-0.33
Ukraine	0.0306	32.55	24.92	30.73	26.74
United Kingdom	0.0831	18.97	7.36	22.14	4.19

Appendix 4 – Hausman test

Appendix 4.1- ARR variable

	Coefficients (b) fixed_group	(B) random_group	(b-B) Difference
ARR	-0.0000549	-0.0000829	0.000028
SIZE	0.0185498	0.001811	0.016739
GROWTH	0.1026763	0.1029857	-0.00031
LEV	-0.1785327	-0.1138714	-0.06466
GDPR	-0.0004488	0.0001753	-0.00062

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:	Ho:	difference in coefficients not systematic
chi2(5)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
	=	9521.57
Prob>chi2	=	0.000

Appendix 4.2- INVR variable

	Coefficients (b) fixed_group	(B) random_group	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
INVR	-0.0003878	-0.0004196	3.17E-05	6.47E-06
SIZE	0.0188894	0.0015753	0.017314	0.000443
GROWTH	0.1020512	0.1027001	-0.00065	0.000098
LEV	-0.1767572	-0.1104912	-0.06627	0.0007309
GDPR	-0.0004624	0.0001828	-0.00065	9.16E-06

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:	Ho:	difference in coefficients not systematic
chi2(5)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
	=	9836.43
Prob>chi2	=	0.000

Appendix 4.3- APR variable

	Coefficients (b) fixed_group	(B) random_group	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
APR	-0.0001391	-0.000183	4.39E-05	2.02E-06
SIZE	0.0190782	0.0024877	0.01659	0.0004439
GROWTH	0.1022823	0.1026726	-0.00039	0.0000972
LEV	-0.1737274	-0.1062957	-0.06743	0.000736
GDPR	-0.00048	0.0001407	-0.00062	9.12E-06

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:	Ho:	difference in coefficients not systematic
chi2(5)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
	=	10016.4
Prob>chi2	=	0.000

Appendix 4.4- CCC variable

	Coefficients (b) fixed_group	(B) random_group	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
CCC	-0.0000213	-0.0000456	2.42E-05	1.39E-06
SIZE	0.0181017	0.0015766	0.016525	0.0004427
GROWTH	0.1036158	0.1040923	-0.00048	0.0000964
LEV	-0.179664	-0.1153704	-0.06429	0.0007261
GDPR	-0.0004365	0.0002035	-0.00064	9.12E-06

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test:	Ho:	difference in coefficients not systematic
chi2(5)	=	(b-B)'[(V_b-V_B)^(-1)](b-B)
	=	9705.64
Prob>chi2	=	0.000

Appendix 5 – VIF results

Appendix 5.1- ARR variable

Source	SS	df	MS		Number of obs	=473048
Model	437.1308	5	87.42617		F(5,473042)	=6126.74
Residual	6750.118		0.01427		Prob>F	=0.000
Total	7187.249		0.015194		R-squared	=0.0608
					Adj R-squared	=0.0608
					Root MSE	=0.11946

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]	VIF	1/VIF
ARR	-0.00012	2.18E-06	-52.85	0.000	-0.00012	-0.00011	1.01	0.989073
SIZE	-0.00203	9.74E-05	-20.83	0.000	-0.00222	-0.00184	1.04	0.963954
GROWTH	0.10795	0.000771	140.02	0.000	0.106439	0.109461	1.02	0.980545
LEV	-0.04883	0.000622	-78.5	0.000	-0.05005	-0.04761	1.04	0.961272
GDPR	0.001448	6.25E-05	23.17	0.000	0.001325	0.00157	1.02	0.979669
_cons	0.094763	0.000667	142.05	0.000	0.093456	0.096071		
						Mean	VIF	1.03

Appendix 5.2- INVR variable

Source	SS	df	MS		Number of obs	=473048
Model	488.4662	5	97.69324		F(5,473042)	=6898.72
Residual	6698.783		0.014161		Prob>F	=0.000
Total	7187.249		0.015194		R-squared	=0.068
					Adj R squared	=0.068
					Root MSE	=0.119

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]	VIF	1/VIF
INVR	-0.00048	5.97E-06	-80.25	0.000	-0.00049	-0.00047	1.01	0.991164
SIZE	-0.00234	9.71E-05	-24.1	0.000	-0.00253	-0.00215	1.04	0.96232
GROWTH	0.106908	0.000768	139.2	0.000	0.105403	0.108413	1.02	0.980543
LEV	-0.0435	0.00062	-70.18	0.000	-0.04472	-0.04229	1.04	0.960408
GDPR	0.00152	6.21E-05	24.46	0.000	0.001398	0.001641	1.02	0.982627
_cons	0.095249	0.000659	144.48	0.000	0.093956	0.096541		
						Mean	VIF	1.03

Appendix 5.3- APR variable

Source	SS	df	MS		
Model	479.0915	5	95.8183		
Residual	6708.158		0.014181		
Total	7187.249		0.015194		

Number of obs	=473048
F(5,473042)	=6756.86
Prob>F	=0.000
R-squared	=0.0667
Adj R-squared	=0.0666
Root MSE	=0.11908

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]	VIF	1/VIF
APR	-0.00029	3.84E-06	-75.96	0.000	-0.0003	-0.00028	1.1	0.911773
SIZE	-0.0009	9.82E-05	-9.13	0.000	-0.00109	-0.0007	1.06	0.942132
GROWTH	0.106977	0.000769	139.18	0.000	0.105471	0.108484	1.02	0.980385
LEV	-0.03606	0.000635	-56.79	0.000	-0.03731	-0.03482	1.09	0.916534
GDPR	0.001339	6.23E-05	21.5	0.000	0.001217	0.001461	1.02	0.979105
_cons	0.08504	0.000656	129.68	0.000	0.083755	0.086325		
						Mean	VIF	1.06

Appendix 5.4- CCC variable

Source	SS	df	MS		
Model	417.9185	5	83.58371		
Residual	6769.331		0.01431		
Total	7187.249		0.015194		

Number of obs	=473048
F(5,473042)	=5840.84
Prob>F	=0.000
R-squared	=0.0581
Adj R-squared	=0.0581
Root MSE	=0.11963

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]	VIF	1/VIF
CCC	-8.1E-05	2.13E-06	-37.99	0.000	-8.5E-05	-7.7E-05	1.05	0.954693
SIZE	-0.00239	0.000098	-24.39	0.000	-0.00258	-0.0022	1.05	0.954348
GROWTH	0.108872	0.000772	141.09	0.000	0.10736	0.110384	1.02	0.981579
LEV	-0.05066	0.00063	-80.44	0.000	-0.05189	-0.04943	1.06	0.940286
GDPR	0.001571	6.25E-05	25.15	0.000	0.001449	0.001694	1.02	0.982257
_cons	0.094961	0.000679	139.8	0.000	0.09363	0.096293		
						Mean	VIF	1.04

Appendix 6 - Effect of Working Capital on ROA using fixed-effect regression for European regions

VARIABLES	(8) ARR				(9) INVR				(10) APR				(11) CCC			
REGIONS	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Eastern Europe	Northern Europe	Southern Europe	Western Europe
ARR	-0.000125***	-0.000026	-0.000051***	-0.000023												
	(-7.91)	(-1.24)	(-11.92)	(-1.34)												
INVR					-0.000301***	-0.000347***	-0.000381***	-0.000810***								
					(-6.67)	(-6.50)	(-24.00)	(-9.71)								
APR									-0.000216***	-0.000273***	-0.000105***	-0.000355***				
									(-9.20)	(-12.39)	(-19.06)	(-17.26)				
CCC													-0.000059***	0.000072***	-0.000032**	0.000137***
													(-4.10)	-4.6	(-8.19)	(9.41)
SIZE	0.005332*	0.029670***	0.028781***	0.015092***	0.004785*	0.029861***	0.029258***	0.015417***	0.005719**	0.030756***	0.029215***	0.017274***	0.003931	0.029442***	0.028332***	0.014840***
	(1.89)	(11.57)	(24.13)	-6.47	(1.69)	(11.63)	(24.64)	(6.70)	(2.03)	-11.99	-24.54	-7.46	(1.39)	(11.48)	(23.82)	(6.37)
LEV	-0.140935***	-0.209807***	-0.190125***	-0.210081***	-0.140291***	-0.209116***	-0.187645***	-0.208987***	-0.127479***	-0.205205***	-0.186617***	-0.200206***	-0.145077***	-0.209073***	-0.191480***	-0.207353***
	(-19.92)	(-33.58)	(-73.01)	(-44.00)	(-19.80)	(-33.50)	(-72.40)	(-43.92)	(-17.29)	(-32.87)	(-71.40)	(-41.57)	(-20.31)	(-33.45)	(-73.59)	(-43.42)
GROWTH	0.101370***	0.119343***	0.090184***	0.136872***	0.100680***	0.118527***	0.089778***	0.135397***	0.101042***	0.117547***	0.090427***	0.131638***	0.102638***	0.119558***	0.091021***	0.136825***
	-32.43	(47.95)	(87.19)	(52.12)	(31.88)	(47.55)	(87.26)	(51.43)	(32.22)	-47.26	(87.41)	(49.46)	(32.82)	(48.13)	(88.25)	(52.28)
GDPR	0.000219	-0.000365*	0.004556***	0.002475***	0.000262	-0.000368*	0.004547***	0.002544***	0.000189	-0.000440**	0.004714***	0.002665**	000271	-0.000367*	0.004490***	0.002525***
	-0.92	(-1.78)	(25.31)	(2.60)	(1.10)	(-1.79)	(25.31)	(2.69)	(0.80)	(-2.14)	(26.19)	-2.77	(1.14)	(-1.79)	(24.93)	(2.63)
Constant	0.087705***	-0.00582	0.002270	0.129605***	0.094929***	-0.004814	0.000835	0.131692***	0.082593***	-0.010904	-0.000520	0.120683***	0.095791***	-0.005755	0.003521	0.129945***
	(5.35)	(-0.37)	(0.32)	(9.00)	(5.76)	(-0.30)	(0.12)	(9.23)	(5.03)	(-0.69)	(-0.07)	(8.42)	(5.83)	(-0.36)	(0.50)	(9.01)
Observations	30,544	63,944	290,152	88,408	30,544	63,944	290,152	88,408	30,544	63,944	290,152	88,408	30,544	63,944	290,152	88,408
R-squared	0.101	0.132	0.135	0.168	0.101	0.133	0.139	0.171	0.102	0.135	0.136	0.175	0.099	0.132	0.135	0.170
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of firms	3,818	7,993	36,269	11,051	3,818	7,993	36,269	11,051	3,818	7,993	36,269	11,051	3,818	7,993	36,269	11,051

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth; Results obtained with fixed-effects estimations; Robust t-statistics in parentheses; ***Significance level at 1%; **Significance level at 5%; *Significance level at 10%

Appendix 7 – 2SLS and instrumental variables (Durbin-Watson; Hausman and F-test)

Appendix 7.1- ARR variable

Tests of endogeneity

Ho: variables are exogenous

Durbin (score) chi2(1) = 1010.97 (p = 0.0000)

Wu-Hausman F(1,413910) = 1013.43 (p = 0.0000)

estat firststage

First-stage regression

summary statistics

Variable	Adjusted R-sq.	Partial R-sq.	R-sq.	F(1,413911)	Prob > F
ARR	0.701	0.701	0.6957	946259	0.0000

Appendix 7.2- INVR variable

Tests of endogeneity

Ho: variables are exogenous

Durbin (score) chi2(1) = 433.791 (p = 0.0000)

Wu-Hausman F(1,413910) = 434.239 (p = 0.0000)

estat firststage

First-stage regression

summary statistics

Variable	Adjusted R-sq.	Partial R-sq.	R-sq.	F(1,413911)	Prob > F
INVR	0.8213	0.8213	0.8197	1.90E+06	0.0000

Appendix 7.3- APR variable

Tests of endogeneity

Ho: variables are exogenous

Durbin (score) chi2(1) = 323.002 (p = 0.0000)

Wu-Hausman F(1,413910) = 323.249 (p = 0.0000)

estat firststage

First-stage regression

summary statistics

Variable	Adjusted R-sq.	Partial R-sq.	R-sq.	F(1,413911)	Prob > F
APR	0.5775	0.5774	0.5344	475140	0.0000

Appendix 7.4- CCC variable

Tests of endogeneity

Ho: variables are exogenous

Durbin (score) chi2(1) = 1057.1 (p = 0.0000)

Wu-Hausman F(1,413910) = 1059.79 (p = 0.0000)

estat firststage

First-stage regression

summary statistics

Variable	Adjusted R-sq.	Partial R-sq.	R-sq.	F(1,413911)	Prob > F
CCC	0.654	0.6539	0.6368	725859	0.000

Appendix 8 - Effect of Working Capital on ROA with instrumental variables for European regions

VARIABLES	(8) ARR				(9) INVR				(10) APR				(11) CCC			
REGIONS	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Eastern Europe	Northern Europe	Southern Europe	Western Europe	Eastern Europe	Northern Europe	Southern Europe	Western Europe
ARR	-0.000085***	-0.000340***	-0.000097**	-0.000319***												
	(-5.42)	(-15.92)	(-35.16)	(-28.24)												
INVR					-0.000240***	-0.000680***	-0.000441***	-0.000891***								
					(-7.57)	(-21.19)	(-62.91)	(-24.14)								
APR									-0.000317***	-0.000726***	-0.000233***	-0.000504***				
									(-12.18)	(-22.30)	(-38.52)	(-33.77)				
CCC													-0.000014	-0.000169***	-0.000100***	-0.000109***
													(-0.86)	(-8.55)	(-35.52)	(-8.65)
SIZE	-0.012250***	-0.001839***	-0.001025***	0.003665***	-0.013132***	-0.002659***	-0.001065***	0.001812***	-0.011499***	-0.000384	0.000281**	0.003819***	-0.012725***	-0.002610***	-0.001574***	0.002281***
	(-25.03)	(-6.14)	(-8.60)	(12.76)	(-27.13)	(-8.94)	(-8.99)	(6.41)	(-23.51)	(-1.24)	(2.29)	(13.40)	(-26.44)	(-8.69)	(-13.03)	(8.04)
LEV	-0.015340***	0.003235	-0.062271***	-0.077723***	-0.016930***	0.003410	-0.054017***	-0.081368***	0.002185	0.011225***	-0.049887***	-0.066581***	-0.016414***	0.000944	-0.065318***	-0.083788***
	(-4.46)	(1.49)	(-85.92)	(-41.44)	(-4.92)	-1.57	(-74.67)	(-43.53)	(0.59)	-5.1	(-65.07)	(-34.76)	(-4.61)	(0.43)	(-88.58)	(-44.37)
GROWTH	0.104858***	0.124230***	0.100923***	0.139186***	0.103985***	0.123474***	0.099830***	0.139859***	0.102542***	0.121908***	0.100599***	0.133942***	0.106207***	0.125111***	0.101226***	0.142163***
	(30.08)	(49.78)	(107.64)	(53.43)	-29.83	(49.63)	(107.27)	(53.72)	(29.56)	(48.99)	-107.51	(51.51)	(30.49)	(50.09)	(108.01)	-54.37
GDPR	0.004854***	-0.003687***	0.002202***	-0.051691***	0.004909***	-0.003380***	0.003176***	-0.047390***	0.004550***	-0.003723***	0.002388***	-0.053365***	0.004897***	-0.003581***	0.002406***	-0.049089***
	-13.93	(-13.15)	(11.03)	(-21.69)	(14.10)	(-12.08)	-16.02	(-19.89)	(13.09)	(-13.34)	-12	(-22.49)	-14.05	(-12.75)	-12.07	(-20.53)
Constant	0.108485***	0.093731***	0.086597***	0.146750***	0.116038***	0.098228***	0.082078***	0.154598**	0.106537***	0.086318***	0.073234***	0.151881***	0.107883***	0.095336***	0.089917***	0.148759***
	(28.59)	(33.67)	(83.38)	(43.84)	(29.29)	(35.21)	(81.38)	(46.14)	(28.30)	(31.10)	(71.70)	(45.62)	(27.77)	-33.76	(84.64)	(44.27)
Observations	26,726	55,951	253,883	77,357	26,726	55,951	253,883	77,357	26,726	55,951	253,883	77,357	26,726	55,951	253,883	77,357
R-squared	0.063	0.047	0.079	0.079	0.064	0.053	0.091	0.080	0.074	0.055	0.083	0.089	0.063	0.045	0.079	0.072
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: ROA – return on assets; ARR – number of days in accounts receivable; INVR – number of days of inventory; APR – number of days in accounts payables; CCC – cash conversion cycle; SIZE – natural logarithm of assets book value; LEV – financial debt level; GROWTH – annual sales growth; GDPR – annual GDP growth; Results obtained with instrumental variables for the first lag of variables: ARR, INVR, APR and CCC; Robust z-statistics in parentheses; ***Significance level at 1%; **Significance level at 5%; *Significance level at 10%