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## DATA COLLECTION FOR A PERFORMANCE ANALYSIS ON WORKING CAPITAL MANAGEMENT

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### ABSTRACT

The objective of the present work is to develop and set up a model for assessing how working capital management can influence performance in small and medium-sized enterprises (SMEs). With this aim, the initial part provides a literature review, with the goal of identifying the problem and all its components. The concept of optimization of working capital and its influence on company performance is then discussed. The main part of the work concerns the collection of data about small enterprises, which will be the sample for the analysis that will be carried on in a subsequent research work. In this paper we discuss the industrial sectors of the companies used as a sample and the method of data extraction, as well as the construction of two sets of variables: the first set containing the symptomatic indicators of the management of net working capital and the second set comprising the profitability indicators, to measure the company's performance.

*Keywords: working capital, management, enterprise performance, value creation, data analysis, data collection, AIDA.*

### INTRODUCTION

The objective of this work is to collect data in order to verify if there is a link between a correct management of working capital and the profitability of the company. This concept, which instinctively seems obvious, since any optimization should result in better performance, has not yet been the subject of analysis with regard to the sector of small-medium Italian companies. It was therefore considered important to check whether this relationship existed, given the importance of this type of company in Italy.

The collection includes Italian SMEs belonging to three different sectors of the food industry. In order to proceed with a meaningful analysis, it was considered appropriate to analyze, in addition to SMEs, large companies in each sector to use them as a benchmark and most sensitive variable, as it consists of a smaller number of companies, more solid and global and therefore less sensitive to the effects of the crisis. This was done considering that the time horizon had to be as close as possible to the present, and

therefore certainly including years in which the effects of the 2008 crisis and its consequences were an important exogenous factor that greatly influenced company performance and variables.

As stated, the area of investigation chosen is therefore Italian SMEs. According to the "User's Guide to the definition of SMEs" (European Commission 2015) in Europe in 2013 nine out of ten companies are an SME, amounting to more than 21 million. They have offered 88.8 million jobs, creating 2 out of 3 jobs. It follows that this type of enterprise and its mechanisms are very important to investigate, if for no other reason than the importance that comes from such a spread. The basic criteria for assessing whether an enterprise is an SME are clearly based on size. It is important to distinguish SMEs from other types of companies, because they face a number of problems related to market failures and structural barriers that lead them to need special assistance, provided in the form of EU programmes.

The report issued by Cerved on SMEs 2015 (Cerved 2015) notes that 137,046 companies in Italy meet these requirements and are therefore to be considered as SMEs. This number was fairly high in 2007, but has been reduced since the second half of 2008. More precisely, the number since 2007 has fallen by 13 thousand units, about 9% of the total number of SMEs active in that period, due to a collapse in demand and the credit crunch, which triggered a selection process, which meant that there was a distinction of the most robust companies. In 2015, for the first time, the decline in the number of active SMEs came to a halt and it can be seen that the companies that have remained are characterized by a particularly strong economic and financial structure. Even those that, despite the exogenous aspects of the period, have grown from, for example, micro to small enterprises, are on average more productive, more financially solid, less dependent on bank credit and more profitable than companies that have made the same transition in other periods of time.

Another factor to consider is the anomalous increase, but consistent with the general situation, of companies with at least one bankruptcy or liquidation procedure, as it is symptomatic of the difficulties of companies in a context of poor access to credit and tight competition on prices. Since 2008, the number of companies in bankruptcy or in serious difficulty has grown rapidly, with a peak during 2013, followed by a continuous decrease in 2014 and 2015, bringing the values back to those of late 2008 - early 2009.

This figure has a great influence on the analysis, since if a company is in a precarious situation, it is unlikely that, despite excellent management of working capital, it will be able to achieve good performance. The cluster of SMEs is therefore made up of very solid companies that have managed to grow despite the difficulties and that have remarkable results, and companies in crisis, in a much larger number than in the past, which instead lower the average for the sector and global. It is a decidedly heterogeneous whole, but it represents the majority of the Italian entrepreneurial activity, and therefore it is considered valid of an in-depth analysis.

There are many variables that can influence the profitability of the company. The most important is the trend of the economy, which affects all companies operating in the country. In order to assess the effects of the crisis on productivity at national level, data were extracted for a summary indicator, GDP, the value of which is issued quarterly by ISTAT.

GDP is a macroeconomic measure sensitive to changes in output and hence in demand at the national level. During 2008 there was a collective collapse at the level of the European Union, but it was recovered completely (or almost) in 2011 by the other countries, primarily by Germany.

On the contrary, the Italian situation is still very critical, as evidenced by the fact that GDP has not yet returned to pre-crisis levels, even though it shows a slight increase in the data for 2017.

Other elements to consider before proceeding with the analysis are the data relating to the differences in productivity trends based on the size of the company. It is important to underline the differences between large enterprises and SMEs, especially as both categories will be used in the analysis, one as a variable in question and one as a control variable.

Unhealthy production levels still returned to the levels of 2007, prior to the outbreak of the crisis, confirming the adequacy of macro data such as GDP to judge the performance of each size category. It is interesting, however, to evaluate how the category of medium-sized enterprises managed to exceed the 2007 standards in 2014, the only positive note of the data under examination. It can also be seen that the average values, regardless of the year, are much higher in large companies than in SMEs, with a difference of around 20,000 euros in value added per employee.

This difference is physiological, as large companies can benefit from economies of scale and have fewer barriers to entry, as well as greater production and distribution capacity. The figure becomes even more important if we consider that the number of employees in recent years has progressively decreased in the SME segment. This is probably due to both technological innovation and the continuous drive to reduce costs, whether fixed or variable. This trend has not been so strong in large enterprises and could lead to further discrepancies in the results of the two categories.

A final point that should be mentioned in relation to SMEs in recent years is the suffering. Although the impact of indebtedness has already been considered in terms of bankruptcies or liquidations, it does require further attention, as it is not certain that the presence of impaired debts of companies will only lead to such consequences. Even those companies that have managed to manage the situation and survive the crisis may have had difficulties leading to late payments, the need to restructure loan conditions (which has seen truly exceptional growth) or exposure overruns.

These figures, however, relate to the complete set of defaulting credit positions held by the banks. An interesting starting point is to break down this total on the basis of the economic activity of the clientele that originated the impaired loans.

This representation is very significant, because it shows that until 2007 the cumulative level of suffering was more or less stable, with growth more in the household sector than in the entrepreneurial sector. Already in 2008 and even more so in 2009, non-financial corporations have jumped to four times the level of suffering recorded in 2004-2005 in 2013.

On the basis of the elements that characterized the SME, a time horizon was chosen starting from 2008, the first year in which the effects of the crisis occurred, in order to produce an analysis on the basis of a set of homogeneous values. Taking into account the data for 2007 would have meant creating significant distortions, given the evolution of the Italian market over the last decade, very different from what were the previous standards.

By monitoring the data of a large number of companies in the period 2008-2016, it should be possible to verify whether the hypotheses of correlation between a correct management of working capital and performance exist in reality.

## **NET WORKING CAPITAL**

Net working capital (NWC) represents the difference between current assets and current liabilities (Banos-Caballero et al., 2010).

This amount emerges from the reclassification of the Balance Sheet with the criterion of management relevance and has, usually, a positive balance for industrial companies, since inventories and trade receivables generally have a greater amount than supply payables and other short-term liabilities. Accounting rules state that an asset or liability is defined as current if it is transformed into cash (in the case of assets) or paid (in the case of liabilities) within 12 months. The NWC is a quantity which, according to the traditional logic of the financial analysis of the capital context, expresses the degree of solvency in the short term. In fact, when it is positive, it shows how the short-term investments are adequately covered by sources with similar or longer-term time horizons, guaranteeing their financing. It is very important to note that when working capital is negative (current assets are lower than current liabilities), this means that the company is in an illiquid situation and, consequently, the financial position shows the coverage of fixed investments with short-term sources of financing. In this case, the company also finances part of its fixed assets with short-term sources (current liabilities), thus exposing itself to a high financial risk. In fact, current liabilities, having a potential short-term collectability, may not be met due to the longer time required to make fixed assets liquid. This situation may lead to the disinvestment of fixed assets, thus jeopardising the company's activities.

Negative net working capital is a cause for concern, as it has been shown that the company, having the remainder of its fixed assets, is unable to pay its short-term debts with current assets either. Moreover, if the medium to long term sources are fixed and consolidated contracts in the company's balance sheet,

the short term sources risk not being renewed and, consequently, leading the company to find itself without part of the financing it previously had available. This is not too serious when short-term liabilities are used to cover short-term assets, because they can be corrected quickly and with limited effects on the company's profitability. In the event of a negative NWC, however, the situation is much more dramatic and the consequences can be very serious, including forcing the company to dispose of assets in the medium to long term.

The notion of working capital in the strict sense of the term includes both cash and cash equivalents and investments related to the operating cycle, regardless of the date of conversion into cash. In this way, the composition is more heterogeneous from the point of view of the payment/realisation date, but more homogeneous in terms of purpose, enclosing in a single value all the elements linked to operations and therefore to the company's core business.

The concept of operating working capital can be further derived from this, which does not take into account cash and cash equivalents, but only the elements actually mobilised and not static: trade payables, trade receivables and stocks.

Since the 1970s, companies have been devoting particular attention to investments related to their day-to-day operations. It has started to be noted that control over day-to-day operations is often more difficult to implement than control over large investments in fixed assets. In fact, when it comes to large initiatives, emphasis is placed on the selection and implementation of decisions, while small amounts tend to be less conspicuous and may seem less significant. Another reason for this difficulty is that the choices related to the day-to-day management of resources are made by a large number of people and not by a few easily identifiable individuals, as is the case for large investments.

As time went by and competition grew, companies were forced to increase flexibility and efficiency to build a competitive advantage. One of the main levers available to management has been to expand the range of services and products offered. This type of action has an impact in particular on two elements of the assets: credits and stocks, which have therefore grown in importance, until they become two of the main components of the company management, not only for their weight in the balance sheet, but also for the strategic importance that they have acquired in this transformation.

If this focus on two components of working capital has influenced international competition since the 1970s, in the last fifteen years, with the spread of an increasingly global market, ever greater competitiveness and the effects of the economic crisis, these issues have become increasingly the subject of evaluation by all types of companies. In fact, an increasingly urgent need to control and plan working capital management has emerged in order to find the right compromise between financial and operational choices. At a time like the present, when there are considerable problems for access to credit, it can be very difficult to combine the needs of the financial area with those of the operating area,

in turn made problematic by competition and the need to maintain production at the level of quality required, without exceeding stocks and regulating the delay in payments.

Since the value of the NWC is so decisive, the choices that determine it acquire fundamental importance and must be evaluated both in a strategic key (evaluation and choice of the role of the single variables) and in a directional key (programming and control of the levels of the single variables, making budgets and forecasts).

It is possible to deepen the evaluation of the working capital going beyond its sign, but it is necessary to consider that, for example, an amount of €100.000 can be extremely significant for a small company, while it can be a variation of little account for a great group. The absolute value alone does not provide a clear indication of the company's performance, so it is advisable to check the deviations over time and its weight in percentage with respect to significant items in the financial statements. In addition, it should be noted that the NWC is not a static measure, because, as defined, it consists mainly of assets and liabilities that will be converted into cash within 12 months (conventionally the duration of the business operating cycle).

The choices made with regard to working capital can be considered among the decisions of the financing mix, which have direct effects on the financial structure and, consequently, on the cost of debt and the level of financial risk perceived by the markets. In addition, negative elements linked to the overall profitability of the company may emerge from the management of working capital in the form of past due or uncollectible trade receivables, or losses linked to inventory obsolescence.

Given this ability to change very quickly, and the importance of the elements that make it up, working capital is an indicator of the much more sensitive condition of others available to management. The use of working capital as a symptomatic variable of company performance is in fact very widespread, as it includes in a single value that can be monitored and is sufficiently sensitive to changes, both the effects deriving from financial risk factors and the elements sensitive to operational risk.

## **THE OPTIMISATION OF WORKING CAPITAL AND ITS INFLUENCE ON COMPANY PERFORMANCE**

Working capital has been addressed by a wide range of sources of economic literature, starting with the main accounting and corporate finance manuals. However, it has been relatively little taken into account by business realities, despite the fact that a large proportion of failures were due to inadequate decisions in the management of business working capital. However, the literature also tended to address the issue of working capital mainly in relation to reclassifications of financial statements, calculations of indicators, and as a component to construct cash flow and financial statements, while today it has acquired new relevance. The lack of clarity and the misunderstandings regarding the



optimisation of working capital are justified by the fact that there is no balance sheet item that allows, at first glance, to identify the extent or trend of working capital. It is necessary to reclassify and choose which notion of working capital to consider, whether net, gross or operational... As a result of these difficulties, many authors have preferred, in the past, to overlook the concept and meaning of working capital, or have addressed it as a subject of lesser importance. This is very significant because a large part of the business failures that have occurred in the recent past have been caused by inefficient working capital management.

The purpose of corporate finance is to make the capital available as profitable as possible. When we talk about capital, we refer to equity and debt on the liabilities side and to fixed assets and current assets on the assets side. In this context, working capital can be considered as an indicator used by financial management to check short-term balances. By adopting this type of reasoning, the NWC acquires a much greater importance than that which has been reserved for this issue in the past.

Several independent studies of the financial statements of large European and US companies have shown that companies tend to hold around 25% more liquidity than necessary. Such a high level of excess liquidity is often associated with particularly high levels of credit, excessive inventory, high operating costs or debt, which are often accompanied by inadequate implementation of strategic initiatives. As a consequence, there will be greater losses in the creation of potential cash flows, profits or profits distributed to shareholders, accompanied by greater vulnerability to possible hostile acquisitions. Considering this scenario, it becomes increasingly obvious that effective management and optimization of working capital are indispensable, despite the fact that in the past they were not a priority, but rather occupied one of the last places on the list of priorities of entrepreneurs. Not only large companies, but also small to medium sized ones have had to recognize how working capital optimization in a critical context such as the current one can become an effective and integrated cost management tool.

This change has been confirmed in recent years by events on the capital markets as well as by new legislative requirements, such as those arising from the guidelines of the Basel II regulations for banks and other money lending institutions. These new regulations limit access to credit for companies, which therefore have to find alternative ways of financing themselves. One of the simplest and least costly mechanisms is sometimes the search for self-financing through proper and optimised working capital management.

During the growth of an activity, the management has the task of deciding which capital structure is best suited to the type of company and the needs that it develops. Often high-level officials tend to think in a long-term perspective, often overriding what is the administration of short term and therefore on the management of working capital. Recent studies (Al-Shubiri 2011) (Falope and Ajilore

2009) (Garcia-Teruel and Martinez-Solano 2007) have demonstrated the importance of managing current assets and liabilities. When a financing need arises, it is preferable to turn to long-term sources of finance instead of changing the company's internal liquidity management mechanisms. For many years, working capital management has been opposed to the excessive effort required to change short-term policies in relation to an insignificant increase in profits (Darun 2008).

Several authors (Meyer 2007) (Schaeffer 2002) (Weinraub and Visscher 1998) support the importance of working capital management, with particular reference to the importance of short-term needs and the management of capital reserves.

Since the financial crisis of 2008, companies have seen a deterioration of their operating environment, with managers forced to apply strict measures, cut costs and postpone investments so as to be able to respond to decreases in demand and consequent reductions in production. As a result, liquidity and working capital have become two variables under close observation, and therefore under continuous monitoring and control. Working capital management has changed a lot and the most common and widespread policies have been adapted to the new economic conditions. Due to the rapid changes in the economy, companies are renewing themselves and are finding new levers on which to focus to compete. Working capital is becoming increasingly important among these.

The optimization of working capital has become an important issue also because companies have had to explore markets looking for alternatives to finance themselves over the past few years, because, despite the fact that interest rates are reduced to record lows, the possibility of obtaining loans from banks or similar institutions has become increasingly reduced. It is a mechanism called credit crunch, i.e. a credit and liquidity crunch that began in the summer of 2007, which brought the spreads of Credit Default Swaps (CDS) to unprecedented levels following the default of Lehman Brothers in September 2008. According to a study of the period (PwC 2010), the companies, recording a decrease in revenues, focused exclusively on costs and revenues, therefore on indicators such as NOPAT in order to increase profitability. However, this attitude led to a general decrease in Return on Net Assets (RONA). As a result, it became necessary to improve this indicator in the medium to long term, the performance of which depends on the ratio of revenues, operating working capital and net assets. In addition to cost containment, the most appropriate way to counteract the worsening of RONA is to improve the factors that affect operating working capital, so as to balance the negative effect of the fall in turnover. In fact, the same study places funding, cash management and elements linked to technology and systems as a priority at the time of treasury, all of which are closely influenced by and/or correlated with working capital management. During the crisis, the number of companies that see working capital as an element of high priority has more than doubled, from 35% to 72%.

Working capital management policies have a direct impact on the supply chain and on relations between companies and customers. As a result, managers need to be aware of the impact of these policies on business performance. There are two main approaches to working capital management, both aimed at meeting the company's requirements for internal, buyer and supplier relationships. A study (Garcia-Teruel and Martinez-Solano 2007) explores these two strategies, one aggressive and the other conservative, which differ in their balance between the weight of current assets and liabilities. Others (Weinraub and Visscher 1998) follow the same line of thought, concluding that an aggressive approach results in a minimization of the capital used for current assets, in favor of medium to long-term investments.

The conservative approach requires the use of a large portion of liquidity in current assets, making the opportunity cost very high. This strategy implies that to finance itself the company has to bear higher costs, but in this way reduces the risks. This decrease in profitability is due to a reduction in the risk of having to deal with liquidity problems, which may arise if suppliers request payment. This method implies the presence of a capital structure in which current assets are mainly financed by long-term liabilities.

The aggressive approach, on the other hand, requires a balance sheet structure in which all non-current assets are financed by long-term sources, while all or part of the current assets are covered by short-term sources. In this way, the company does not own, or only to a very limited extent, long-term capital invested in current assets. By comparing the two strategies, the aggressive approach requires less working capital investment and is characterised by higher profits, accompanied by a higher level of risk. A liquidity problem could cause more money to be disbursed at a particular time than is the case with the conservative approach on a daily basis. Other studies (Meyer 2007) state that the ideal approach is a holistic one and divide the activity of circulating optimization into three activities: Order-to-cash; Purchase-to-Pay; and Forecast-to-Fulfill.

One element to consider is the grievance by many companies that working capital optimization risks damaging or destroying the relationship with the customer. The opposite is certainly true, i.e. that working capital management initiatives improve service to customers and make people more conducive to relations with the company. Similarly, payment of invoices in the required time will encourage suppliers to continue to have common interests, and lead to benefits such as fixed prices, better sales conditions and more services.

One of the possible problems that could rise analyzing the data of the balances is that, if there are accounts payable (or any other operating debt) for which the due date is expired (the company didn't pay in the due time), they should be considered in the financial debts and not in the working capital.

This way to use improperly the operating debts toward the suppliers (or other parts as Tax authorities or Social security Institute) is more significant for the companies which have difficulties to obtain enough financial loans.

So you could consider a decrease of NWC, because of the increase of operating debts, as the capability of the firm to obtain more favorable terms of payment from the suppliers, when in this case could be a signal of financial stress.

Measures to optimize working capital usually originate in a process of determining areas where improvement would be needed by analyzing balance sheets and evaluating changes in working capital over time. In larger companies, it may be useful to compare individual branches or branch offices in order to have the same selection of data. In this way, a potential improvement for the entire company can be quantified in internal comparisons based on the performance of the most important competitors. Once possible improvement actions have been identified, the responsible manager, usually the CFO, should work closely with other managers, customers and suppliers to develop a program to implement the problem. The CFO plays a very important role in this process because, in addition to being responsible for the company's economic and financial data and having a complete look at what the company's processes are, he is usually also involved in strategic decisions, since he must provide funding and communicate the logic of these choices to investors.

While the challenges of working capital optimization vary by company, experience has produced a set of best practices that can also be successful in different industries and are based on the three key processes at play: Order-to-cash; Purchase-to-Pay; and Forecast-to-Fulfill.

With regard to the Order-to-cash process, one has to consider the concept that dissatisfied consumers tend not to want to pay their credits and this can result in overdue credits that accumulate until they become uncollectible. In this regard, credit risk mechanisms should always be reviewed to ensure that they are consistent with the company's strategic objectives and that appropriate cover can be given to these non-payments. It is necessary to minimize the days of payment deferment offered to the level strictly necessary under a strategic sales perspective, involving the commercial department and perhaps offering incentive mechanisms to motivate its members. Moreover, it is advisable to simplify the invoicing system in order to prevent payment delays, also because there are more and more information systems that allow to manage this activity with reduced costs. An important measure concerns the way in which payments are solicited: a standardised and complete process with short reminder periods and the imposition of penalties is the requirement for a reduction in overdue credits, or in any case in the number of days of late payment.

With regard to the Purchase-to-Pay process, it can be noted that, although it is possible to benefit from it immediately, an arbitrary delay in the payment of invoices is not a long-term solution. In fact,

suppliers will notice additional costs and will no longer want to deal with the company. It's equally true that it's a good idea not to source from a single source, but to have a combination of several suppliers, so as to share purchases and the risk that derives from them among more subjects, thus becoming less vulnerable to the claims or failure of a single partner. It is therefore equally important to focus on optimizing business relationships with suppliers who have a high risk or significant impact on profits. This can be achieved by providing free access to privileged business information, developing processes in common with the supplier and sharing efficiency mechanisms. At the same time, reduce attention to low-risk suppliers by automating the purchasing process, for example. The efficiency of the supplier portfolio is very useful in particular for the proper management of relationships with suppliers at high risk of default, but which, having a reduced impact on turnover, is likely to be overlooked. Agreements are particularly valid in the case of suppliers or products with a high turnover, to make more advantageous the deferral time in the case of specific contracts with each subject, as they benefit both the effect on profits and the position for negotiation. A further option is to create internal controls to prevent pre-dated payments so as to make full use of the grace period.

With regard to the Forecast-to-Fulfill process, it should be noted that in the context of planning, production, storage and delivery, today's technology makes it possible to develop forecasts with the help of information about the company as a whole, also taking into account conflicts of interest regarding storage times, customer services, operating costs and product range. In industrial plants with constantly innovative technologies or with products that devalue in a very short time, this is particularly complex. The best method available to the company is to request to count in advance the quantities of product, so as not to buy or produce more than necessary. For the same reason, methodologies and procedures need to be developed to ensure that inventory can be easily located. In addition, a differentiated warehouse strategy is essential to manage a variety of products, although its structure depends on how quickly the goods can be replaced and how important they are to the production process.

The primary objective of working capital optimization is to manage short-term sources so that daily activities can be financed. This function is in fact responsible for the quality of the production, the maintenance of its uninterrupted rhythm and the sales, also because the correct management of the circulating capital makes it possible to increase the profits. Structuring an incentive policy based on working capital has proved to be a rewarding measure, also because greater awareness of sales personnel on these issues has created an information asymmetry with regard to counterparties, creating a competitive advantage and consequently having positive effects on the profitability and liquidity of the company.

In conclusion, the optimisation of working capital and the efficiency of a company's processes (and controls) make it possible to obtain benefits, both direct and indirect. This is because the control environment of this activity is particularly

## **PRODUCTION SECTORS**

As far as the scope of the survey is concerned, it was decided to investigate the food industry, one of the largest and most important realities of Italian production. The three clusters chosen reflect three very interesting areas and relevant realities of the productivity of our country: the production of milk, its derivatives and cheeses, namely the dairy company, the first Italian food sector; the production of sweets, a reality worthy of note especially for the Piedmont region; and finally the production of flour and bakery products, which is a clear symbol of Italian identity in the world. The incidence of these three types of activity on the total turnover of the food industry is also remarkable.

These three areas have been examined because at the level of the production and supply cycle they should be considered as similar, all having to interact with local production, legislation related to the agricultural sector and a deterioration of products in the short term. For these reasons, the results of the analysis could be different, but the variables that affect them are more or less the same, making it possible to look for reasons in a very narrow range of variability.

It is also necessary to consider how, in the years 2008-2015, consumption expenditure related to non-alcoholic food and beverages in Italy has suffered a significant decline, as evidenced by the processing of ISTAT data.

It is clear that until 2006 the growth of average monthly household expenditure grew at a high rate, as evidenced by the moving average over two periods (red) and that from 2008 onwards this growth has not only stopped, but has returned to much lower levels. The sum of 462.33 euros on average for 2008 has never been reached again, despite the recovery underway since 2014. This external dynamic cannot but influence company performance and it will be necessary to take this into account when commenting on the results produced by the analysis.

We will now proceed to a brief analysis of the various sectors, to introduce their peculiarities and characteristics.

### *Dairy Sector*

Dairy is Italy's leading food sector and is responsible for about 12% of the total turnover of the national agri-food sector. In 2009, the value of production exceeded 14.5 billion euros, obtained from one million tons of cheese, of which 460,000 tons of DOP products, three million tons of drinking milk, one billion eight hundred thousand jars of yogurt and 160,000 tons of butter. The processing companies guarantee

the daily withdrawal of all the milk produced in Italy at a price, however, higher than the European average. Moreover, these quantities are unable to meet the country's domestic demand and exports. Consequently, a large quantity of milk has to be imported, especially from other European countries. However, there are no possible alternatives to the current production system: for structural and environmental reasons, the availability of Italian milk will not only not increase, but will tend to decrease, especially in southern Italy.

The global economic crisis has severely affected the system of companies in the sector, putting its ability to survive to the test, due to the structural debt that characterizes it. This is due in particular to the fact that the payment times guaranteed to suppliers are about 60 days, a figure that is a long way from the 270 days that large retailers wait for before paying suppliers. This factor is all the more serious in view of the fact that large mature cheeses take three years from the initial investment before the proceeds are realized. The causes are to be found above all in the excessive pulverization of production. In fact, Italian companies are much smaller and have much less bargaining power than the European companies with which they compete, causing higher production costs and limited competitive capacity. In recent years, therefore, the trend has been towards concentration, due to the low overall profitability of the sector. In fact, examining the data relating to the total turnover of the sector shows that between the values of 2007 (pre-crisis) and those of 2013, there is a growth of only 3.83%. For the other two sectors examined, the results are very different, with a variation of 19,26% for flour and bakery products and 23,76% for the confectionery sector.

The low profitability of the sector is mainly due to a decrease in the attractiveness of milk-based products for consumers, due to the growing demand for vegetable products, lactose-free and compounds of substitutes, such as soybean milk or rice. Milk consumption fell at a rate of 1% between 2012 and 2016. In addition, the European milk quota system, which has greatly influenced the competitiveness, production and growth of the sector in recent decades, was abolished in 2015, allowing new challengers to enter the national market from territories with lower processing and stable milk costs. Despite this crisis, cheese sales made the biggest contribution (62.4% in 2016) to market profitability, compared with 14.5% of the total market share, keeping turnover levels stable.

However, milk is an integral part of the diet in many developed countries and it is not easy to replace it completely. In addition, alternatives for end consumers include other resulting products such as yoghurt and fresh cheese, which provide a similar nutritional supply. One of the major difficulties in the industry is that the rapid perishability of dairy products, together with the regulatory requirements for their preservation, cause high storage and logistical costs due to the high frequency of deliveries. Switching costs are not particularly high for customers and this has a negative impact on the stability of the purchasing trend, but companies can meet new market needs by creating different products. In

addition, there have been some signs of improved performance in the production of typical regional products, especially those with a certificate of origin and protected origin, which are perceived by consumers as a guarantee of high quality.

In order to increase the attractiveness of the sector, dairy companies have introduced new products to the packaging sector, launching formats that are more in keeping with the tastes of customers, and expanding the product portfolio to meet the various needs linked to the methods and opportunities of their consumption. This, in addition to the implementation of lactose-free and highly digestible lines, has led to stable levels of global turnover, which has offset the lower consumption.

#### *Confectionery sector*

The confectionery sector is responsible for more than 10% of the turnover of the Italian food industry. Production can be divided into the following segments: sweet bakery products and confectionery, chocolate and candy. This distinction is functional to the fact that the two types of output have very different growth rates. If the market of sweet bakery products has a constant and significant growth, that of confectionery is slowed down and characterized by an average profitability much lower. A special mention should be made of ice cream, a segment dominated by large multinationals and usually aimed primarily at the large-scale retail trade, consisting of large specialized companies and characterized by modest growth. On the contrary, bakery companies are still operating in a fragmented and not very concentrated market, where SMEs have a market share of 45-50%. As far as the chocolate production segment is concerned, there is a strong centralization in the hands of the large groups, first and foremost Ferrero.

As reported by Sole 24 Ore, according to Aidepi (association of Italian confectionery and pasta industries) the confectionery sector has managed to save itself from the negative effects of the crisis, also thanks to the growing openness to the foreign market (up to more than 50% of production), which has balanced the decline in the domestic market. Also on the latter, however, the decrease in consumption of some products such as ice cream and confectionery has found compensation in sales of chocolate and bakery products. This was because confectionery companies found ways to meet the needs of consumers, who in this case corresponded to a more complete range of products, adding to the lines already available a wide choice of premium products. Another important frontier was that of novelties linked to the growing attention of customers to their health, which led companies to develop novelties containing natural ingredients and with lower fat content.

On average, companies in this sector reacted promptly to the new demands of the crisis period, even though some historic brands lagged behind and struggled to relaunch themselves with a format that would survive in this market so influenced by ever decreasing spending budgets and a search for the "special" product to convince consumers to buy. The winning companies have been characterized by a



continuous series of product and packaging innovations, combined with aggressive marketing strategies and loyalty programs.

During the most critical years, the trend of Italian customers has been towards a return to domestic confectionery, to preparing cakes at home, as a cheaper alternative to buying products offered by resale channels. This has corresponded to an increase in the supply of products for the preparation of sweets and has encouraged companies to increase the quality of these types of goods. At the same time, increasing competitiveness among major brands has resulted in lower prices for bakery products, which have returned to being the preferred alternative for consumers as soon as the initial and worst of the crisis has passed.

In addition, it should be noted that companies with a typically seasonal production as Bauli have managed to increase their turnover with a better balance between seasonal and non-seasonal products in their portfolio. Certainly the recognizability of the brands, a guarantee of reliability and high quality of production, has had a great influence on the performance of this sector during the crisis, as the larger companies started from conditions of strength and customer loyalty. In order to maintain this leading role, the companies (e.g. Ferrero, Bauli, Melegatti, Vicenzi and so forth) have continued to produce new lines and new specific products for specific targets and have thus guaranteed a continuous cascade of new products on the market.

It seems appropriate to highlight how this sector has, however, suffered a strong shock during 2016, when a campaign against palm oil, the abuse of which could cause heart problems due to the high level of saturated fat, has made the average consumer reluctant to buy confectionery products, especially Nutella. This analysis, therefore, does not take into account the post-2015 trend and therefore the changes in the confectionery market following this major upheaval.

#### *The flour and bakery products sector*

For a complete analysis of this sector, it is appropriate to divide it into two parts: the production of bread and bakery products, and the production of pasta. The outputs of both these areas are configured as a basic product of our diet and one of the prominent symbols of the Made in Italy agri-food.

As far as the pasta industry is concerned, the national production of pasta in 2014 amounted to just under 3.5 million tons, about a value of 4.6 billion euros, or 3.5% of the national turnover of the food industry. Medium-term results show that the production of pasta between 2008 and 2014 has progressed at an average annual rate of around 1.5%. This growth is also underlined by the sectoral outlook produced by Cerved in 2017. As it is clear, this growth is mainly due to the increase in exports, while domestic consumption was stable. In particular, since 2005 the threshold of 50% of the production exported for sale abroad has been exceeded, while domestic demand has substantially

stabilized, as evidenced by the average annual per capita consumption of pasta (equal to 26.1 kg in 2008 and 24.9 kg in 2014) (ISMEA - Istituto per i Servizi del Mercato Agroalimentare 2015).

As far as bread is concerned, internal consumption has also decreased, in the wake of a new trend linked to low-carbs diets, which push, especially among young people and women, a net decrease in consumption of traditional bakery products and pasta. This trend has certainly negatively influenced the performance of companies that produced this type of food. However, flour companies have responded to this difficulty with various strategies, such as portfolio diversification through the launch of whole-grain products based on cereals or particular flours, including the novelty of large-scale products for coeliacs. Other companies have seen the possibility of attracting consumers through the sale of single-portion products that can be useful to avoid waste and reach a target of unique customers. This move was functional to ride the wave of a new need: to have something to "munch" and be able to comfortably take with them. In fact, the decrease in bread sales corresponds to the growth of a segment that is developing very quickly: that of savory snacks.

The search for different ingredients and the use of special flours as an alternative to wheat has made it possible to increase the unit price of products, since consumers demand higher quality raw materials, but are also willing to spend more. In fact, bulk bread showed the highest unit price increase in current currency in 2016. Another trend that should be taken into account is the fact that there has been an increase in sales of frozen bakery products, because despite a reduction in overall bread consumption, consumers appreciate the possibility of being able to keep these products for a long time so that they are available fresh and crisp at any time they want.

However, according to the Euromonitor report, flour products see an increase in sales of bread by local bakeries, and a decrease in sales of industrial products. Moreover, for both pasta and bread companies, the time taken by companies to adapt to new needs has not always been so fast and, as a result, there has been a concentration of production due to a sharp fall in the number of companies operating in the segment.

These factors have had a different influence on the two production lines of the sector: if the pasta company shows an average annual growth from 2008 to 2014 of the production of pasta both in volume (+1.4%) and in value (+1.6%), the same cannot be said for bakery products.

## **VARIABLES**

In order to carry out the analysis, it is advisable to construct two sets of variables: the first set contains the symptomatic indicators of the management of net working capital, and the second set contains the profitability indicators, to measure the company's performance. Each set consists of a pool of variables and indicators, examined in detail in the next two paragraphs.

*Variables of Net Working Capital*

The variables taken into consideration for the evaluation of working capital belong to two types: the first relating to the dynamics of the operating cycle; the second to the incidence of working capital on turnover. The results of the indicators referring to the operating cycle represent a number of days, while those of incidence are percentages. They are:

*Days Sales Outstanding (DSO)*

This measure measures the average number of days before customers settle their claims on the company in question after a sale. Irrespective of the extension period granted by the company, creditors may pay before or after this period. The larger this number is, the longer the company has to wait before receiving payment for the goods and services provided and therefore the higher the probability that creditors will pay beyond the fixed deadline, letting the credits expire and having a strong negative impact.

It is physiological that this number is different from zero, but there are no standard values within which it can be considered "good". To make a judgement on the matter it is necessary to verify if the data of the single company are superior or inferior to the average of the enterprises of the same sector.

*Days Inventory Outstanding (DIO)*

This value represents the average number of days the stock is in stock before it is renewed. This indicator is that one that has perhaps more tie with the nature of the goods, in how much depends on the nature of the same the number of days for the rotation of the warehouse. Consequently, the dimension of such value depends a lot from the field of activity of the company, but generally if it is low it implies that the warehouse must be supplied of frequent in order to face the sales.

Also this indicator cannot have a null result and also in this case do not exist of the standard values in order to judge the goodness of it. It is therefore necessary to operate an evaluation on the basis of the average of the days of rotation of the stocks of the sector to which the company belongs.

*Days Payable Outstanding (DPO)*

The result of this indicator is equal to the average number of days before the company cancels the debts it has contracted with suppliers. In this case, the nature of the company's activity, but above all the size of the company, has an impact: a known and large company will have more bargaining power and will be able to manage the dynamics of trade debts at will. This consideration is important, because a longer delay on trade debts corresponds to the company's ability to finance itself.

Consequently, even if a value higher than the average could seem a negative signal and difficulty in payments, in the presence of a solid financial situation, it is a sign that the company is financing itself in an alternative way. Again, there are no established values and the results need to be compared with the industry average.

*Average duration of the business cycle (Cash Conversion Cycle - CCC)*

This value is the summary of the three previous ones, as it is obtained by adding the number of days of deferment of receivables to that of average stockpile, from which the number of days of deferment of debts must be subtracted. It is therefore a synthetic measure that expresses the number of days that a company needs to convert incoming resources into cash flows.

The operation required in order to calculate such indicator implies that it measures how fast an enterprise succeeds in converting the liquidity in stocks of warehouse and in trade debts, through the system of sales and credits, and consequently again in liquidity. Being formed from the combination of these indicators of the state of the business activity, the CCC indicates how much the management is able in the management of the assets and liabilities to short term in order to generate liquidity. Again, the entity should be measured on the basis of the averages of the sector to which the company belongs and the lower the value of the CCC, the more dynamic the company is and therefore the better the result.

*Net working capital as a percentage of turnover*

This indicator is the result of the ratio between the value of the net working capital and the turnover recorded in the same year. It represents a very simple way to make the NWC, otherwise difficult to compare, comparable between different companies and over different years. This shows the impact of short-term non-financial management on sales, which is sensitive to changes in demand.

The interpretation of the result of this variable is complex, since, as explained above, the NWC should not be negative and this would lead to interpreting the highest possible value as optimal. It is also true that as turnover increases, the result decreases and therefore even a reduction could seem to be a positive sign. Taking into account the fact that the dynamics of receivables, payables and stocks are, however, closely linked to sales, should correspond to an increase in them in correspondence with a growth in turnover. Consequently, the percentage of the incidence should not undergo great variations, therefore a positive value is considered an optimal result, in how much sign that the current management is primary regarding the other activities.

*Incidence of active working capital on turnover*

The result of this indicator is obtained by the ratio between the components of working capital assets, i.e. non-financial inventories and short-term receivables, and turnover for the same period. In this case, too, the main purpose is the comparability of the result between different financial years and companies, purging the raw data from the influence of the change in demand and making it in percentage and therefore comparable even in the case of companies with different structures and sizes.

As for the previous one, the interpretation of this value is subject to the action of different forces. First of all, it is a good sign that the value is positive, as short-term business growth shows that the

company's core business is dynamic and of considerable importance. Mathematics suggests that an increase in the denominator, i.e. in turnover, which is a positive sign for the company, would lead to a decrease in the result.

In this case, too, it is necessary to consider how an increase in turnover corresponds to an increase in receivables and inventories, with the result that the optimal result is that of a value above zero and consistent. This indicator is very important because it measures the degree of active circulating, that is the element that will contribute in a short time to bring liquidity in cash.

## METHOD AND DATA COLLECTION

The main objective of this analysis is to verify whether Working Capital Management has an influence on business performance in Italian SMEs. More in detail, the survey is structured on three levels and on the basis of three questions:

1. Does Working Capital Management affect short-term profitability?
2. Is this incidence the same in SMEs and large companies?
3. Does this impact depend on the sector in which companies operate?

By verifying these three hypotheses, we believe that this survey is complete and that, for the first time, the Italian SME market is examined in depth, using the size and product sector of the companies taken into consideration as additional filters, with a span of time that allows reports to be made on the basis of different intervals.

In order to ensure that the survey basin is large enough to be significant, quantitative data were collected from an online database, AIDA, for the duration of the previously established time horizon (2008-2016). These data are collected for all the companies in the database in the dairy, confectionery, flour and bakery industries.

Once the companies were divided between SMEs and large companies, a descriptive statistical analysis was carried out, which provides an overview of the sector averages for each of the indicators chosen as determining factors and serves to give an overview of the trends of the period.

Subsequently, the indicators relating to working capital management were collected and a score assigned to each company for each year on the basis of these indicators. At this point, the presence of a statistical correlation between the variables related to the NWC and the main profitability indicators previously selected can be verified.

The results produced should be able to give an answer to the three questions mentioned above with regard to the Italian SME in the years following 2008.

AIDA, an online database, was used to collect the data. AIDA is a tool of Bureau van Dijk, a company specializing in the production of products containing company information at national and

international level. AIDA (Computerized Business Analysis) is a factual database containing structured information on more than 700,000 companies operating in Italy. The data are in historical series, up to a maximum of 10 years and the information is constantly updated. The contents are the complete financial statements, according to the scheme of the IV EEC directive, the sectors of economic activity, the complete personal data and a plurality of other information of the Italian capital companies.

Unfortunately, during the research it was found that the 2016 data of most companies were incomplete. As a result, it was decided to shorten the time horizon by one year, in order to facilitate the completeness of the data, which will then be 2008-2015. The research carried out was carried out through the use of ATECO codes, which serve to classify economic activities, to allow the results to be filtered by type of business activity. This classification is adopted by ISTAT for national economic statistics and is optimal for this analysis as it is based on the type of activity carried out by the companies and not on what they produce. In this way, companies grouped under the same code can be considered homogeneous in terms of production processes and therefore the need for supply, production cycle and type of plant. Consequently, such subdivision allows to consider the data of every sector as epurati of the exogenous variables, in how much all submitted to the same influences from the external environment.

As far as this analysis is concerned, in particular, we examined the sectors of the whole characterized by code 10, which groups together the food companies. In particular

Code 105 (dairy industry) was used as a filter for the dairy sector;

Codes 1072 (production of rusks and biscuits; production of preserved pastry products) and 1082 (production of cocoa, chocolate, candies and confectionery) were used to group companies in the confectionery sector;

Codes 1071 (production of bread; fresh pastry products) and 1073 (production of pasta, couscous and similar farinaceous products) were used to select flour and bakery products companies.

In addition to the codes, two conditions were used as additional filters to search for data for each sector: the first is the availability of balance sheets, the second is the presence of known values for CCC.

## **CONCLUSION, FUTURE WORK AND POTENTIAL LIMITATIONS**

The main objective of this study was to setup a sample of Italian SMEs, in order to verify whether Working Capital Management has an influence on their performance. More in detail, the research was based on these three questions, corresponding to as many levels of investigation, i.e.: Does Working Capital Management affect short-term profitability? Is this incidence the same in SMEs and large companies? Does this weight depend on the sector in which the companies operate?

To satisfy these questions, several data were collected through the AIDA database, which lists the financial statements of Italian companies, relating to the variables of working capital, business cycle and performance. This information has been filtered in order to create six clusters, representing SMEs and large companies in each of the three sectors considered: dairy, confectionery and flour and bakery products.

In future works, through a scoring operation and a statistical correlation, results will be obtained, which represent the Pearson-Bravais correlation indices between CCN and profitability indicators over different spans of time (one, two and three years). It will then be possible to give answers based on the results obtained. Surely the WCM has a correlation with short-term profitability, as it will be evident from the fact that in many cases there is some kind of significant direct or indirect relationship. Also with regard to the impact of size on the size of this link, it can certainly be said that it has a weight, as within all sectors, large companies and SMEs behave differently. Finally, it will be shown that the result of the correlation depends on the sector, since each of the segments of the food industry considered has its own behavior.

Unfortunately, while it is undeniable that the WCM has an influence on business profitability by looking at the complete sample, as far as SMEs are concerned, there is often an un-correlation between the trend in working capital and the business cycle and the main performance indicators. This unsatisfactory result may be due to the peculiar conditions of the macroeconomic environment in the years under consideration, in particular the reduction in consumption and average family spending, which have aggravated a condition already made precarious by an exponential increase in suffering and, consequently, bankruptcies and liquidations. These conditions are due to the crisis that has hit the global markets since 2008, and the resulting credit crisis in subsequent years. It should also be borne in mind that the in-correlation results may be due to the typical characteristics of data dispersion. In fact, greater variability in values may invalidate the result of correlation studies, providing in-correlation outcomes even where there is no independence between indicators.

With regard to the management of without recourse, reference is made to a type of factoring that "lightens" the quantity of receivables in the company portfolio, thus affecting the correctness of the data relating to working capital. This tool has been widely used during the years included in the time horizon, since this ensured a better evaluation of the company by banks and lenders, making the company situation seem more prosperous. Unfortunately, the data relating to the use of without recourse would have to be requested individually from each of the companies included in the sample, through questionnaires or direct queries, which would have taken much longer and would have reduced even more the number of companies taken into account. On the other hand, as far as the completeness of the database used is concerned, of the 8,426 companies operating in the three sectors

considered, only 409 had data relating to the entire time horizon and with available values of the size of the business cycle. This sample, however large, corresponds to about 5% of the total and may not represent the total distribution of data.

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