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Organized crime and its connection to financial statements

Supervisor
Ch. Prof. Mio Chiara

Assistant supervisor
Ch. Prof. Nuccio Massimiliano

Graduand
Passaro Matteo
Matriculation Number 887985

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Introduction

The present work has the objective of responding to the following question: are there signals in financial statements released by a company that can point out to the presence of organized crime inside the firm?

Organized crime has spread all over the world, mutating its form during the years and diversifying the fields in which it operates. Since organized crime-controlled businesses make up such a significant portion of the contemporary economy in which we live, countless organizations interact with them virtually everyday. The majority of the time, it is quite challenging to determine the presence of criminality simply by analyzing the financial statements, whether the infiltration took place at the highest level of the board of directors or simply as one of the shareholders.

This research is divided into two major sections: the first part regards the analysis of the literature. In fact, through the literature analysis it will be possible to understand the actual impact of organized crime on the modern economy; not only of our own country, but also on a worldwide scale. In this case, it can be cited the region of South America, which is particularly renowned for being under the strong influence of organized crime.

After deepening the knowledge on the economic impact organized crime has on our country and worldwide, the focus of this research will shift towards its main objective: the financial statements analysis. Thanks to the literature available, it is possible to identify some potential indicators of criminal activities that usually occur inside a firm's financial statements, and that are common between companies notoriously connected with organized crime.

This primary analysis will direct the research towards the second part: Database analysis. The analysis started thanks to the use of a Database supplied by Dott. Marco Fasan, and it consists of data connected to thousands of different companies confiscated through the years due to their connections with organized crime. Hence, it was possible to proceed to the examination by analyzing financial statements produced by the very same companies during the period in which they were found guilty of criminal conspiracy. Consequently, the financial statements were, indeed, matching the indicators that were suggested during the literature analysis and the numbers deriving from those financial statements.

<div align="center">**Litterature analysis**</div>

Chapter 1: Organized Crime in the World and in Italy

1.1 South America and Mexico

Organized crime is known to have a tremendous impact on the economies of the countries in which it allocates. Through the years, it has expanded its reach in all the different continents of our planet, diversifying the criminal markets in which it operates. Global organized crime shows that Asia exhibits the highest level of criminality overall, immediately followed by Africa and the Americas. On the other hand, when the indicator used to compute the level of underhandedness is changed and the homicide rate is used per each inhabitant existing in a country, the index of South America is tripled compared to the other areas of the world considered until this point. The research by Robles, Calderon, and Magaloni on the effects of organized crime in South America, and specifically Mexico, as described in the paper "The Economic Consequences of Drug Trafficking Violence in Mexico, Stanford University 2013" will be examined during this phase.

Since the start of the new millennium, the level of violence in Mexico has seen an extremely steep rise. This horrifying increase in violence can be attributed to three main elements: exogenous changes in the narcotic markets, the increased fragmentation of drug cartels into numerous smaller organizations and criminal cells and the militarized fight against drugs, and the drug trafficking that began during the administration of President Calderon. The constant growth has inevitably decelerated the economic growth of the country at an average rate below 2% each year (Robles, Calderon, Magaloni, 2013)

1.2 Impact on the economy

In order to determine the cost of violence that this country is experiencing, it is important to take into account tangible (all activities connected with the prevention and punishment of violence) and intangible costs (estimates of decreased quality of life and changes in behavior). In this particular section of the research of Robles, Calderon and Magaloni the costs related to violence are determined at accounting and not aggregate level, meaning that it doesn't include the effect of violence on investments, social cohesion, and economic growth and only costs on victims. For the authors it was possible, with the accounting methodologies already described, to estimate the cost of crime in the majority of South America's areas such as Brazil (10,5%), Colombia (24,7%), Mexico (12,3% of the GDP).

It is clear, instead, how trying to determine the cost of violence created by cartels at an aggregate level would be extremely more difficult; violence has in fact an all around negative effect on economic activities and unemployment that are definitely more complex to compute on a numerical level.

1.3 Organize Crime Impact on GDP in South America

Also other publications have tried to compute the weight that organized crime pushes on different country's economies; the example can be made with the one made by Jan Van Dijk "Mafia Markers: assessing organized crime and its impact upon societies, Trends in organized crime 2017". During this research it is explained how organized crime adds to the immediate cost of doing business in a country. Furthermore, the work explains how numerous surveys proposed to business executives point towards organized crime and corruption as the major obstacle to doing business in the country. This is the case in countries with an extremely high *Organized Crime Index* such as Mexico, where the total value of illicit drug trafficking annually injected into the Mexican economy is of $25 billion dollars or 6% of the annual GDP.

There have been also attempts to demonstrate that the annual revenue generated by illegal markets and later reinserted in the market can generate a positive effect towards the economy. Nevertheless, in the above mentioned research, Van Dijk expresses how the Organized Crime Index has a strong negative correlation with the Human Development Index. Therefore, he demonstrated the enormous negative impact that organized crime has on the economy by deterring investments coming from abroad and impairs the capacity of governments to promote sustainable economic growth (Van Dijk, 2017).

1.4 Economic consequences of organized crime in Italy

As discussed in the previous chapter, organized crime or "Mafia" (the term used by Italian journalists referring to all the different organized crime organizations in Italy) has spread all over the world during the years. It has been shown the example of Latin America, which is an area of the world that in recent years has seen political instability and economic difficulties, therefore creating the perfect environment for organized crime to thrive. On the other hand, numerous countries and areas of the world that live in a much more stable condition have experienced ,in the past and today, effects of the presence of organized crime.

The primary case is unavoidably Italy, where organized crime has long since made up its ground and then spread this phenomena to other parts of the world. Despite the sacrifice and dedication of authorities, it could be said that this issue, which at this time could be considered rooted in the social composition, is still a significant issue in the modern economy.

Organized crime has a significantly smaller impact in Italy than in several of the South American regions previously examined. These are illegal acts that are ingrained in the nation's economic and industrial structure rather than just being crimes that can be linked to violent crimes.

1.5 The impact Organized crime's impact on Italian economy

It is possible to demonstrate that, despite occasionally functioning in very different ways and in quite distinct domains, the Mafia's illegal activity has a direct impact on GDP in both Italy and Mexico. In fact, it is very simple to demonstrate that over the previous 50 years, the growth rates in the areas that have been subject to greater Mafia penetration have been much lower. Despite this, it can be difficult to precisely estimate the GDP impact of the illegal business sector.

Based on data from Mocetti and Rizzica's "Economic and Financial Issues, Organized Crime in Italy: An Economic Analysis, Bank of Italy occasional paper 2021", Istat estimated that the illicit operations carried out by organized crime accounted for 1.1 percent of GDP. However, the analysis reports that this is an underestimation of the commercial volumes of organized crime. It is crucial to remember that the ISTAT data only take into account the value of the drug trade, smuggling, and prostitution industries, leaving a wide range of other criminal activities—such as usury, extortion, and the illegal management of the waste cycle—completely out of this analysis. Therefore, it is reasonable to assume that the true cost of organized crime's illicit activities will be close to twice what was first estimated, or close to 2% of GDP.

It is clear that the existence of organized crime affects the socioeconomic environment and inhibits its potential for growth, as described once more in Moretti and Rizzica's article. In fact, some studies claim that the establishment of mafia organizations in Basilicata and Puglia has resulted in a 16 percent decline in the GDP per capita of the two regions. The same article also makes an effort to evaluate the harm that organized crime has caused to northern Italian regions in addition to southern Italian regions. The findings demonstrate that there has been a consistent inverse relationship between current economic growth and the Mafia penetration index. Particularly, the employment growth rate in Italian areas with a greater indicator of Mafia presence was 9 percentage points lower than in provinces with a lower index of Mafia presence. In essence, organized crime serves as a barrier to

new entrants into the market, defends monopolistic or oligopolistic rents, has a direct impact on consumer decisions and the effective use of resources, and, more generally, increases the likelihood of collaboration. Because of this, production is less efficient, prices are higher, there are fewer incentives to cut production costs, inefficient businesses are there and will survive, and the expansion of profitable businesses will be delayed (Moretti, Rizzica, 2021).

1.6 Mafia's competitive advantage

The mafia coordinates actions amongst legitimate businesses that are affiliated with them, producing sales between them and connecting everyone. For the associated businesses, this results in increased sales, but for others, it may force them to turn to less capable suppliers. Another element to take into consideration is the fact that, the distortions that are also brought by the presence of organized crime in a certain location, affect all other businesses operating there. These businesses are constantly at a disadvantage since they must compete with someone who acts without regard for current laws. The Mafia infiltrated company can gain from more financial resources and liquidity, but it can also influence the competition by using its coercive and corruptive authority.

This just feeds a vicious cycle that is damaging to the economies of the afflicted regions and straining local businesses. Companies that are struggling provide a favorable environment for the integration of organized crime into the industrial structure, as per the Angela De Martiis' study "The effect of organized crime on distressed firms, SSRN 2020" This study reports on the relationship between troubled enterprises and organized crime on a financial level. The research labels potential targets of organized crime activity as "zombies". These businesses frequently have high levels of debt and struggle to make enough money to pay off their accrued obligations. As a result, they are portrayed as businesses that have no chance of surviving in the long run.

Chapter 2: Fight against the Mafia

2.1 Organized crime's perception

In 2015, the Catholic University of the Sacred Heart, in partnership with Confindustria, performed a thorough interview and analysis of a number of entrepreneurs from Northern and Central Italy regarding their perceptions of the Mafia's involvement in the Italian state ("Rischi di infiltrazione Mafiosa nelle imprese del Nord Italia", Assolombarda, Fondirigenti, Università Cattolica, Fondazione ISTUD 2015). The goal of this study was to better understand how companies operating in Italy view Mafia activity. The overwhelming sentiment among respondents is that the relevant

authorities have neglected them in their efforts to address the issue of the expanding presence of individuals and entities connected to criminal organizations. Respondents express grave concern about an environment where corruption is rampant. In other words, there is a widespread and ongoing awareness of Mafia clans' involvement in the legal economy, although to a far smaller extent than what is shown in official records and legal documents.

2.2 "La lotta Stato Mafia"

In Italy, mafia activities have remained virtually unchecked for many years, or at least outside the reach of the necessary authorities. A vast array of new laws were introduced to the nation in the 1980s, which resulted in a sharp increase in the number of people suspected of engaging in organized crime. In particular, Article 416-bis, which was added to the Criminal Code in 1982 and contained the first explicit definition of organized crime and all of its accompanying elements. The law altered how criminal organizations were dealt with by not only punishing them through individual preventive actions but also seizing their economic and financial assets (Visco, 2015)

The ability to directly tackle the phenomenon and the motivations of those involved, in addition to innovation in various rules, plays a critical role in preventing crime. The Bank of Italy's activities are generally focused on prevention, however it also engages in more direct efforts to ensure legality and deter illegal infiltration into the legal economy. Some activities serve as important safeguards against criminal activity in addition to all the supervision and prevention measures outlined above. The first relates to oversight of specialized service providers to whom intermediaries have contracted out cash processing tasks. The second sector relates to the battle against euro forgery; in fact, BI serves as Italy's "National Analysis Center" of euro forgery (according to analyses conducted by BCE in fact, almost 90 percent of the counterfeits intercepted worldwide are produced in our country and located in the Campania area).

2.3 Extent of Organized Crime

Following the analysis of the earlier literature, it is obvious how organized crime can be regarded as a constant in the economies of Italy and many other foreign nations. The state and the authorities make greater efforts every year in order to completely destroy organized crime groups, but the challenge frequently begins even with simply determining which individuals actually have connections to Mafia-like criminal organizations. In reality, there are numerous ways in which organized crime might have a connection to a certain business. Organized crime may be completely involved and in charge, in which case the company would have been formed and is run by the Mafia,

or they may have infiltrated some divisions of it, in which case only those divisions would be seized, rather than the entire business, if discovered.

There are currently about 5.1 million enterprises in Italy. It is immediately apparent how physically impossible it is for the Italian government to conduct continuous checks on all companies in operation; as a result, the fastest-acting solution can only be one that is based on investigations of the financial statements that all companies input annually at the end of the fiscal year. The latter actually upholds the same features for all businesses in the same category, making it more simpler for the respective authorities to look for Mafia presence.

2.4 Financial indicators of criminal's activity

The objective of this study, which will be further discussed in the second section of the thesis, is to be able to pinpoint a number of traits shared by businesses connected to organized crime. This will enable us to identify some warning signs and indicators that can be used to evaluate all financial statements generated by different businesses. A group of signs that could make the process of looking into and looking for Mafia activities easier and faster.

Examining relevant literature is the first and possibly most crucial step in the process of discovering these potential indicators. In reality, the research will be based on a discussion of the potential signs that some analysts had already recognized in earlier research before attempting to confirm their actual usefulness by using the Database. The two studies that went further and offered important insights for the work being conducted in this research serve as the foundation for the literature evaluation, which is based on them. The first was titled "Caratteristiche e modalità di gestione delle aziende criminali, Rivista di studi e ricerche sulla criminalità organizzata 2017 " and was realized by Michele Fabrizi, Patrizia Malaspina, and Antonio Parbonetti.

In the first paper, it is discussed how simple it can be to identify some similar traits among businesses engaged in illicit behavior. According to this study's findings, the latter are all or nearly all a part of industries with low levels of technological specialization and openness to the outside world. Indeed the findings exhibit a composition of assets that is markedly skewed in favor of working capital and have a competitive advantage resulting from the accessibility of financial resources at cheap cost.

A number of indicators and red flags were identified in the course of the analysis carried out on the budget data for the paper by Fabrizi, Malaspina and Parbonetti. The first index that is identified is directly related to firm size, a value derived from the analysis of revenue and total assets, noting that

the sample of firms linked to criminal activity are larger on average than the sample of firms not linked to organized crime activity. This value is determined from the examination of revenue and total assets (it is crucial to keep in mind that every indicator that is provided by the analysis of the previous reading will then be confirmed and evaluated by the analysis of the database at our disposal). When examining the financial statement information of businesses connected to organized crime, they subsequently paid attention to their performance. The examination of ROE and EBITDA/Assets reveals that, contrary to what might have been previously assumed, these businesses do not outperform the average of non-crime-affiliated businesses due to their competitive advantages and low cost of capital and labor.

The level of debt, which turns out to be significantly higher in Mafia-affiliated enterprises than in the other samples, is what instead stands out as a significant difference between the two samples. Although unexpected, one would normally anticipate criminal businesses to have easy access to money obtained through illegal activity. However, mafia-style conduct depletes resources from the involved company and from the wider business community; as a result, another repercussion is the unavoidable lack of liquidity within businesses that have been linked to the mafia. The second research that was utilized as the basis for the research and identification of indices ("Organized crime and Firms Financial Statements: evidence from criminal investigations in Italy" by Pietro Bianchi, Antonio Marra, Donato Masciandaro, Nicola Pecchiari, The accounting review 2022) approaches the same issues and arrives at conclusions that are similar with what the preceding analysis suggested, but assigns a different beginning motive to those conclusions.

The writers of this paper attempted, as was just mentioned, to link organized crime with the success of the associated enterprises. The AISI's innovative dataset, which includes data on all people under investigation for alleged mafia-related offenses regardless of the outcome of previous investigations, was used to do so. The writers of this paper attempted, as was just mentioned, to link organized crime with the success of the associated enterprises. The AISI's innovative dataset, which includes data on all people under investigation for alleged mafia-related offenses regardless of the outcome of previous investigations, was used to do so.

On the first set of tests the authors looked at, it was discovered that a company connected to organized crime had reportedly higher sales revenues, which may have been caused by strategies used by the Mafia to win contracts, negotiate better terms, and stifle competition. Additionally, it was observed in this analysis, as it was in the earlier comprehensive study by Parbonetti, Fabrizi, and Malaspina's, that although connected enterprises reported greater operating expenses, the same approaches should

result in better terms in supplier negotiations. These two impacts together have a negative net effect, which lowers operating performance for connected enterprises. These results imply that, despite using their methods to increase profits, criminal groups drain the resources of associated businesses and cannibalize their profits. Along with what was recently mentioned, Bianchi and its associates looked at salaries and wages and discovered that connected organizations had cheaper labor costs, reported fewer employees, and had higher labor costs per employee. According to both authors, this indicates that the resource loss is not due to stated wages and salaries. The final section of the analysis explains how ties to organized crime relate to financial requirements, operational cycles, and default probability. It is explained how linked businesses have higher bank debt levels but lower cost of debt, both of which are consistent with the fictional loan structures used by criminal organizations to mask the illicit source of their funding.

Therefore, it is easy to see the similarities between the two studies that were just discussed, both of which point to organized crime-related businesses' ways of operation as the primary differentiator in the outcomes that the two sample organizations achieve.

2.5 Types of company placements

A categorization of mafia-connected businesses into three broad categories is developed along the course of the article (Fabrizi, Malaspina, Parbonetti 2017); affiliated companies are divided in "Supporto," "Cartiere," and "Star".

- Supporto: Companies that fit into this category are those that were specifically created by organized crime to manufacture or market a certain good while not making any money from the sale of that good. Consequently, they are businesses that cater to the demands of illicit activity. In particular, it may be hypothesized that these businesses buy the means and services afterwards made available to the criminal activity because the companies gathered in this group have very high average levels of service charges.
- Cartiere: The purpose of the businesses in this category is to launder the significant sums of money made through illicit trade. This is established by considering the synchronized flow of income and costs within the mafia-related businesses taken into account in the sample. It is significant to note that the money laundering process is based on partially fabricated trading exchanges intended to move money by creating lawful sources of income and justifying any liquid assets.
- Star: The businesses in this group are far bigger than the ones we've examined so far, and their average ROE and EBITDA values are also significantly greater. Once more, their debt levels

attest to the propensity of illicit enterprises to rely on outside funding. As a result, "star" enterprises give the appearance of being successful corporations and can be utilized to blend in and interact with civil society and institutional circles, creating a link between criminal groups and society.

In addition to what was previously mentioned, a further distinction between firms associated with organized crime is reported in Marco De Simoni's work, "The Financial Profile of Firms Infiltrated by Organized Crime in Italy, Banca d'Italia 2022" which allows for even more clear classification than the first subdivision suggested in previous literature (Fabrizi, Malaspina, Parbonetti 2017).

There are four distinct types of infiltration that can be distinguished based on the evidence:

1) Investment: Through lawful activity, the company is employed as a conduit for investing criminal proceeds. The company no longer receives financing from illegal sources after the initial investment, and it competes "fairly" in its local market.

2) Competition: The business is conducted to seize control of the relevant local market, employing mafia tactics when necessary to destroy rivals by sabotaging them or coercing people to purchase its own goods. As a result, the business is able to acquire monopolistic power through coercion and violence.

3) Washing machine: This "fake" company exists simply to be used as a conduit for the laundering of illegal funds, mostly through false invoicing.

4) Capture: The mafia progressively takes control of the company, first through shady means (such as the distribution of money or contracts) and ultimately through violent deeds.

The goal of finding common tracers for all collaborating companies is made more challenging by the fact that criminality has an incredibly large portfolio of potential mechanisms of penetration within the economic and industrial sector. This additional distinction can only help with understanding the matter.

Database analysis

Chapter 3: Research questions and hypotheses

3.1 Indices and organized crime

As a result of the literature research that has been done up to this point, it is now clear that companies connected to organized crime share certain characteristics that, if correctly identified, can enable early detection of a company's involvement in crime. The first query presented in the study's introduction phase, "Is there a relationship between budget indices and indicators and the presence of organized crime infiltration?" may then be answered thanks to this.

The second section of the article will attempt to provide a solution to a further, equally crucial question: What are the most relevant budget indicators to indicate the presence of organized crime? through the multi-layered analysis of the data provided. In reality, as can be seen above, the presence of more than 5 million companies on Italian soil poses the main challenge for the authorities, who are compelled to conduct controls on small samples in a single industry or to act only ex-post when the company has already engaged in criminal activity, drawing the attention of the relevant authorities.

One can see right away how establishing a collection of indications shared by all businesses associated with organized crime can be a very useful instrument in the hands of governmental authorities. As monitoring activities would be focused only on companies that present defined features and fall within the identified set of values, it would constitute a system capable of significantly speeding up the checks to be performed on each individual company; the sample of companies on which to carry out checks would be infinitely narrow.

3.2 Ex ante hypotheses

A set of expectations on the values that should emerge from the index analysis can be created through a thorough analysis of the literature, with a focus on the articles by Bianchi, Marra, Masciandaro 2022 and Fabrizi, Malaspina, and Parbonetti, 2017. Based on the past research done by the aforementioned studies, it was feasible to recreate a set of expectations for potential outcomes from the examination of the database looked at throughout the activities of this thesis work, which will be discussed in more detail in the following chapter.

According to what we have observed, a company related to organized crime really achieves performance that, while it may vary depending on the position it plays within the criminal organization, is typically on par with that of a company unaffiliated with organized crime. According to earlier studies, the distinguishing factor between the two samples is the kind of activities that criminal organizations carry out on a daily basis (Fabrizi Malaspina, Parbonetti 2017). These operations frequently quickly deplete a company's cash reserves, necessitating a nearly continual stream of capital inflows to fill the gaps left by the operating cycle. When compared to the companies in the control sample, this date inexorably results from having a company that is perpetually or virtually perpetually in crisis and has a probable liquidity problem.

In addition to the information that has just been given, the literature review enables us to generate additional projections about the potential state of the businesses that have been taken from the DB. We anticipate finding a greater amount of debt capital in the sample of enterprises associated with organized crime than in the control group once more due to the factors mentioned above that explain liquidity issues. A vital instrument for all businesses, but one that becomes indispensable in circumstances like the one just mentioned, where there is a constant need for finances to sustain good running. The analysis will then allow it to be seen that there is also a differentiation between short- and long-term debt capital; this fact, determined by the amount of controls and guarantees needed to obtain long-term debt capital, helps in understanding why companies connected to organized crime prefer to use sources of financing that prove to be less identifiable and that expose the same company to a lower risk of exposure to external controls.

The third hypothesis, which is connected to personnel costs, is based on potential outcomes that may be derived from the literature review and that can be anticipated to be discovered among the data examined in the second part of the research. In reality, based on Bianchi, Marra, and Masciandaro, 2022, it is reasonable to assume that the control sample and the sample of businesses with ties to organized crime would have distinct personnel cost structures. In actuality, employees are anticipated to earn less money overall than the norm for businesses in the same industry. This is a fact that, by itself, has no immediate significance but suggests that the stressful environment that is frequently present in criminal enterprises depends instead on the type of activity that the same organization engages in and the objectives that these activities have, which diverge from what would be considered normal.

Chapter 4: Methodology and results

4.1 Structure of the Database

The research conducted before, and our starting Database of companies that were condemned for affiliation with organized crime, serves as the foundation for the second section of the analysis. In fact, it was possible to take advantage of a database made up of a sizable population of Italian businesses that over the years have been under investigation and/or found guilty for involvement in mafia-like operations as a starting point.

The objective of the inquiry, which was to determine whether the findings from the literature analysis phase corresponded with the real outcomes in terms of the balance sheet indicators of businesses involved in illegal activities, evidently stayed the same. In light of these findings, it was decided to compare a sample obtained from the database with a sample of businesses that, on the other hand, had never been connected in any way to the mafia or criminal activities.

The sample size to be employed was chosen in consultation with Dr. Mio, the thesis project supervisor, in order to provide the current research with true scientific and statistical significance. Since there are initially roughly 3,000 companies in the Database that are connected to mafia activities, it was decided that a sample size of 5% would be sufficient to ensure the validity of the study.

The Aida portal, which Ca Foscari University makes available to its students, was the resource used to do the information search. The database referred to as Aida contains all of the corporate financial statements that have been submitted by corporations over the years. It was indeed possible to increase the reliability of the research by using this technique to conduct the research over a number of years for each of the companies in the chosen sample. Furthermore, it was confirmed that the trend of a specific balance sheet indicator for each of the identified organizations stayed constant over time and was, thus, not a random occurrence by expanding the number of years over which to perform the research.

4.2 Indicators

This analysis will be based on financial indicators chosen in accordance with Dr. Mio, just as it was done in the analyses outlined in the preceding section. However, the starting point for selecting the various indicators has always remained the literature review identified earlier in the previous stage. These indicators allow us to broadened the search for potential indicators of the presence of criminal activity inside the balance sheet to the maximum extent feasible because they are indicative of all the key sectors and parts of a company's balance sheet. There are 11 total indicators selected and are divided among: Financial Indicators, Current Management Indexes, Profitability Indexes and Productivity Indexes.

Within the Financial Indicators, the following were found:

- Liquidity Ratio is produced by dividing short-term liabilities by the sum of immediate liquidity plus deferred liquidity.
- Short term debt Ratio is an indicator that measures in percentage terms the relative weight of short term financing capital sources (current liabilities) on the total of short and long term third party capital sources (current liabilities and long term liabilities)
- Long term debt Ratio is an indicator that measures the percentage of a company's assets that were financed by long term financial obligations. When we talk about long-term debt we must always keep in mind that it is debt incurred and has a financial obligation with a maturity exceeding one year, i.e. that is not coming due within the next twelve months.
- Debt Ratio refers to a financial ratio that assesses how much leverage a business has. The ratio of total debt to total assets, represented as a decimal or percentage, is known as the debt ratio. The percentage of a company's assets that are financed by debt is one way to understand it.
- Financial debts ratio is connected to a company's non operational debt and serves to finance the company's purchases and investments; as a result, these funds will not be used to support the asset and liability cycle or transferred immediately into the company's liquidity.

Within the Current Management Indexes:

- Rotation of invested capital

Within the Profitability indexes:

- EBITDA on sales is a financial indicator called EBITDA margin, also known as gross sales to earnings ratio, is used to evaluate a company's profitability. More specifically, this indicator

shows the proportion of a company's earnings that remain after operating expenses because EBITDA is partly derived from revenue. A higher value means that the business can generate profits more effectively by keeping costs down.

- ROA is a a financial ratio that shows a company's profitability in relation to its total assets. ROA can be used by corporate management, analysts, and investors to assess how effectively a company uses its resources to make a profit. The metric is frequently represented as a percentage using the net income and average assets of a corporation. A company's ability to manage its balance sheet to produce profits is more effective and efficient when its ROA is higher; on the other hand, a lower ROA suggests there is potential for improvement.

- ROE is a ratio of net income to shareholders' equity used to gauge financial success. ROE is referred to as the return on net assets since shareholders' equity is determined by subtracting a company's debt from its assets. ROE is regarded as a barometer of a company's profitability and how well it produces profits. The management of a firm is more effective at generating income and growth from its equity financing the higher the ROE.

Within the profitability indexes it was subsequently found:

- Number of employees and Labor cost per employee are two indices that were chosen because, as stated and implied throughout the "literature review," businesses that rely on mafia and/or criminal connections tend to employ fewer people overall than the average firm in the same industry and to pay their employees less on average.

4.3 Choice of companies and sample structure

As previously noted, the statistical sample was obtained using the provided Database. The 5% of the DB's businesses was chosen, yielding a statistical sample of 150 businesses. Additionally, a significant number of businesses that had been confiscated or under investigation in the past were included in the database. Subsequently, only those organizations that had been entered within the DB on the dates that were closest to the 2020/2021 biennium were chosen in order to increase the reliability of the sample utilized and to make it easier to use Aida's tool for extracting financial statements. Most of the papers that were chosen for the literature review followed the same selection process. As a result, it was possible to do testing similarly to the skimming that was done for this dissertation program. It is possible to increase the number of annuities taken into account when computing the averages of the various indices by only selecting companies that were in operation up until very recent dates for the sample. The increase in the number of years taken into consideration

results in greater reliability of the averages calculated for each of the indices considered and consequently also the reliability of the study carried out.

It is also vital to note that no geographic criteria were used in the selection of the companies included in the sample for the DataBase. While the 150 companies featured in the case studies are evenly dispersed across Italy, this distinction between North Central and South Italy was established by bands in many studies investigated during the Literature analysis phase. This choice was taken in order to include all of the previously specified categories of companies connected to organized crime in the list of companies that were subjected to analysis. In fact, it is far more likely that one would have concentrated on medium-sized businesses that were presumably primarily in the "Star" category if one had restricted the sample to businesses in northern Italy (Lombardy, Piedmont, Veneto, etc.). By extending the sample to include the entire Italian industry, it was possible to include businesses of all sizes in the research, resulting in a sample that is undoubtedly more accurate and homogeneous for statistical analysis.

4.4 Commodity sectors

The product sector that each firm operated in during its years of existence was taken into account while choosing the companies to be taken into consideration. In fact, 6 macro categories were found to have the majority of businesses involved in illegal behavior.

The six categories that have been identified specifically are as follows:

- Catering
- Wholesale trade
- Construction
- Real estate
- Manufacturing
- Rental
- Transport

As was already mentioned over the course of the literature assessment, the industries with the biggest mafia activity penetration continue to be those with low specialization and a minimal or nonexistent role for technology implementation. The six macro factors that are taken into account in this case study are not an exception to the aforementioned assumption.

The six business sectors that mafia affiliated companies operate in were kept in the group of businesses that had no dealings with organized crime in order to compare them in an effective an accurate way. The same logic was applied while selecting the annuals to be taken into consideration at the stage of building the database of businesses unrelated to organized crime. Once more, 4 annuities per index were considered, and another effort was made to choose Aida firms whose financial statements may be the closest to those for the 2020–2021 biennium.

4.5 Indexes analysis

The analysis of the database that was just provided was done at various degrees of depth, which will be covered in more detail later on. In this first part the work was done exclusively on the averages obtained from the study of indices in all 4 years under consideration in the first phase of the analysis for both the sample of contaminated farms and the sample of farms unrelated to criminal activity.

In fact, it was possible to evaluate the actual performance of the companies in the years prior to seizure or confiscation in the case of mafia companies thanks to the gathering of data divided across a number of years. These data strengthened the case for the value of the different indices in the control sample, giving the analysis additional validity.
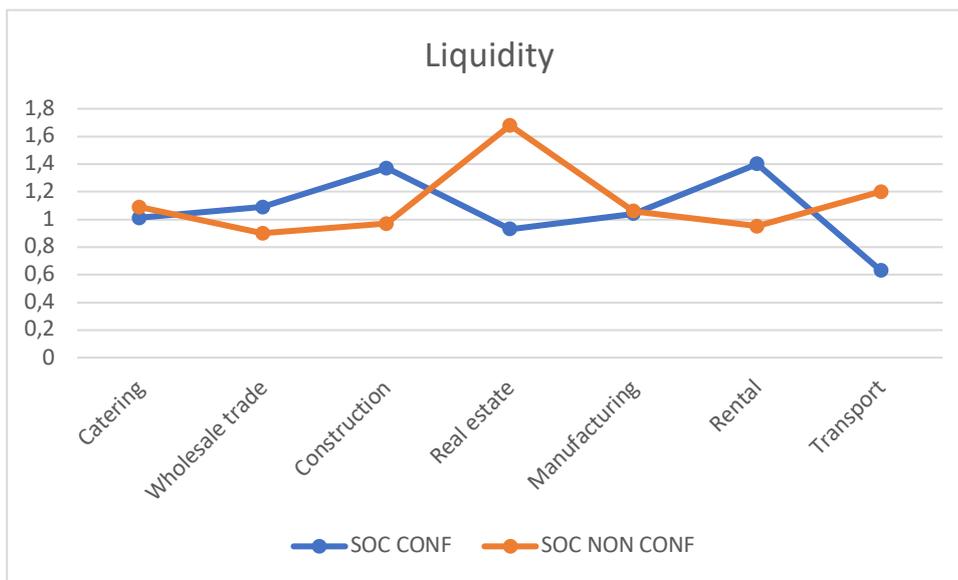
The study of the literature that was examined in the first stage of the thesis path serves as the foundation for the very first reflections. Companies connected to mafia activity turn out to have a significantly lower degree of liquidity, as previously revealed during the course of the analysis of Fabrizi Malaspina and Parbonetti, 2017. This was determined by the activities that form the core of mafia life; activities that invariably call for a steady stream of cash and invariably have a tendency to deplete the liquidity of the organizations engaged.

4.6 Liquidity analysis

For an analysis of the level of liquidity it is only possible to turn to the collection of financial indicators. However, it is important to remember throughout this initial stage of study that it will be impossible to come to a clear conclusion because both samples include businesses with origins in seven different commodities categories. Additionally, as was originally expected, there are several forms of mob involvement within a firm depending on the part that same company plays within the criminal organization (Fabrizi Malaspina Parbonetti, 2017). Two businesses that represent the roles of "Cartiere" and "Star," respectively, could serve as a very obvious example. As can be seen, the companies in the first category are those at the base of the structure that support the market by

producing a specific asset or by purchasing assets that will later be used to provide lease-like services to other businesses. In a case study like this, it makes sense to assume that the company has a highly complicated financial condition, with significant quantities of loan capital and a cash flow that is unquestionably inadequate in comparison to the "absorption of resources generated by the company's assets."

On the other side, one will come across a business with a radically different financial structure in the instance of a Star-type corporation. In fact, this group comprises businesses that are far larger in scale, with ROE and EBITDA levels that are not just higher than the norm for businesses with no ties to organized crime but obviously also higher than "Cartiere" enterprises (Fabrizi, Malaspina, Parbonetti, 2017). They exactly resemble prosperous businesses that fit in with the regional and global economy. Understanding the difficulty of the study being done requires taking into account this striking variance even within the same group of mafia-related enterprises. Organized crime is fully capable of running a business and keeping it virtually invisible thanks to an internal structure that looks to be quite strong, while at the same time making all the smaller businesses that serve as collateral and sources of funding virtually disappear. This viewpoint has been made plain by taking into account the financial indicators that have been examined up to this point so that they may be contrasted with the conclusions that have been drawn from the literature and have just been presented. The variations in averages for corporations with and without ties to organized crime in each of the 7 chosen commodities categories are shown on the liquidity index chart located above. As was previously demonstrated, one would anticipate ongoing liquidity challenges from businesses connected to organized crime. Contrary to expectations, it is discovered that in most of industries, criminal companies have a similar liquidity ratio than the sample of standard companies.
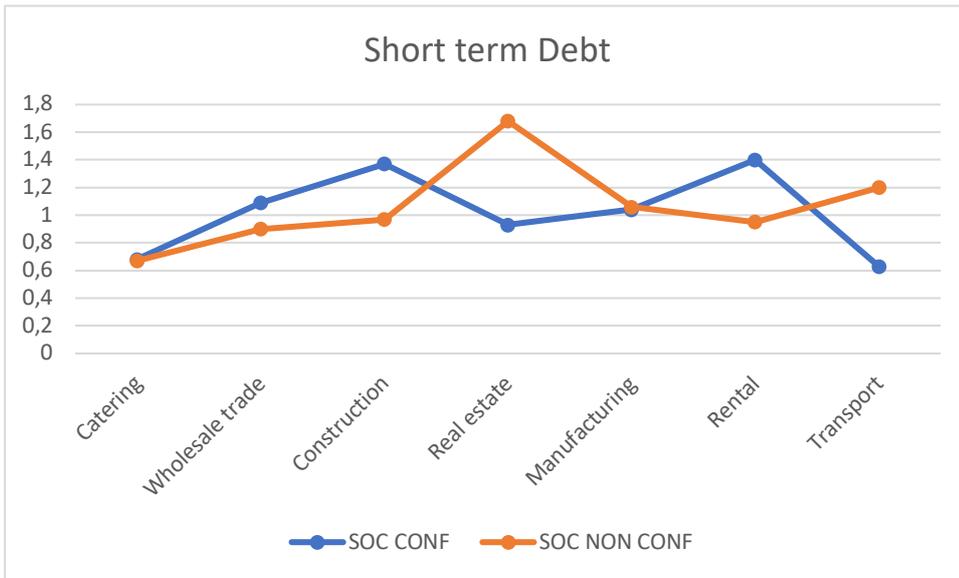
Short term Debt

The outcome of the debt level study turns out to be far more significant. Short-term and long-term debts indexes were obviously separated. The findings of this analysis are considerably more in line with what has been reported in the literature analysis; specifically, the sample of businesses connected to mafia-like activities has a higher average amount of short-term debt (debt capital with a maturity of 12 months or less). This demonstrates the need for this group of businesses to have a steady flow of cash to fill the gaps left by the kinds of operations they engage in. It is feasible to explain why there was not an obvious distinction between the two samples regarding the liquidity index. It's crucial to remember that the infusion of cash into confiscated enterprises isn't always restricted to the debt or equity capital that is typically encountered during regular business operations. It is possible that the funds were put into the business to fill gaps left by the diversion of resources brought about by illegal activities, or they could have been meant for money laundering.

By continuing to examine the long-term debt ratio, another intriguing conclusion can be drawn. When we talk about long-term debt capital, we mean debt that always has a maturity of longer than a year. Amounts

Long term Debt
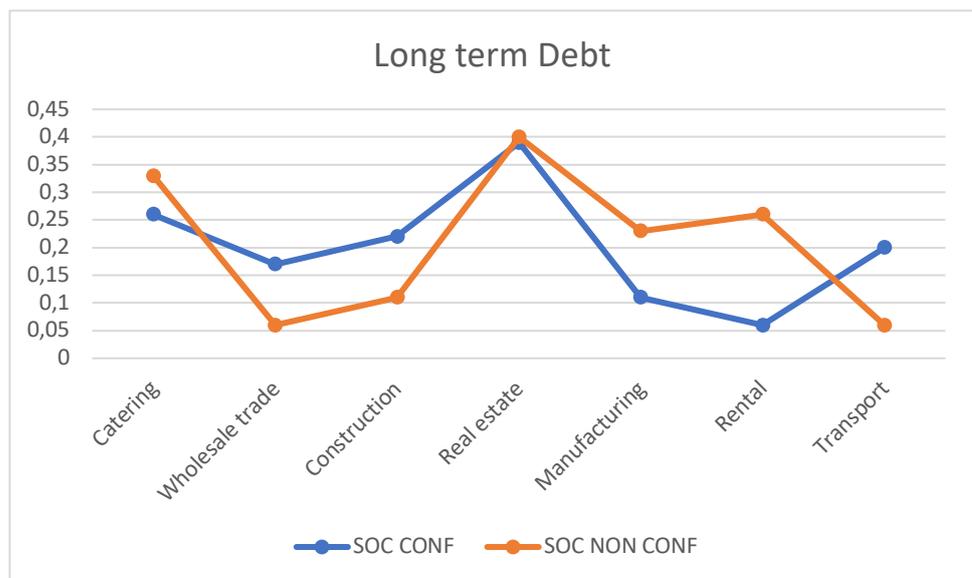
of collateral and consistency in periodic outcomes are definitely needed in order to acquire finance of this kind, which are undoubtedly different from what an organization utilized by organized crime can offer. As observed in the chart, companies with no connections to organized crime have higher

levels of long-term debt than those in the other sample in the majority of the core sectors examined. The involvement of organized crime within a firm, however, hinges on a very broad spectrum, and in the case of a Star company, the just-composed concerns might not be reflected given the much more norm-like structure.

4.7. ROE analysis

Some intriguing ideas can be advanced by focusing on a different kind of indication that was put forth during the literature review process. In fact, it has been explained how the level of ROE in the sample of illegal enterprises would not have been noticeably greater than predicted. Indeed, assuming that an organization that is a member of organized crime has the capacity to utilize methods and mechanisms that are outside the bounds of the law and so give it a considerable competitive edge over organizations compelled to function in accordance with current laws and regulations.
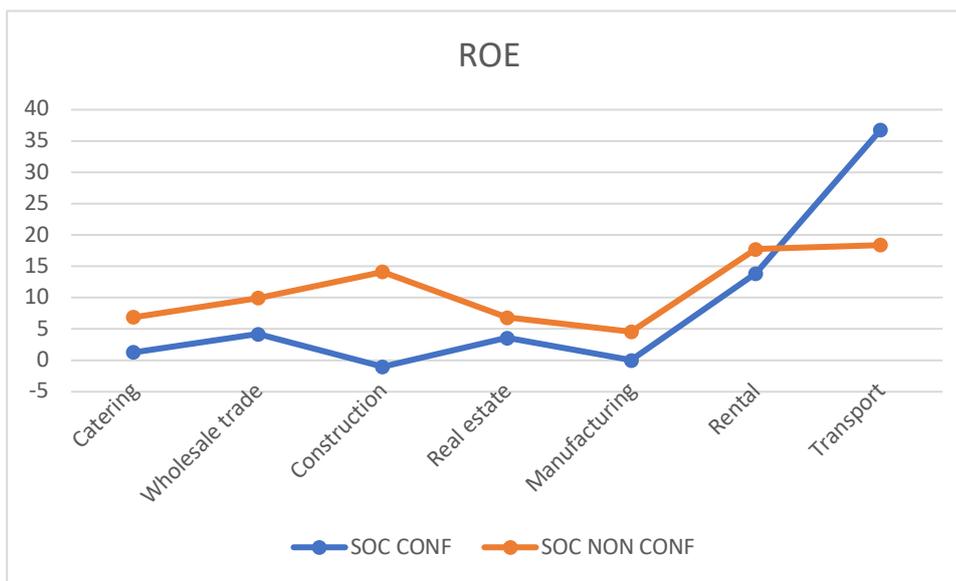
One may quickly see that this notion is supported by an analysis of the database's data. In reality, as shown in the suggested graph, businesses connected to organized 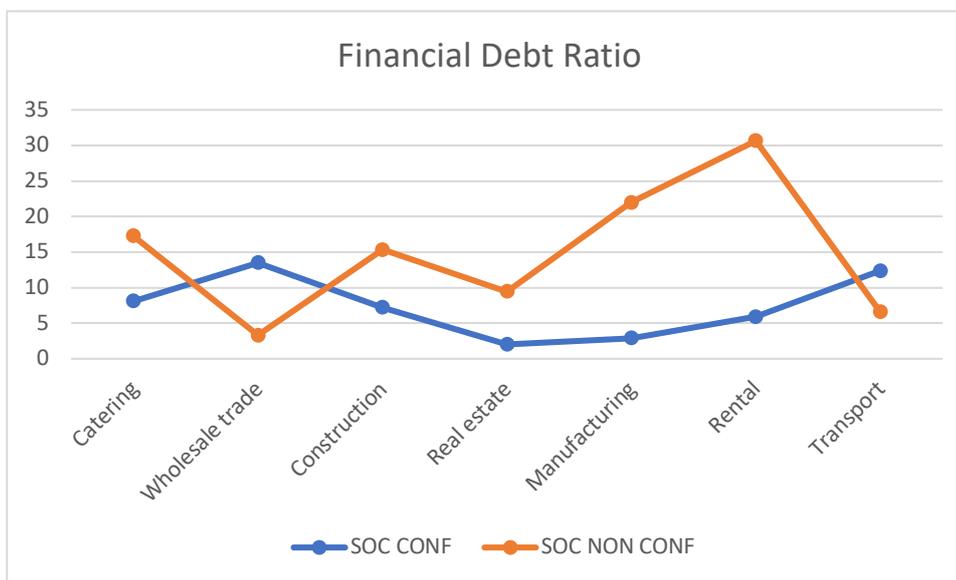crime manage to produce a significantly lower marginality than the businesses in the control sample in 6 of the 7 product sectors. Within Marco de Simoni's investigation, "The Financial Profile of Firm Infiltrated by Organized Crime, Banca D'Italia 2022" a potential explanation for this phenomena is put up. De Simoni really shows in the course of his dissertation that such a low profit level relative to the group of businesses connected to the mafia could be justified by the reason that this group of firms employ the whole set of mafia-style competitive advantages to scale up their turnover also in order to pursue goals other than mere profitability (e.g., money laundering, turf control, social support) which in turn may dent their profits and returns in general due to higher costs. To further comprehend this dynamic, it is crucial to keep in mind that criminal companies' operations invariably have a completely different set of goals than

those of a company that runs its operations on a regular basis. This divergence in goals will eventually result in divergent approaches and outcomes.

4.8 Financial Debt Analysis

The overall amount of bank debt accumulated by the in issue organizations was undoubtedly another signal that, at this early level of investigation, produced some quite intriguing results. In light of earlier assertions and analysis, it is evident that there are no obvious and significant differences between the two samples' economic performance, though there is an intriguing liquidity deficit on the part of the companies poisoned by criminal organizations activities when compared to the sample of unrelated companies. Thus, the type of operations that organized crime continues to engage in, which have a tendency to quickly deplete the monies entrusted there, determine this liquidity shortfall.

Equity, which refers to an increase in share capital caused by cash infusions from shareholders or, more generally investors or alternatively the accumulation of debt capital are the two main ways that a company typically finances its activities and thus the passive cycle that enables the upstream acquisition of whatever inputs are needed to subsequently carry out the active cycle. With this foundation, the research of the financial debt index ends up producing some extremely intriguing findings. The attached graph demonstrates that practically all product segments of the confiscated enterprises have much lower levels of financial debt in relation to revenues. One probable conclusion is readily drawn from an analysis of this indicator. Financial debt for businesses associated with organized crime is provided in astronomically smaller sums. As it can be seen in the graph, this would further support the hypotheses put forward during the examination of the long-term debt ratio, therefore confirming that exposure to the financial market poses a real risk to a corporation associated with mafia activities. The guarantees and analysis that a bank would inevitably continue in order to offer the funding would expose them to excessive risk. Thus, the only viable option is for a criminal company to choose their

preferred method of financing to be turning to partners or investors who are very close to them. It is obvious that the source of the funds used by illegal enterprises is very different from that of a typical investment fund. By doing this, the business sets itself to complete its production cycle without encountering bottlenecks and without raising the possibility of being discovered by the government authority, as could much more easily happen after presenting the financial statements for a loan application. The fact that the index previously discussed is derived as the ratio of the amount of financial debt to total revenues raises another crucial point. Similar to this, ROE determines the amount of revenues in relation to the incorporation of equity. As it was shown above, there is a far smaller difference between the ROE index of businesses associated with criminal activities and the control sample than there was for the Financial Debt Ratio. This proves that businesses involved in illegal activity favor equity as a source of funding and rely on it as a vital component for the survival of their operations.

Chapter 5: Data driven model

5.1 Logistic Regression

Dealing with binary categorical data (i.e. a company may or may not be considered confiscated), the logistic regression tool can only be the primary choice for the activity in question. Logistic regression is a classification algorithm used to assign observations to a discrete set of classes. Unlike linear regression which outputs continuous number values, logistic regression transforms its output using the logistic sigmoid function to return a probability value which can then be mapped to two or more discrete classes.

For instance, given the availability of personal diet data, with the linear regressor it is possible to forecast the weight of a person, while with the logistic regression it is possible to predict whether a person would be overweight or not. Considering an example of binary classification (i.e. only two possible output).

Given the design of the study's database, the binomial logistic regression will be discussed. In such a kind of classification, a dependent variable will have only two possible types either 1 and 0. For instance, these variables may represent success or failure, or in this scenario Affiliated or Lawful corporations.

5.2 Logit function

Logistic regression can be expressed as:

$$\log\left(\frac{p(X)}{1-p(X)}\right) = \beta_0 + \beta_1 X$$

Considering an example of binary classification (i.e. only two possible outputs), let X be the only independent variable and Y be the dependent variable which can be either 0 or 1. The probability that, given the input X, the output Y is 1 can be expressed as $P(y = 1|X) = p(X)$ with a simplified notation.

Since the probability can assume only values between 0 and 1, it is effective to use the logit function:

$$\log(\frac{p(X)}{1-p(X)})$$

Where $p(X)/(1-p(X))$ is called odds and represent the ratio of probability of success to probability of failure. With the logistic regression already briefly presented:

$$\log\left(\frac{p(X)}{1-p(X)}\right) = \beta_0 + \beta_1 X$$

The linear combination of independent variable are mapped to the log(odds) from which it is possible to compute the probability p(X) with the sigmoid function:

$$p(X) = \frac{e^{\beta_0 + \beta_1 X}}{1 + e^{\beta_0 + \beta_1 X}}$$

Which has an S-shaped curve and always produces values in between 0 and 1. Basically the sigmoid (also called logistic) function is the function that converts log-odds to probability. Note that β_0 represent the intercept of the model while β_1 represent the coefficient of the independent variable X (i.e. the slope of the log-odds as a function of X).

5.3 Application of the model

The objective of the case study pertaining to the model under development for this thesis project is to ascertain which of the indices under consideration is a more statistically reliable indication of whether a corporation is genuinely associated with organized crime. The most suitable and simple method for reaching this goal is the logistic regression tool as described. The logistic regression tool

was chosen because there was an issue with categorizing the companies in the database (those connected to organized crime and those unconnected) based on the information gleaned from the retrieved indices. Therefore, in order to be able to accomplish the aforementioned objective, the first crucial step was unquestionably to go out and ascertain which of the indices taken into account inside the Database would have better validity once entered into the logistic regression model. The idea of using every index that was taken into consideration in the database was rejected because the logistic regression would have been hampered by the presence of so many categorical variables. This is because the logistic regression is not capable of performing at its best with such a high number of categorical values and runs the risk of overfitting, which would have unavoidably changed the model's outcomes. Overfitting a model is in fact a condition where a statistical model begins to describe the random error in the data rather than the relationships between variables. This, as just described, is a scenario that verifies when the regression model has too many terms for the number of observations.

It was chosen to build the first logistic regression model using the presumptions found during the literature review phase in order to account for this risk. The first model concentrated on the Liquidity Index, which, as was mentioned above, was seen as a crucial indicator in Parbonetti, Fabrizi, and Malaspina (2017) and Bianchi, Marra, and Masciandaro (2022) analyses in an effort to determine whether a corporation may have ties to organized crime. EBITDA on sales and the financial debt ratio were taken into account for the same factors. Then ROE, ROA, and labor cost per employee to the final analysis. Thus, a dataset was created that included both the businesses from the sample of firms connected to organized crime and the businesses from the sample of companies unrelated to crime. The values that each company recorded in each of the annuities taken into consideration for this regression model are thus included in the data used inside the dataset designated as the basis for the logistic regression. However, it is crucial to note that the averages attained by each organization in the 4 annuals retrieved during database development were employed as data within the regression model. This decision was motivated by the need to eliminate dependent inputs by using only one data point rather than four individual inputs for each organization.

Model 1	Estimate	$Pr(>|z|)$
(Intercept)	-1,701e+000	1,41e-07
Liquidity index	1,334e-01	0,3168
Financial debt Ratio	1,392e-03	0,8017
EBITDA/Sales	3,522e-03	0,2876
ROA	1,843e-02	0,0875

ROE	1,032e-02	0,1127
Labor cost per employee	6,435e-05	1,93e-15

The outcomes of the first logistic regression model discussed just now are displayed in the table that was just shown. Before commenting on the results produced by the model, it is crucial to comprehend the meaning of the data in the table in order to fully appreciate its validity.

On the right hand column we can find P values that were generated by each independent variable of this model. P values are used to identify the level of statistical significance of each regressor (i.e. independent variable X_i) used in the model, in other words they allow to correctly recognize which relationship or association between the generic X_i and Y is meaningful. For such a relationship, changes in the independent variable are associated with changes in the dependent variable.

More in detail P-values are used to identify the level of statistical significance of each regressor (i.e. the independent variable X_i) used in the model; in other words, they allow us to correctly recognize which relationship or association between generic X_i and Y is meaningful (i.e. significant). For such a relationship, it holds true that changes in the independent variable X_i are associated with changes in the dependent variable Y.

From a statistical point of view, the P-value for each independent variable X_i tests the null hypothesis that variable X_i has no correlation with the dependent variable Y. It ca also be seen as the result of testing the possibility that the coefficient of variable X_i is null (X_i=0). If the p-value for a variable is below the significance level, usually set at 0,05 (=5%), the adopted sample data support the hypothesis that there is a nonzero correlation between X_i and Y (i.e., X_i is a significant regressor). On the other hand when the p-value of the generic regressor X_i is greater than the significance level, it indicates that there is insufficient evidence in the adopted sample to conclude that a nonzero correlation exists. It is common practice in this field to improve the model by iteratively eliminating the last regressor and keeping only the statically significant variables.
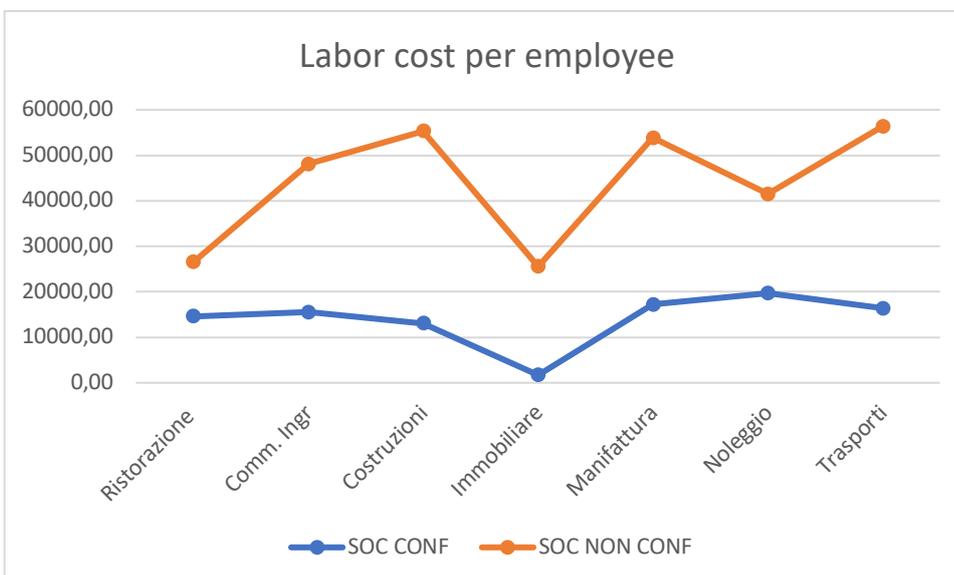
The coefficients associated with each individual regressor that are being considered, which express the type of relationship that exists between the dependent variable and the independent variable, are instead available on the left side of the displayed table. The coefficient then indicates through the sign whether there is a direct or inverse relationship between the two variables, and the numerical magnitude of the same will instead serve to indicate which of the various coefficients will have a greater impact on the outcome than the others.

In light of the aforementioned points, it is immediately clear how crucial the value indicated in the P value is to the understanding of the collected data and just from a quick analysis of the data presented it's feasible to observe that just one of the regressors taken into account in this first model, Labor cost per employee, has a P value that is significantly below the significance level of 0.05. In fact, of the 5 regressors taken into account, only the last figure is below the predetermined level. The remaining 4 values are all above the recently established threshold in each of their respective cases. This can only imply that there was insufficient evidence in the sample under consideration for the other 4 regressors to draw the conclusion that a nonzero association exists. It is possible to immediately notice how also the Estimate value expressed for Labor cost per employee has a positive sign. This indicates a relationship between labor cost per employee for which as the latter increases there will also be an increase in the probability that the model labels the company as not connected to organized crime.

Let's try to enhance the regression model in light of this information, as previously indicated, by removing regressors with P values that were determined to be higher and then keeping only the Labor cost per employee, which obtained a value considerably below the significance level.

Model 2	Estimate	Pr(>|z|)
(Intercept)	-1,302e+00	7,77e-09
Labor cost per employee	6,140e-05	5,02e-16

The outcomes from the second regression model are in line with those from the first. Labor cost per employee is validated as the regressor with the highest validity among those found in the database, as indicated by the data in the just-presented table. The P value associated with the last findings is still far below the 0.05 level of significance. The accuracy of the second model is higher than that of the first, demonstrating how we were able to improve the first model by running the logistic regression with a single regressor like Labor cost. This will be demonstrated in the following section. Analyzing the raw data that was taken from the

Database further confirms the outcomes of the two regression models. The average cost per worker is proven to be much greater within businesses not connected to organized crime in all 7 product areas examined, as can be seen in the graph shown here. This validates what was previously hypothesized during the analysis of the financial debt ratio, namely, that businesses connected to crime employ available cash for operations and activities that are different from those typically carried out in a production cycle by a business in the control sample. The significant difference in labor cost per employee between the two samples supports the idea that companies connected to organized crime do not need money flowing into them to cover internal expenses like, in this case, employee salaries, but rather that the money is going out to support other types of criminal activity. This leads inevitably to the liquidity shortfall that was previously mentioned.

5.4 Confusion Matrix and results analysis

A confusion matrix, also known as an error matrix, is a particular table structure that enables visualization of the performance of an algorithm, often a supervised learning one, in the field of machine learning and more specifically the problem of statistical

Confusion Matrix		Target				
		Positive	Negative			
Model	Positive	a	b	Positive Predictive Value	a/(a+b)	
	Negative	c	d	Negative Predictive Value	d/(c+d)	
		Sensitivity	Specificity	Accuracy = (a+d)/(a+b+c+d)		
		a/(a+c)	d/(b+d)			

classification (in this case a logistical regression). Each column of the matrix represents the instances in the anticipated class, or vice versa, whereas each row of the matrix represents the occurrences in the actual class. As will be clear, it was possible to use this tool to determine the correctness of the two regression models created during the course of this study. This makes accuracy—whose value, in the case of logistic regression, corresponds to a range of values contained only between 1 and 0 as seen a little above—critical in determining which of the models under consideration achieves the highest number of correct predictions. Accuracy is defined in fact as the total number of predictions that turn out to be correct relative to the total number of predictions made. In the case of a logistic regression, there is a distinction between false positives and false negatives, or first species and second species errors. A confusion matrix enables us to have a clearer depiction of this error matrix. The outcomes of performing several logistic regressions can then be reduced to a single value thanks to accuracy, which also simplifies the class of values found in the confusion matrix. This will make it much simpler to compare two logistic regression models and will also make it easy to determine the proportion of times the model correctly assigned a value to each unique company in the sample (0 or 1).

Matrix confusion and accuracy can, of course, also be used to evaluate the goodness of the two regression models taken into consideration in the study that was conducted, as was detailed in the previous paragraph.

Confusion Matrix (model 1)	CO	NCO
CO	87	31
NCO	27	117

It is feasible to use the count formula previously seen to compute the accuracy of the model based on the data expressed in the confusion matrix associated with the initial regression model. The model in question has an accuracy of 0.77, which indicates that based on the information related to the regressors selected in the first model, the regression model constructed in 77% of the case histories examined can correctly predict whether a company in the dataset is actually associated with organized crime or not.

Confusion Matrix (model 2)	CO	NCO
CO	87	29
NCO	27	119

On the other hand, it is clear that the decision to reconstruct the regression model also improved the model's performance, by performing a quick recalculation of the accuracy on the confusion matrix produced by the second regression model realized it's possible to confirm that. In actuality, the latter produces an accuracy of 0.79; this value brings the amount of times it can accurately determine whether or not a corporation is genuinely tied to organized crime to 79%, which immediately conveys to us an improvement over the prior model. Although important, the improvement in accuracy value is not the main benefit of building the second model. However, the newly built model is in reality capable of achieving higher accuracy values with a considerably slimmer structure than the old one. In fact, it just considers one regressor, reducing the number of variables needed for operation dramatically and streamlining the data collection procedure upstream, which will certainly be much easier.

Chapter 6: Conclusions

The goal of the in-depth investigation conducted for this thesis course was to pinpoint one or more markers that can reveal the presence of organized crime within a business based only on the financial statements and data that are typically provided annually by businesses. Due to the various levels of research completed, it is feasible to state that labor cost per employee has established itself as a reliable indication for this kind of analysis. This indicator is crucial to bear in mind while conducting an audit on a company's financial records.

However, it is also crucial to take into account a variety of factors when analyzing the financial accounts of businesses connected to organized crime. As mentioned in the literature study, there are various ways that organized crime enters the economy. Depending on the function it performs for the same organization, an organization linked to crime will have a very varied internal structure. This inevitably increases the complexity of the assigned task considerably and undermines the veracity of the conclusions drawn from the analysis carried out.

This can only deepen our appreciation of how difficult and challenging the competent authorities' work is. In order to actually determine whether there is a connection between a company and organized crime, one needs not only the right tools for examining the financial statements that the company issues, but also a lot of experience that enables them to interpret the data they have at their disposal and understand any potential gaps and/or flaws that a standardized control system would inevitably miss. The work completed up to this point may prove to be a significant instrument to help with the tough challenge of fighting organized crime.

In actuality, the Mafia adapts and changes in line with market and economic trends. It has really modified to the more modern economic structure in order to best infiltrate the economic and industrial fabric. In comparison to the structure it had in the early 1900s, it is an entirely different form of organization. Therefore, in-depth research and studies like the one that was just conducted are necessary to be able to stop organized crime from being able to stay one step ahead of the Italian state and the police in their fight against it.

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