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**Characteristics of Criminal Firms**

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# GLOSSARY AND LIST OF ABBREVIATIONS

CASH_ASSETS	Ratio of liquidity, intended as cash plus cash equivalents, over the total assets
CASH_ASSETS_w	Winsorized CASH_ASSETS
Cons	Constant
CRIMINAL	Dichotomous variable indicating whether or not a firm is controlled by a mafia organization
DebVShareholders	Debts due to the shareholders
DIA	Direzione Investigativa Antimafia
EBITDA	Earnings before interests, taxes, amortizations and depreciations
FATF	Financial action task force
INC_LABOUR	Personnel cost over total revenues
INC_LABOUR_w	Winsorized INC_LABOUR
LEVERAGE	Total debts over total assets
LEVERAGE_w	Winsorized leverage
ML	Money laundering
MLR	Multivariate linear regression
NETSALES	Operating revenues from sales in the period
NETSALES_w	Winsorized netsales
ROE	Return on equity
ROE_w	Winsorized return on equity
SIZE	Natural logarithm of total assets
SIZE_w	Winsorized natural logarithm of total assets





# INTRODUCTION

Around the world there are many places where three unfortunate circumstances coexist:<sup>1</sup>

- 1) the lack of cooperation among the people inside, despite of the mutual benefits that such a behaviour would lead;
- 2) the unfair competition, occurred through harmful ways;
- 3) the refrainment from competing whenever the competition would lead to more desirable outcomes for the society as a whole.

However, not many of those places have experienced that combination lasting for centuries: among the exceptions, it figures the Southern Italy, especially the regions of Campania, Calabria and Sicilia, where the phenomenon has a very long standing, in spite of the fact that Italy, considered as a whole, is actually one of the most industrialized Countries in the world. In this scenario the mafia organizations have played a very active role, representing the “quintessence of this structure, in which all the crucial behavioural patterns converge to form an indissoluble but explosive mixture”<sup>2</sup>.

Today, however, the phenomenon is no more limited to these regions, but instead it is something that interests the whole territory, with no exceptions, and go even beyond the national borders, expanding like an oil spill. It affects the society at any level, from the social, political, judicial and economic one.

It is of common knowledge that the criminal organizations are today operating not only in the illegal activities, where they maintain the monopolistic position in the commerce of drugs, the sexual exploitation, the illegal markets of weapons, counterfeiting, gambling, illegal wastes, tobaccos, usury and extorsions<sup>3</sup>; besides those activities, that generate the highest part of the proceeds,<sup>4</sup> the mafia organizations have entered in the legal sphere of the economy, through the use of firms that, despite the legal appearance, serve to many functions the criminal organization that controls them.

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<sup>1</sup> Gambetta D. (2000), *Mafia: The Price of Distrust*, in Gambetta, Diego (ed.) *Trust: Making and Breaking Cooperative Relations*, electronic edition, Department of Sociology, University of Oxford, chapter 10, pp. 158-175.

<sup>2</sup> *Ibid.*

<sup>3</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it)

<sup>4</sup> *Ibid.*

Therefore, it is noticed that, although the violence represents the main element of characterization of the mafia organizations<sup>5</sup>, during the last years its use has been decreasing, demonstrating how the so-called “metodo mafioso” is changing overtime.

The violent actions undertaken during the XX century have been substituted by reciprocal relations and behaviours of collusion in both the legal and illegal markets.

Moreover, there are “context factors”<sup>6</sup>, thus political, social and economic conditions that favour the expansion and the reproduction of the mafia groups, in an inextricable scenario where the interests of the legal side of the society mix together with those of the mafia organizations.

The scientific research has constantly increased its attention to this issue, not only under the sociological perspective, but also under the empirical one, collecting an increasing number of data from the financial statements of the criminal firms, with the aim to provide a framework for a better understanding of the key characteristics of these companies and try to understand how they operate in practice.

However, how the criminal firms differ from the legal companies? Are there any elements that favour them in the competition in the market?

This dissertation aims at answering to these questions by providing empirical evidence of the different characteristics that the criminal firms have with respect to the other companies, as well as the advantages that allow their proliferation across the whole Country.

In the first chapter, after a brief description of the four main criminal organizations operating in Italy (‘Ndrangheta, Camorra, Cosa Nostra and Sacra Corona Unita), will be explained the investments made by these organizations in the legal economy, describing the peculiarities of the sectors involved and the instrument used by the same group to infiltrate there: the criminal firms.

Then, it will be presented the different types of the criminal firms that have been identified by the various authors, such as Sciarrone, Fantò and Catanzaro, illustrating their differences and roles for the mafia organizations.

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<sup>5</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell’Inferno*, Il Saggiatore.

Sciarrone R. (2009) *Mafie vecchie, mafie nuove*, Donzelli Editore, Roma.

Fantò E. (1999), *L’impresa a partecipazione mafiosa: economia legale ed economia criminale*, Dedalo editore.

Gambetta D. (1988), *Mafia: i costi della sfiducia*, Einaudi, Torino.

Dalla Chiesa N. (2016) *Passaggio a nord. La colonizzazione mafiosa*, Edizioni Gruppo Abele.

<sup>6</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, XVII Legislatura.

The first chapter ends reporting the studies performed on the relation between the presence of the mafia in a territory and the economic outputs, in order to pointing out the centrality of the theme on the actual debate: the mafia is extremely harmful for the territory, not only for the criminal implications related to its presence, but also for the distortions that it provokes on the basis of the economic, political and social system.

Criminal organisations not only use the criminal firms to launder the proceeds of their illicit activities, but they also need to maintain their power and status; in the second chapter, therefore, it will be described the *modus operandi* of the mafia organizations and the reasons behind the use of the criminal firms to infiltrate in the legal economy; due to its central role, one paragraph will be dedicated to the explanation of the phenomenon of the money laundering,

Then, it will be reported and described the three different competitive advantages that the criminal firms are expected to have with respect to the other non-criminal ones, according to the debate occurred among the various authors on the topic:

- 1) the discouragement of the concurrence;
- 2) the wage compression;
- 3) the higher availability of financial resources.

The third chapter is dedicated to the empirical analysis: firstly, the descriptive statistics of the sample of firms analysed will be presented, comparing, for each of the financial and economic data considered, the value observed for the criminal firms with that of the non-criminal ones; then, the same methodology will be applied to compare the characteristics of the criminal firms in the South with those of the Centre-North, to check the existence of significant differences among those economic agents.

In addition, through the use of the multivariate linear regression, it will be tested the presence of the competitive advantages underlined in the second chapter to test the following hypothesis:

- 1st HP - the criminal companies pay a lower wage to their workforce and lower social contributions with respect to the non-criminal firms;
- 2nd HP - the criminal firms have higher financial resources, in terms of cash and cash equivalents, than the control group.

The results obtained, although seem to not confirm the main hypothesis, offer interesting insights for a better understanding of the phenomenon and of the strategies implemented by the mafia organizations to infiltrate themselves in the legal sphere of the economy.



# Chapter 1

## Mafia organizations in Italy

### 1.1 Concept and origins of the Italian mafia

There are many ways to define an organized crime group: among them, there is the one provided by the Office on Drugs and Crime of the United Nations, that, in the Art. 2 (a) of the “United Nations Convention Against Transnational Organized Crime And The Protocols Thereto” defines an organized criminal group as a “*structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offences... in order to obtain, directly or indirectly, a financial or other material benefit*”.<sup>7</sup>

Therefore, it is possible to summarize the characteristics that represent a common denominator of an organized crime group:<sup>8</sup>

- it shall be a structured organization made of people collaborating for a long period of time, often indefinite;
- it shall be finalized to the enrichment, personal or of the organization or both;
- it shall include the use of the corruption, or of the violence or the perpetration of crimes.

In Italy the association between the concept of criminal organization and the one of mafia-type organization has been recognized only during the mid-1980s<sup>9</sup>; indeed, according to the social scientists carrying out the first field studies in Sicily between the 1960s and the early 1980s, the mafia was simply a form of behaviour and power.<sup>10</sup>

However, contrary to what most scholars maintained up to the mid-1980s, the judicial inquiries carried out have proved that formalised mafia groups do exist, as Cosa Nostra in Sicily and the 'Ndrangheta in Calabria and Camorra in Campania<sup>11</sup>, that will be discussed more deeply in the following paragraphs.

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<sup>7</sup> United Nations, Office on Drugs and Crime (2004), *United Nations Convention Against Transnational Organized Crime And The Protocols Thereto*, New York (US).

<sup>8</sup> Savona E. U., *Criminalità organizzata*  
[http://www.jus.unitn.it/users/dinicola/criminologia/topics/materiale/dispensa\\_5\\_1.pdf](http://www.jus.unitn.it/users/dinicola/criminologia/topics/materiale/dispensa_5_1.pdf).

<sup>9</sup> Paoli, L. (2004). Italian Organised Crime: Mafia Associations and Criminal Enterprises. *Global Crime Today: The Changing Face of Organised Crime*, 19-32 (2005).

<sup>10</sup> *Ibid.*

<sup>11</sup> Mazzenzana S. (2016) *Il Maxiprocesso di Palermo*, Osservatorio sulla criminalità organizzata Cross Vol.2 N°1.

In the same period, the Italian legislation provided a first<sup>12</sup> and a widely accepted definition of the mafia-type association: the Art. 416 bis of the Italian Penal Code introduced with the “Rognoni-La Torre law” of the 1982, indeed, identifies the fundamental elements of the mafia-type association through the use of the same organization to exercise economic and political pressures on the society and their citizens, aiming at the obtainment of a unfair profit<sup>13</sup>.

Therefore the law defines the mafia-type organization as an organized criminal group whose participants “take advantage of the intimidating power of the association and of the resulting conditions of submission and silence to commit criminal offences, to manage or at all events control, either directly or indirectly, economic activities, concessions, authorizations, public contracts and services, or to obtain unlawful profits or advantages for themselves or for others”.<sup>14</sup>

Although the mafia-type organization is a criminal organization, but the opposite is not always true, for the sake of this dissertation the terms “mafia-type organization” and “criminal organizations” will be used as synonyms.

According to many researches, Italy is arguably the cradle of the first criminal organizations<sup>15</sup>. However, the reasons behind the origins and the developments of the phenomenon are not straightforward; to give an example, according to a study conceived by Acemoglu, De Feo and De Luca<sup>16</sup> the born of the Sicilian mafia, in the end of the XIX century, can be attributable to the weak presence of the State in the territory and to the inability of the public institutions to give a valid response to the growing violent repressions ordered by the landlords of the large agricultural estates; the owners wanted to repress the socialist Fasci’s Movements that, representing the interests of the peasants, asked for better living conditions, higher wages and more rights after the exceptional draught of the 1893, who reduced them to beggary.

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<sup>12</sup> Bianchi Pietro A., Marra A., Masciandaro D., Pecchiari N., (2017), “Is It Worth Having the Sopranos on Board? Corporate Governance Pollution and Organized Crime: the Case of Italy”, Bocconi Legal Studies Research Paper No. 2017-59.

<sup>13</sup> Savona E. U., *Criminalità organizzata*  
[http://www.jus.unitn.it/users/dinicola/criminologia/topics/materiale/dispensa\\_5\\_1.pdf](http://www.jus.unitn.it/users/dinicola/criminologia/topics/materiale/dispensa_5_1.pdf).

<sup>14</sup> Legge 13 settembre 1982, n. 646 *Disposizioni in materia di misure di prevenzione di carattere patrimoniale ed integrazioni alle leggi 27 dicembre 1956, n. 1423, 10 febbraio 1962, n. 57 e 31 maggio 1965, n. 575.*)

<sup>15</sup> Paoli, L. (2004). Italian Organised Crime: Mafia Associations and Criminal Enterprises. *Global Crime Today: The Changing Face of Organised Crime*, 19-32 (2005).

Bianchi Pietro A., Marra A., Masciandaro D., Pecchiari N., (2017), “Is It Worth Having the Sopranos on Board? Corporate Governance Pollution and Organized Crime: the Case of Italy”, Bocconi Legal Studies Research Paper No. 2017-59.

<sup>16</sup> D. Acemoglu, G. De Feo, G. De Luca, “Weak States: Causes And Consequences Of The Sicilian Mafia”, Working Paper 24115 <http://www.nber.org/papers/w24115>.

Another study, accomplished by Dimico, Isopi and Olsson<sup>17</sup>, has stated the hypothesis that the growth and consolidation of the mafia in Sicily is strongly associated with an exogenous shock in the demand for lemons during the XIX century, driven by James Lind's discovery on the effective use of citrus fruits in curing scurvy. Provided that the Sicily had already a dominant position as international supplier of citrus fruits, the increase in demand resulted in a very large inflow of revenues to citrus-producers during the 1800s. However, due to the specific requirements needed to cultivate the citrus trees, just few producers obtained high profits.

The combination of factors as the high profitability of the business, the weak enforcement of the law, the low level of interpersonal trust and a high level of local poverty made lemon producers a suitable target for predation. Moreover, the failures of both the Bourbon regime and of the newly formed government after Italian independence in 1861 to effectively enforce private property rights, led lemon producers to hire mafia affiliates for private protection and to play the role of intermediation with the retailers<sup>18</sup>.

Although there is no a theory that excludes the others and despite of the numerousness of the variables to be considered for the analysis, there are some common factors that can help to understand the reasons behind the origins of the mafia phenomenon, such as:

1. the weakness of the State and of the public institutions to enforce the existing legislation; while this was thought to be limited to the South of Italy, where effectively the phenomenon has moved its first steps, nowadays it is proved that even the Centre and the North of Italy have experienced the proliferation of the mafia-type organizations in their territories<sup>19</sup>.
2. the presence of an economic interest behind both the origination and the development of the organization<sup>20</sup>: in the two studies described the mafia has been called for help by the richest landlords (Acemoglu, De Feo, De Luca, 2017) and by the most important producers of lemons (Dimico, Isopi, Olsson, 2017) to defend their interests against the threats coming from the poor peasants, in the former case, and the disadvantaged producers, in the latter case, that asked for a redistribution of the property rights;

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<sup>17</sup> Dimico A., Isopi A., Olsson O., (2017). *Origins of the Sicilian Mafia: The Market for Lemons*, Discussion Papers 12/01, University of Nottingham, CREDIT.

<sup>18</sup> *Ibid.*

<sup>19</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>20</sup> Gambetta, D. (2000). Mafia: the price of distrust. D. Gambetta, *Making and breaking cooperative relations*, Oxford, Basil Blackwell, 158-175.

## 1.2 The four Italian mafia organizations

In Italy it is possible to identify the presence of different mafia-type organizations, both national but even international ones<sup>21</sup>. However, the attention here is focused on the four most important organizations, that are:

- I. 'Ndrangheta, based in Calabria;
- II. Camorra, based in Campania;
- III. Cosa Nostra, based in Sicilia;
- IV. Sacra Corona Unita, based in Puglia.

In the next sub-chapters will be briefly presented each of the four-criminal groups, with a higher attention and focus on the 'Ndrangheta, because of its predominance in terms of infiltrations, affiliates, investments and activities that this group has with respect to the others.<sup>22</sup>

### 1.2.1 'Ndrangheta

The 'Ndrangheta is an organization originated in the high grounds of the Calabria region at the end of the XIX century. At its origins, the organization was known, only at the local level, for the numerousness of the violent episodes linked to the control of the territories of the provinces of Reggio Calabria and Catanzaro. This group, today, is one of the most powerful criminal organizations in the world, with ramifications and contacts from the US to the Australia, from the South of America to Japan.<sup>23</sup>

The mafia group in question presents an organizational structure more flexible, less centralized and hierarchical than the other criminal organizations, that leave more room to its individuals; moreover, the families inside the organization are more autonomous, even if, due to the familiar relationships that link to each other, the blood ties assume a central role.<sup>24</sup>

The greater autonomy enables higher freedom of action, while the familiar linkages allow higher reliability, in terms of loyalty, from the members of the organization. Therefore, not

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<sup>21</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>22</sup> Direzione Nazionale Antimafia – *Relazione annuale sulle attività svolte dal Procuratore nazionale antimafia e dalla Direzione nazionale antimafia nonché sulle dinamiche e strategie della criminalità organizzata di tipo mafioso*, anno 2014 (periodo 01/07/2013 – 30/06/2014).

<sup>23</sup> Gratteri N., Nicaso A., (2009), *Fratelli di Sangue*, Strade Blu.

<sup>24</sup> Sciarrone R. (1998), *Il capitale sociale della mafia. Relazioni esterne e controllo del territorio*, *Quaderni di Sociologia*, 18 | 1998, 51-72.



surprisingly the number of witnesses and collaborators coming from the ‘Ndrangheta is much lower than the one of others criminal organizations.<sup>25</sup>

The figure 1.1 shows the structure of the ‘Ndrangheta, according to the revelations of the few collaborators, collected by the Public Prosecutor in Catanzaro, Nicola Gratteri<sup>26</sup>.

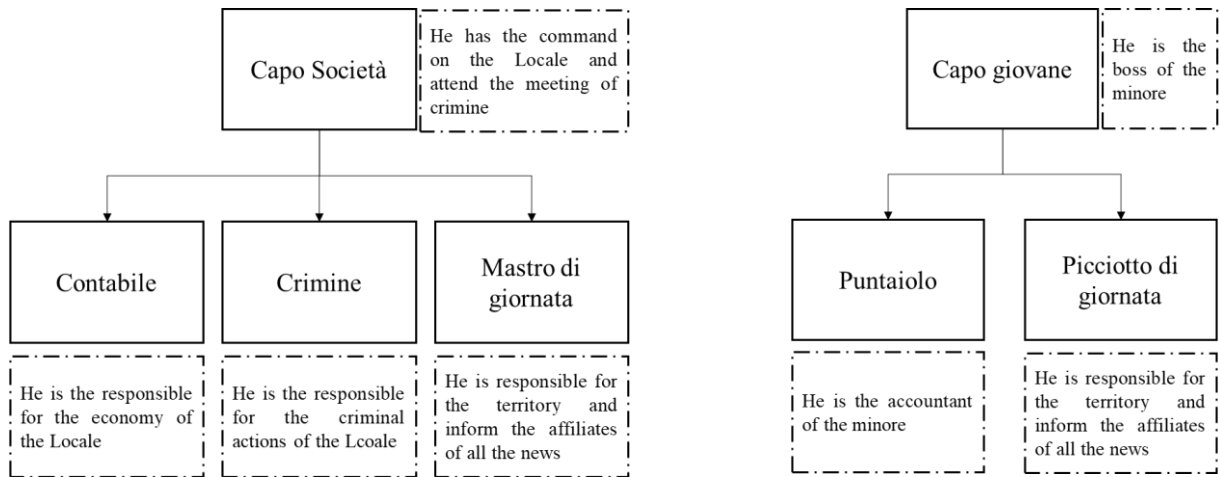


Figure 1.1 – the structure of the Locale, sub-entities which the ‘Ndrangheta is divided into.

The ‘Ndrangheta is divided into Locale, ‘Ndrina (or Cosca). The ‘Ndrina is based on a blood family: more ‘Ndrine form a Locale, the fundamental unit of mafia aggregation on a specific territory, that corresponds to a city or to one of its quarters. To be considered a locale, the number of affiliates must be higher than 49. Each locale is directed by three individuals: the “capo-crimine”, the “contabile” and the “capo-bastone”, that is the boss of the locale.<sup>27</sup>

Historically the ‘Ndrangheta was organized in “società maggiore” and “società minore” and today this division has remained unchanged. The difference is the amount of “doti” hold by the members, due to the fact that, while in the latter there are “picciotti semplici e di giornata” that inform the other affiliates on the news occurred in the territory, the most important affiliates of the locale are into the “società maggiore”, that decides the strategies to follow.<sup>28</sup>

In Italy, the ‘Ndrangheta is the mafia with the highest number of references to organized crime infiltrations into legitimate businesses<sup>29</sup>, dislocated in Calabria, where the criminal group

<sup>25</sup> Sciarrone R. (1998), *Il capitale sociale della mafia. Relazioni esterne e controllo del territorio*, *Quaderni di Sociologia*, 18 | 1998, 51-72.

<sup>26</sup> Gratteri N., Nicaso A., (2009), *Fratelli di Sangue*, Strade Blu.

<sup>27</sup> *Ibid.*

<sup>28</sup> *Ibid.*

<sup>29</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of

controls the territory “systemically”<sup>30</sup>, but also in other regions, mainly in Lombardia and Lazio. The ‘Ndrangheta is present in almost all the sectors, both illegal and legal: among the latter, this criminal organization invest especially in the building and construction sector, in hotels, bars, restaurants, wholesale and retail trade.<sup>31</sup>

As shown in the figure below, the ‘Ndrangheta is present in almost all the regions of the Centre-North of Italy, with very few exceptions.<sup>32</sup>

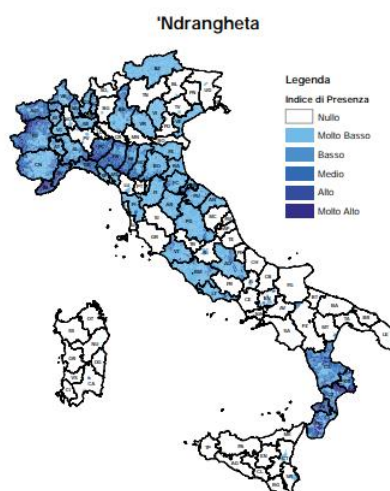


Figure 1.2 'Ndrangheta infiltrations

### 1.2.2 Camorra

The mafia-type organization known as Camorra comes from the Campania region. Its origination is not well defined, but many studies agree on the period between the XVI and the XVII century, before the Italian unification of the 1861.

Differently from the other criminal organizations, the Camorra originates from the urban context, in the city of Napoli<sup>33</sup> (while the other organizations have rural origins).

The criminal organization is composed by a very high number of smaller groups that are created to develop minor criminal groups inside or after a scission of the pre-existent clans. Moreover,

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Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

<sup>30</sup> Gratteri N., Nicaso A., (2009), *Fratelli di Sangue*, Strade Blu.

<sup>31</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>32</sup> *Ibid.*

<sup>33</sup> Commissione Parlamentare d'Inchiesta sul Fenomeno della Mafia e sulle Altre Associazioni Criminali Similari, approvata dalla Commissione nella seduta del 21 dicembre 1993, Doc. XXIII N.12, XI Legislatura.

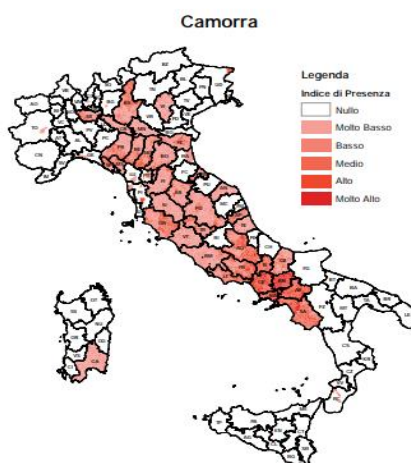
it does not exist a structure hierarchically superior (with two exceptions during the 1970s-1980s, when two major groups were created, the “Nuova Camorra Organizzata” and the “Nuova Famiglia”, that resulted in a failure just a few years later), as it is for the other organizations, with the consequence of a high level of conflicts inside.<sup>34</sup>

While the ‘Ndrangheta has been spread starting from the cells of calabresi who reproduced the model of the ‘Ndrine in the North of Italy and abroad, the Camorra have not exported its own organizational structure, but only criminal individuals for the running of the businesses, who allocated themselves in the most strategic places, independently from the immigration routes followed by the citizens of the Campania.<sup>35</sup>

The Camorra operates in all the illegal and criminal activities and even in a consistent part of the informal and black economy, developed in the commercial activities more than the industrial or service ones, exploiting the use of the violence to discourage any form of concurrence as their first competitive advantage<sup>36</sup>.

Therefore, looking at the investments of this criminal organization, it is possible to note the predominance of the wholesale and retail trade industry, hotels, bars and restaurants, with an important participation in the mining and construction sector.<sup>37</sup>

The figure 1.3 shows the regions where the degree of infiltrations of the Camorra is highest.



*Figure 1.3 - Camorra infiltrations*

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<sup>34</sup> Commissione Parlamentare d’Inchiesta sul Fenomeno della Mafia e sulle Altre Associazioni Criminali Similari, approvata dalla Commissione nella seduta del 21 dicembre 1993, Doc. XXIII N.12, XI Legislatura.

<sup>35</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, XVII Legislatura.

<sup>36</sup> Commissione Parlamentare d’Inchiesta sul Fenomeno della Mafia e sulle Altre Associazioni Criminali Similari, approvata dalla Commissione nella seduta del 21 dicembre 1993, Doc. XXIII N.12, XI Legislatura.

<sup>37</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell’Interno, [www.investmentioc.it](http://www.investmentioc.it).

### 1.2.3 Cosa Nostra

Cosa Nostra is a mafia-type organization based in Sicilia.

It was Tommaso Buscetta, in the 1984, to reveal to the judge Giovanni Falcone the name of the criminal organization with which the men of honour defined the group to which they belong.

Cosa Nostra has some elements in common with the 'Ndrangheta, as the pyramidal and hierarchical form of the organizational structure, the presence of formal rites of initiation and the central role of the family; however, on the contrary of the 'Ndrangheta, the family is not linked by blood-ties, but it is governed by a representative elected by the group that controls a specific territory<sup>38</sup>.

Starting from the 1950s the criminal organization has formed a superior hierarchical structure, the "Cupola", in which are the bosses of the different groups operating across the Sicilia, highlighting the homogeneous presence in the entire island.<sup>39</sup>

Today, Cosa Nostra is active in all the provinces of the Sicilia, its land of origins, and even in the North of Italy and worldwide, as shown by the evidences of infiltrations in the national territory, mainly in Lazio, Emilia-Romagna and Lombardia<sup>40</sup>, but even in the North and South America, where this criminal organization has historically established many relationships and conducted many affairs.<sup>41</sup>

By looking at the sectors where Cosa Nostra is present the most, it is possible to note that, apart from the illegal activities managed, the organization is also present in the legal economy, with a predominance of infiltrations in the wholesale and retail trade, manufacturing, energy supply, real estate activities, bars and restaurants.<sup>42</sup>

The figure 1.4 summarizes the geographical presence of that mafia-type organization.

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<sup>38</sup> Commissione Parlamentare d'Inchiesta sul Fenomeno della Mafia e sulle Altre Associazioni Criminali Similari, approvata dalla Commissione nella seduta del 6 aprile 1993, Doc. XXIII N.2, XI Legislatura.

<sup>39</sup> *Ibid.*

<sup>40</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>41</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, XVII Legislatura.

<sup>42</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

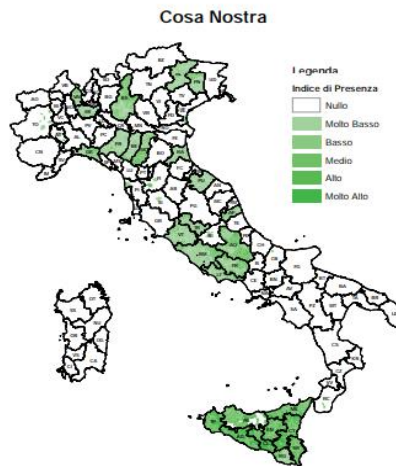


Figure 1.4 Cosa Nostra infiltrations

### 1.2.4 Sacra Corona Unita

The last criminal group is the Sacra Corona Unita and is based in Puglia. It is called “Fourth Mafia”, because of the more recent origins and the lower power with respect to the other three criminal groups, although there is evidence about the increasing power of this mafia expressed by the number of infiltrations recorded in the last years.<sup>43</sup>

The origins of this criminal group are due to the opposition of the local criminality to the invasion by the Camorra occurred during the 1970s, that aimed at conquering new territories to expand its activities, by excluding the local criminal families from the affairs whenever there were no profitable opportunities to make alliances with them.<sup>44</sup>

The willingness to expand in that specific territory by the Camorra was explained by the strategic position of the region with respect the routes of trades with the Eastern Criminal organizations (i.e. Russian one over the others, but also the Japanese Yakuza, the Chinese Triade, etc.).<sup>45</sup>

The historic activities performed were those linked to the food industries, considering the richness of the region in terms of oils, wines and other horticultural products, even though it is active even in the construction sector, wholesale, retail trade, bars and restaurants.<sup>46</sup>

<sup>43</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell’Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>44</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, XVII Legislatura.

<sup>45</sup> Massari M. (1998) *La Sacra Corona Unita: potere e segreto*. Saggi tascabili Laterza 221. Roma: Laterza.

<sup>46</sup> Direzione Nazionale Antimafia – *Relazione annuale sulle attività svolte dal Procuratore nazionale antimafia e dalla Direzione nazionale antimafia nonché sulle dinamiche e strategie della criminalità organizzata di tipo mafioso*, anno 2014 (periodo 01/07/2013 – 30/06/2014).

The figure 1.5 shows the infiltrations of the Sacra Corona Unita across the National territory.

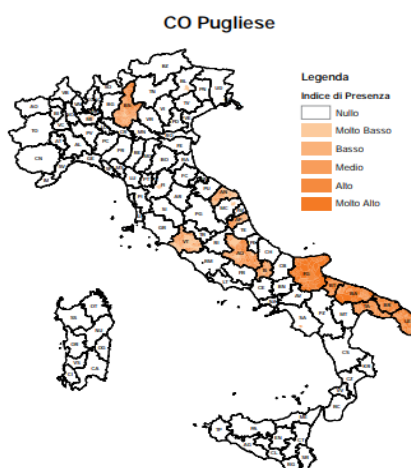


Figure 1.5 – Sacra Corona Unita infiltrations

### 1.3 Investments of the mafia organizations and criminal firms

As reported in the previous paragraphs, the mafia-type organizations, despite their origins in the Southern of Italy, have transplanted even in other parts of Italy and worldwide.

The transplantation is favoured by the extremely high degree of flexibility and capacity of adaptation showed by the criminal organizations; in this scenario, the ‘Ndrangheta plays a role of leader, as demonstrated by the higher number of infiltrations made by this criminal group with respect to the others<sup>47</sup>. This organization, indeed, is particularly capable to exploit the possibilities of profits offered by the specific historical momentum or the specific geographical opportunities<sup>48</sup>, concluding affairs in almost all the economic sectors.

There is no business immune from the infiltrations of the mafia, from the building to the tourism, from the retail to the restoration, from the gambling to the sport activities<sup>49</sup>.

The figure 1.6 summarizes the geographical expansions of the mafia-type organizations, according to the analysis performed in the 2013 by the Italian Ministry of Interior on the phenomenon of the infiltrations on the legal economy by the criminal organizations.

<sup>47</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell’Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>48</sup> Smuraglia C., (1994) *Relazione sulle Risultanze di Attività del Gruppo di Lavoro Incaricato di Svolgere Accertamenti su Insediamenti e Infiltrazioni di Soggetti ed Organizzazione di Tipo Mafioso in Aree Non tradizionali*, Commissione Parlamentare d’Inchiesta sul Fenomeno della Mafia e sulle Altre Associazioni Criminali Similari.

<sup>49</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.



Figure 1.6 - Italian mafia infiltrations by locations<sup>50</sup>

From the various relations of the Italian Antimafia Parliamentary Commission and the studies conducted by the Italian Ministry of Interior and the DIA it is possible to provide a list that summarizes the main results:

- there are no regions immune from the phenomenon of the mafia infiltrations;
- the characteristics of the industries where the presence of the mafia groups is highest share some common elements<sup>51</sup>, that are:
  - low technological level;
  - predominant use of manual and repetitive activities that do not require specific skills and competences;
  - high degree of deregulation;
  - relevant amount of public resources and funding;
  - low openness to the international market and concentration to a local area;
- therefore, the sectors most interested by the mafia infiltrations that have the characteristic above listed are:
  1. the public works;
  2. the food industry;
  3. the large retail sector;
  4. restaurants, bars, hotels and tourism-related sectors;
  5. sheltered sectors (municipal waste removal and renewable energies);

<sup>50</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

<sup>51</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

- the investments are not made directly by the affiliates of the organizations, but they occur through the constitution of companies controlled directly or indirectly by the mafia organizations<sup>52</sup>, the so called criminal firms, whose predominant size is small and medium, and usually are established in the form of partnership and private liability company.

Therefore, a criminal firm can be defined as a company attributable to a subject “mafioso” with an apparently legal objective, financed by illicit provenience capitals derived from the illegal activities managed by the organization.<sup>53</sup>

Moreover, it is possible to distinguish among two different types of criminal firms:<sup>54</sup>

1. the criminal firms that are established or acquired by a criminal organization that manages it through its affiliates;
2. the mafia infiltrated firms, in which the entrepreneur, despite its externality with the mafia organization, build with it stable relations. In this case the strategic choices are taken by the criminal organization and the firm loses its independence.

As far as concerned the companies participated by the mafia organization, we can classify them according to the type of relation built between the mafia and the entrepreneur, distinguishing between<sup>55</sup>:

- a) subordinated entrepreneurs, that suffer passively the intimidation and the coercion of the mafia;
- b) colluded entrepreneurs, that instead acts rationally in the building of the relations with the mafia even through the personal linkages with the affiliates;
- c) instrumental entrepreneurs, an intermediate category between the other two, that look for an agreement timely limited and based on a contingent need. It is the case of

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<sup>52</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, XVII Legislatura.

<sup>53</sup> Gratteri N., (2013), *Introduzione e Definizione dell'Impresa Mafiosa: Tipologie e Forme di Manifestazione*, Lezione presso Facoltà di Giurisprudenza, Corso di Economia della Legalità, Università di Reggio Calabria tenuta da Giuseppe Furciniti, Ten. Col. Guardia di Finanza.

<sup>54</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, XVII Legislatura.

<sup>55</sup> Sciarone R. (2009) *Mafie vecchie, mafie nuove*, Donzelli Editore.

Gratteri N., (2013), *Introduzione e Definizione dell'Impresa Mafiosa: Tipologie e Forme di Manifestazione*, Lezione presso Facoltà di Giurisprudenza, Corso di Economia della Legalità, Università di Reggio Calabria tenuta da Giuseppe Furciniti, Ten. Col. Guardia di Finanza.



companies operating mainly in the public work industry or in the large retail sectors, with larger dimension than the average of their competitors.<sup>56</sup>

Both the colluded and the instrumental entrepreneurs ignore, or at least underestimate, the risks connected to the recourse of the mafia organization as a possible solutions to their problems; the liquidity crisis faced, the need of huge funds to finance their investments as well as the willingness to beat the competitors (especially in the public work sectors) are often the main reasons behind the decision to contact the local bosses and ask for a help. However, most of the times the firm is stripped or scaled by the mafia organization, and the entrepreneur loses the control on his activity<sup>57</sup>.

The infiltration by the mafia organizations is carried out through a member of the criminal group or through a professional, a manager, lawyer, doctor, etc...that is affiliated with the criminal organization but that at the same time is beyond any suspect on the public opinion, thanks to its good reputation in the society<sup>58</sup>.

The reasons behind the phenomenon of the infiltration of the mafia organizations in the legal economy are manifold; however, the scientific literature has identified five plausible motivations:<sup>59</sup>

- I) Money laundering: the mafia groups decide to invest in companies operating in many different businesses to conceal the streams of revenues coming from the illegal activities performed; when it is the case, the preferred sectors are those with a weak or changing regulation and territories with high incidence of tax evasion and black economy<sup>60</sup>, as the transportation and storage sector.
- II) Social consensus: the criminal organizations aim at obtaining social consensus among the population of the society where it is inserted. Therefore, the criminal

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<sup>56</sup> Gratteri N., (2013), *Introduzione e Definizione dell'Impresa Mafiosa: Tipologie e Forme di Manifestazione*, Lezione presso Facoltà di Giurisprudenza, Corso di Economia della Legalità, Università di Reggio Calabria tenuta da Giuseppe Furciniti, Ten. Col. Guardia di Finanza.

Catanzaro R. (1988), *Il delitto come impresa. Storia sociale della mafia*, Liviana Editrice, Padova.

Fantò E. (1999), *L'impresa a partecipazione mafiosa: economia legale ed economia criminale*, Dedalo editore.

Sciarrone R. (2009) *Mafie vecchie, mafie nuove*, Donzelli Editore, Roma.

<sup>57</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

<sup>58</sup> Dalla Chiesa N. (2016) *Passaggio a nord. La colonizzazione mafiosa*, Edizioni Gruppo Abele.

<sup>59</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>60</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

firms often operate in sectors that reflects the territorial specificities and traditions, creating new jobs and promoting a positive image to the community, hiding their real criminal objectives<sup>61</sup>. This is especially true for the infiltrations achieved in Centre and North of Italy.

- III) Control of the territory: this is a distinctive feature of the Italian mafia-type organizations, both regarding the economic aspect and the symbolic component. Indeed, this function is fundamental to expand the control over the activities, both legal and illegal, performed in the territory and to create strategic networks with representatives of the local institutions, both economic and political ones.
- IV) Cultural and personal reasons: the criminal organizations may invest in a sector due to a specific willingness of the group, that can be disregarded by any economic reason<sup>62</sup>.

In the table below, there is a brief summary of the business sectors mainly interested by the phenomenon of the mafia infiltrations: for each of them, are presented the different distinctive features.

Business sector	Profitability	Competition	Openness	Technology	Business entity size
Construction					
Wholesale and retail trade					
Hotels, bars and restaurants					
Clubs and gambling activities					
Waste and scrap management					

Legend:

□ None    ■ < Mean-0.5 SD    ■ Mean-0.5 SD~Mean    ■ Mean~Mean+0.5 SD    ■ > Mean+0.5 SD

Table 1.7 - Business sectors, and related characteristics, where there are most criminal firms.<sup>63</sup>

Another important aspect is that the infiltrations in the legal economy are not always performed by the four mafia organizations described in the previous paragraphs, especially in the North of

<sup>61</sup> Sciarrone R. (2009) “Mafie vecchie, mafie nuove”, Donzelli Editore.

<sup>62</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries (www.arielproject.eu). Trento: Transcrime – Università degli Studi di Trento.

<sup>63</sup> (Data taken from) Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries (www.arielproject.eu). Trento: Transcrime – Università degli Studi di Trento.

the Country. As far as concerned the South area, the Italian mafia organizations control their territory of origination<sup>64</sup>: the Calabria is totally controlled by the ‘Ndrangheta, that maintains the monopoly of both the criminal and the legal activities; the same is true for the Sicilia and Campania, controlled respectively by Cosa Nostra and Camorra.

In the central and northern regions, by the way, it is possible to identify the presence of foreign criminal organizations that establish their own criminal firms and act similarly to the national mafias<sup>65</sup>: the most active foreign organizations come from China, whose infiltrations are mainly in Lombardia, Veneto, Lazio and Toscana, but also from Russia, Albania, Nigeria and Georgia.<sup>66</sup>

## 1.4 Consequences of the mafia presence on the territory

This paragraph will report the main consequences that the presence of the mafia organizations has in the territory.

Firstly, it is important to clarify that the mafia is harmful for the economy of the territory.

This statement is confirmed by many studies, researches and statistics conducted on the areas where the presence of the mafia is stronger, as the Calabria, Campania and Sicilia.<sup>67</sup>

In these regions it is possible to observe a dramatic worsening of the main economic indicators and the increase of the number of murders among the populations, especially after the spread of the new mafia capitalism, started during the ‘70s<sup>68</sup> and today still present.

In the graph below it is represented the correlation between the presence of the mafia organization in a specific territory and the level of GDP per capita in the same areas.

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<sup>64</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

<sup>65</sup> *Ibid.*

<sup>66</sup> *Ibid.*; Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

<sup>67</sup> Tarantola A.M. (2012), *Dimensione delle attività criminali, costi per l’economia, effetti della crisi economica*, Testimonianza del Vice Direttore Generale della Banca d’Italia alla Commissione parlamentare di inchiesta sul fenomeno della mafia e sulle altre associazioni criminali, anche straniere.

Pinotti P., “The economic cost of organized crime: evidence from southern Italy”, Economic Working Papers, 868, April 2012, Bank of Italy, Economic Research and International Relations Area.

Lopresto, D. F. (2015), *Mafia, Institutions and GDP: An Econometric Estimation of the Effects of Organized Crime in Italy*, City University of London, 120023417, EC3009 Project.

<sup>68</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell’Inferno*, Il Saggiatore.

<https://www.istat.it>

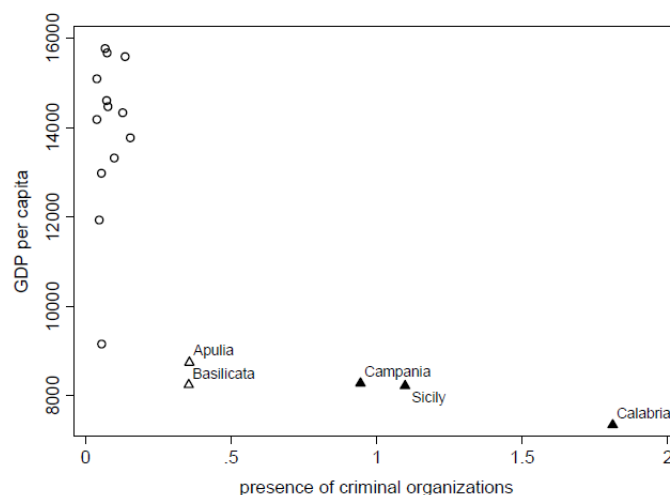


Figure 1.8 - Relation between mafia-type organisations and GDP per capita across Italian regions, average over the period 1983-2007 <sup>69</sup>

Bold triangles denote regions with a historical presence of mafia organizations, hollow triangles denote regions with a more recent presence while circles denote all other regions.

To demonstrate that the relation highlighted is causal and thus to eliminate the problem related to the endogeneity, it has been used an instrumental variable: the number of cases of application of the Article 416-bis of the Italian Penal Code every 100,000 inhabitants, as reported by the police to the judiciary authority. In this way it has limited the possible concerns related to whether is the presence of the mafia to negatively impact the economic outcome or is the bad economic scenario that allows the mafia to proliferate.

In the figure below, instead, it is shown the regional geographical distribution of the criminal organizations: this figure shows the strength of the link between the presence of a criminal organization and the economic scenario of the territory interested by the phenomenon <sup>70</sup>.

<sup>69</sup> Data taken from: Pinotti P., “The economic cost of organized crime: evidence from southern Italy”, Economic Working Papers, 868, April 2012, Bank of Italy, Economic Research and International Relations Area.

<sup>70</sup> *Ibid.*

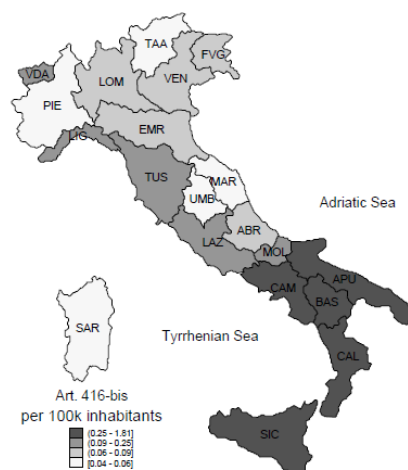


Figure 2.2 - Presence of mafia-type criminal organizations across Italian regions, average over the period 1983-2007

The downside of that work however, is represented by the fact that the data on the number of crimes committed and judged through the application of the law in question are much lower than the real number of penal infringements: this is due by the widespread presence of secrecy and intimidation among the individuals, especially in societies where the number of crimes committed is the highest<sup>71</sup>; thus, these values underestimate the magnitude of the phenomenon. Therefore, the performed analysis confirms that hypothesis according to which the presence of the mafia negatively affects the level of GDP of the territory.

In conclusion, the presence of the mafia organizations is harmful for the territory, not only in terms of GDP, but even in terms of private investments, that have decreased during the last decades in the South of Italy and replaced by higher public investments<sup>72</sup>, less profitable than the formers.

In addition, the last report of the Eurostat on the regional economies of the European Union has shown a very dramatic scenario for the South of Italy, whose level of GDP, labour productivity, capital productivity and rate of unemployment are similar to the poorest regions of the Eastern Europe and far from the situation of the richest Countries, North of Italy included<sup>73</sup>.

Although there are many factors that have an impact on these poor conditions, the presence of the mafia organization has contributed a lot to the worsening of the performances.

<sup>71</sup> Pinotti P., “The economic cost of organized crime: evidence from southern Italy”, Economic Working Papers, 868, April 2012, Bank of Italy, Economic Research and International Relations Area.

<sup>72</sup> *Ibid.*

<sup>73</sup> <https://ec.europa.eu/eurostat>.



# Chapter 2

## Roles and advantages of criminal firms

### 2.1 The phenomenon of the money laundering

In the previous chapter it has been referred to the money laundering as one of the reasons behind the infiltration of the mafia organizations in the legal economy.

In order to better understand the phenomenon, it is useful to define it. The EU Directive 849/2015/EC in the Article 1, defines the money laundering (ML) as:

*“(a) the conversion or transfer of property, knowing that such property is derived from criminal activity or from an act of participation in such activity, for the purpose of concealing or disguising the illicit origin of the property or of assisting any person who is involved in the commission of such an activity to evade the legal consequences of that person’s action;*

*(b) the concealment or disguise of the true nature, source, location, disposition, movement, rights with respect to, or ownership of, property, knowing that such property is derived from criminal activity or from an act of participation in such an activity;*

*(c) the acquisition, possession or use of property, knowing, at the time of receipt, that such property was derived from criminal activity or from an act of participation in such an activity;*

*(d) participation in, association to commit, attempts to commit and aiding, abetting, facilitating and counselling the commission of any of the actions referred to in points (a), (b) and (c).”<sup>74</sup>*

The phenomenon of the ML is structured into three different parts:

- a) Introduction of the resources on the market (placement): the proceeds of the illicit activities are collected and placed to financial intermediaries and other institutions, or directly to the market through the purchasing of goods, through figureheads; this step is fundamental to get rid of cash and banknotes derived from the illegal retail trades;
- b) Layering: it is the phase of laundering of the capitals through financial transactions aimed at impeding the investigation proceedings of the cash flows;
- c) Integration: the resources “laundered” are invested in the legal economy, often through provisions of services by high-skilled professionals, as consultants, financial intermediaries, notaries, etc.

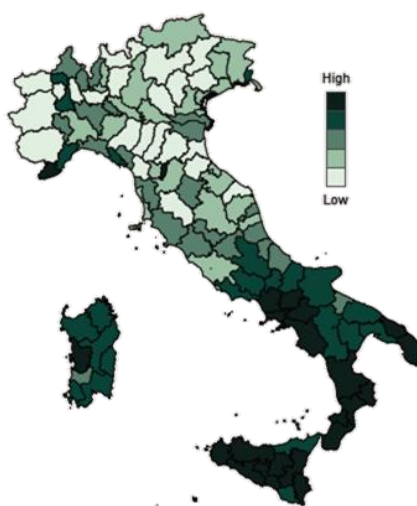
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<sup>74</sup> EC. Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015, Pub. L. No. 849, Official Journal of the European Union (2015). Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32015L0849>.

From the definition, it is possible to identify six risk factors of money laundering:<sup>75</sup>

- I) organized crime infiltrations;
- II) illegal markets;
- III) tax evasion and underground economy;
- IV) cash-intensiveness;
- V) opacity of business ownership;
- VI) money transfer.

Savona E.U., Riccardi M. Milani and others (2017) have combined all these elements to obtain a composite indicator of the risk of money laundering in Italy and in other EU Countries: the figure below consider the risk of ML in Italy.



*Figure 2.1 – Money laundering risk across Italy*<sup>76</sup>

By looking at the results it is possible to observe that the risk of money laundering is relatively high in all the Italian regions, especially in the South, where the risk is the highest; however, even in the Centre-North the analysis shows the presence of areas (i.e. Prato and Imperia above the others) in which the risk of ML is very high, demonstrating how the problem is not restricted to a specific geographic area, but interests the Country as a whole.

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<sup>75</sup> Savona E. U., Riccardi M., (eds), (2017), *Assessing the risk of money laundering in Europe. Final Report of Project IARM* ([www.transcrime.it/iarm](http://www.transcrime.it/iarm)). Milano: Transcrime – Università Cattolica del Sacro Cuore.

<sup>76</sup> Data taken from: Savona E. U., Riccardi M., (eds), (2017), *Assessing the risk of money laundering in Europe. Final Report of Project IARM* ([www.transcrime.it/iarm](http://www.transcrime.it/iarm)). Milano: Transcrime – Università Cattolica del Sacro Cuore.



Although the phenomenon of the ML does not depend solely by the infiltrations of the mafia organizations, that factor is the preponderant one<sup>77</sup>; moreover, by comparing the distribution of the risk of money laundering across the Country with the map showing the presence of the mafia organizations by regions<sup>78</sup> it is notable how the two phenomena interest the territories with similar intensity, confirming the ML as the preferred *modus operandi* used by the criminal organizations to infiltrate themselves in the legal side of the economy.

However, there are many different types through which the criminal organizations move money for the purpose of disguising its origins and re-investing it into the legal economy. The following non-exhaustive list includes the most frequently used:<sup>79</sup>

1. bulk cash smuggling: it refers to the large amounts of liquid cash that the criminal organizations accumulate, as a result of various types of criminal activities, and then physically transport from one Country to another, subtracting from controls by the public authorities;
2. trade-based money laundering: it is a process to disguise the proceeds of criminal activities and to move value through the use of trade transactions, in order to legitimise their illicit origin. In practice, this can be achieved through the misrepresentation of the price, quantity or quality of the goods object of the transaction. The techniques of trade-based money laundering include:
  - a. alternations of the number of invoices relative to goods and services;
  - b. multiple invoicing of goods and services;
  - c. alterations of the number of shipments of goods and services;
  - d. falsification of the quantities and qualities of the goods and services traded;
3. movement of resources through the financial system, with the use of cheques and wire transfers or other fictitious transactions;
4. constitution of front business, thus highly cash-intensive activities as bars, restaurants, laundries, where the greatest part of the revenues are generated in the form of cash and where it is easier to mix the legal with the illegal proceeds.

Such companies, especially bars and restaurants, represent even a strategic place of

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<sup>77</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

<sup>78</sup> Pinotti P., "The economic cost of organized crime: evidence from southern Italy", Economic Working Papers, 868, April 2012, Bank of Italy, Economic Research and International Relations Area.

<sup>79</sup> Financial Action Task Force (2006), *Trade Based Money Laundering*, Paris N.1.

meetings, important operative headquarters and also weapon stocks, channels through which the criminal organizations exercise the control of the territory.<sup>80</sup>

## 2.2 Mafia infiltrations and *modus operandi*

As explained in the chapter one, although the mafia organizations have their origins in the Southern of Italy, the reported cases of infiltrations are spread in the whole Country with no exceptions.

As far as concerned the period in which the mafia has started the transplantation to the North, Dalla Chiesa had reported the mid-1950s as reference period<sup>81</sup>, while Varese has documented a revelation made by Antonino Calderone, ex-boss and collaborator of justice, according to whom two clans of Cosa Nostra were present in Piemonte at the end of the II world war.<sup>82</sup>

In any case, how that expansion has originated and the reasons behind are still an open debate on the scientific literature.

Among the authors it is possible to identify a first theory, defined as the “Contagion Theory” that accepts a configuration in which the Centre and the North of Italy suffered passively a sort of contagion by the criminal organizations of the South, without any active contribution, that can be attributed to:

- the forced resettlement of the 1957, through which the public legislation decided to punish the individuals judged for their affiliation to a mafia organization by keeping them away from their origins, with the belief that, once far from home, they could have been influenced by the sane society of the North<sup>83</sup>;
- the phenomenon of the migration that occurred in concomitance with the economic boom between the '50s and the '60s, that led many families from the South to the regions where the industrialization was improving the living conditions of the society;

However, as previously reported, the infiltrations and the establishments had occurred even before the resettlement period: therefore, although it is accepted the contribution of that law to

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<sup>80</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

<sup>81</sup> Dalla Chiesa N. (2016) *Passaggio a nord. La colonizzazione mafiosa*, Edizioni Gruppo Abele., p.43.

<sup>82</sup> Varese F., (2006), *How Mafias Migrate: The Case of 'Ndrangheta in Northern Italy*, Law & Society Review Vol. 40, N. 2, June, 2006, pp. 411-444.

<sup>83</sup> Dalla Chiesa N. “Passaggio a nord: la colonizzazione mafiosa”, 2016, Edizione Gruppo Abele, p.37

Sciarrone R. “Mafie del Nord: Strategie criminali e contesti locali”, 2014, Donzelli Editore.

Varese F., (2006), *How Mafias Migrate: The Case of 'Ndrangheta in Northern Italy*, Law & Society Review Vol. 40, N. 2, June, 2006, pp. 411-444.

the increase of the phenomenon, it needs to be seen as one of the causes, not the only explanation<sup>84</sup>.

The other approach presented in the scientific literature and supported in this dissertation starts from the consideration of the role played by societies infiltrated.

The mafia has decided to move to the North because of the existence of factors that made this choice profitable and increased the probability to succeed in the transplantation, not just because of an “accident of history” as theorized by Varese<sup>85</sup>, thus the societies interested played an active role in that success.

The presence of the mafia organizations in the non-traditional areas can be explained by many different factors:<sup>86</sup>

- vulnerability and permeability of the referent context, in terms of administrative opacity and presence of sectors characterized by a low technological-intensiveness and scarce degree of qualified workforce needed that, as explained in the previous chapter, are easier to get infiltrated by the criminal organizations and where the phenomenon of the ML is more difficult to capture<sup>87</sup>;
- accessibility, reciprocity, complicity and willingness to cooperate with the criminal organizations<sup>88</sup>, fundamental for the creation of a baseline of common interests between the entrepreneurship and the mafia. The formers do not always commit crimes, but operate in an economic context that, instead of following the rules of the market economy, it is controlled and regulated by the criminal organizations.<sup>89</sup>
- attitudes of the authorities and institutions of the North of Italy characterized by an underestimation of the risks of infiltrations and refusal to recognize the permeability of the territories to the proliferation of the mafia organizations, both at political and judicial level<sup>90</sup>: one of the most representative example regards the police operation “Maglio 3”, in which the Judgements expressed by both the Courts of First and Second Instance

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<sup>84</sup> Dalla Chiesa N. “Passaggio a nord: la colonizzazione mafiosa”, 2016, Edizione Gruppo Abele p. 36.

<sup>85</sup> Varese F., (2006), *How Mafias Migrate: The Case of 'Ndrangheta in Northern Italy*, Law & Society Review Vol. 40, N. 2, June, 2006, pp. 411-444.

<sup>86</sup> Sciarrone R. (2014), *Il capitale sociale della mafia. Relazioni esterne e controllo del territorio*, Donzelli Editore, Roma.

<sup>87</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it)

<sup>88</sup> Sciarrone R. (2014), *Il capitale sociale della mafia. Relazioni esterne e controllo del territorio*, Donzelli Editore, Roma.

<sup>89</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

<sup>90</sup> *Ibid.*

acquitted the mafia infiltrates operating in Liguria denying the possibility that the case could be attributed to the presence of the ‘Ndrangheta in loco.’<sup>91</sup>

However, the constant enlargement of the scope of action of the mafia organizations in non-traditional areas is just one dimension used to describe the *modus operandi* in the recent years: the other distinctive elements that constitute the key success factors can be listed as follow:

- a) more flexible organizational structures, often of reticular-type shape, composed by many units located in territories much far away from the origins<sup>92</sup> but with their own decision-making autonomy. The Italian Anti-mafia Parliamentary Commission has referred to the phenomenon as a “liquid mafia”<sup>93</sup> to indicate the pervasive presence in the territories shown especially by the ‘Ndrangheta, whose characteristics best fit with this definition.

The fluidity of the mafia groups has lead the organizations to decrease the actions of violence and to undertake characteristics of entrepreneurship, that have implied higher benefits and advantages, mainly of economic-type;

- b) the development of the entrepreneurial culture in the legal economy, that allows the mafia to enter in many legal sectors, as the building and construction, the wholesale and retail commerce, the tourism, the gambling activities as well the renewable energies and the waste management, besides the public works and the public health.<sup>94</sup>

Nonetheless, the key success factors are not derived by the managerial skills developed by the bosses of the organizations, but the possibility to cooperate and rely on the support of third colluded subjects, in agreement with the mafia, as entrepreneurs and professionals that operate in the opacities of the financial system, allowing the mafia to profit more and to launder the capitals obtained from the illegal activities managed;<sup>95</sup>

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<sup>91</sup> Cass. Sez. I, 10 gennaio 2012, n. 5888, Garcea, in CED Cass. n. 252418, where Court of First Instance has reported the «*impossibilità di configurare l'esistenza di associazioni mafiose in regioni refrattarie, per una serie di ragioni storiche e culturali, a subire i metodi mafiosi...*».

<sup>92</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

<sup>93</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 19 febbraio 2008, Doc. XXIII N.5.

<sup>94</sup> See Chapter 1, paragraph 3.

<sup>95</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

Sciarrone R. (2009) *Mafie vecchie, mafie nuove*, Donzelli Editore, Roma.

- c) the last part relates to the existence of the so-called “grey area”<sup>96</sup>, intended as the room between the legal (white) and the illegal (black) parts of the economy, where the mafia affiliates build a network of relations with the exponents of the legal economy, members of the economic, judicial and political sphere, offering the services that the mafia usually provides, mainly those of protection and intermediation<sup>97</sup>.

Therefore, year by year the mafia has adapted to the continuous transformations occurred at the social, political and economic level.

Especially the ‘Ndrangheta, it has succeeded to transplant its *modus operandi* everywhere. The element of novelty is represented by the infiltration in the legal economy, with all the consequences and modalities described. In this framework, the criminal firms can be seen as instrumental to the implementation of the strategies decided by the bosses.

Nevertheless, what is important to pointing out is that the criminal firm is not consequent to a higher demand or offer of goods or services otherwise provided in the legal economy: it has established for a precise scope, that can wide from the money laundering, to the willingness of grab a public procurement for the realizations of public works<sup>98</sup> or for the other reasons previously listed; the common element is the lack of any entrepreneurial form of risk in the “genetic code”<sup>99</sup> inside the criminal character of this firm.

The following paragraph will be dedicated to the clarification and the description of the main competitive advantages, as well as to summarize what are the different views proposed and discussed in the scientific literature.

### **2.3 Competitive advantages of the criminal firms**

Although there is a general agreement on the existence of competitive advantages exploited by the criminal firms, it is not straightforward to provide an exhaustive list, due to the complexity of the phenomenon and the fact that the studies on the infiltrations of the mafia in the legal economy are quite recent.<sup>100</sup>

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<sup>96</sup> *Ibid*;

<sup>97</sup> Dalla Chiesa N. “Passaggio a nord: la colonizzazione mafiosa”, 2016, Edizione Gruppo Abele p. 102.

<sup>98</sup> It was the case for the majority of public infrastructures realized in the South of Italy during the 1970s- 1980s, as well as in the Centre and North of Italy in more recent times, as demonstrated by the infiltrations occurred during the Expo in Milano of the 2015. (Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34,).

<sup>99</sup> Fantò E. (1998), *L’impresa mafiosa e la sua crisi*, Fondazione Istituto Gramsci, Anno 39, No. 4, Doppia lealtà e doppio Stato nella storia della Repubblica (Oct. - Dec., 1998), pp. 1075-1095.

<sup>100</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

However, for the sake of this dissertation, three main competitive advantages will be considered and discussed:

- I) the discouragement of the free market concurrence;
- II) the wage compression;
- III) the availability of financial resources.

### **2.3.1 The discouragement of the market concurrence**

The first competitive advantage consists on the ability of the mafia organizations to create the conditions for the creation of a sort of monopoly in the market of reference.

In the last decades this occurred in a violent form, through physical intimidations, threats and kidnapping of the competitors.<sup>101</sup>

The sectors firstly involved by this phenomenon were the building and construction, the transportation, the retail commerce and touristic activities, as well as the public works. An example in this regard is provided by the judge Falcone who, in the 1982 described the economic situation of Palermo as a context in which the mafia had the full control on the whole building sector, from the caves to the production of the concrete, etc..., obtained through the threats perpetrated to the legal firms that operated there.<sup>102</sup>

Moreover, he reported that, during the 1980s, it has been verified many substitutions of managers of companies operating in the building sector to the advantage of affiliates of criminal organizations<sup>103</sup>.

In more recent periods, when the main affairs moved toward the Centre and North of Italy, the mafia organizations changed their strategy and *modus operandi*, as previously explained, but, although the recourse to the violence has decreased, it has not disappeared yet, with cases of intimidation, extortions and threats still present in the local newspapers.

The first author who theorized the use of the violence as the key factor to discourage the concurrence was Arlacchi<sup>104</sup>, then shared and furtherly broadened by other authors, as Catanzaro, who laid the emphasis on the centrality of the violence to control the market and to

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<sup>101</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell'Inferno*, Il Saggiatore.

<sup>102</sup> During the 1970s-1980s the public investments pro-capita made in the South of Italy were much higher than the ones made in the rest of the Country: Franco Chiarello, *Opere grandi e grandi opere. Opere pubbliche e di pubblica utilità*, *Quaderni di Sociologia*, 16 | 1998, 96-103.

<sup>103</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell'Inferno*, Il Saggiatore p.105.

<sup>104</sup> *Ibid.*

increase the power on the territory controlled <sup>105</sup>; moreover, Catanzaro has theorized a first distinction of the criminal firms considering two dimensions: the unlawfulness of the objectives and the methods applied to operate in the market <sup>106</sup>: in this view it is possible to distinguish between:

- firms that make illicit activities and discourage the concurrence through the violence;
- firms whose objectives are licit but use violent forms of discouragement of the concurrence;
- firms that have illicit objectives and do not alter the market concurrence;
- firms that have licit objectives and respect the concurrence existing in the market.

Apart from the last one, all the other companies can be ascribed as criminal firms, due to their use of violence.

In addition, the author considers the category of the “screen firms” <sup>107</sup> as the one used only for the purposes of the money laundering and not for any productive activity.

The distinction between the “screen firms” and the other criminal firms has been used for the first time by Costantino (Costantino, 1986) according to whom the “mafia capital firms” <sup>108</sup> are those that operate in the legal market by respecting the rules of the free market concurrence, even if are financed by illicit capitals. Therefore, the author, although considers as separated the violence from the intimidation, does not confirm that the criminal firms use the former as predominant way to impose themselves in the market.

The position of Catanzaro has been partly criticized by Fantò<sup>109</sup>, according to whom it is not always possible to identify the conditions listed by the former to classify a criminal firm. As matter of facts, he proposes a definition of criminal company as an economic unit whose advantage comes from the capitals derived from criminal and illegal activities, aimed at producing or exchanging licit goods and services in the official markets through formally legal ways; in any case, the competitive advantage is constituted by the intimidation exercised by the mafia organization that controls it, independently of the entrepreneur that formally sit there.<sup>110</sup>

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<sup>105</sup> Catanzaro R. (1984) *La mafia come fenomeno di ibridazione sociale*, Italia contemporanea, p. 33.

<sup>106</sup> Catanzaro R. (1988), *Il delitto come impresa. Storia sociale della mafia*, Liviana Editrice, Padova, p.251.

<sup>107</sup> *Ibid.*

<sup>108</sup> Costantino S. (1986). *I provvedimenti patrimoniali del Tribunale di Palermo: spunti per un'analisi sociologica*. In *La legge antimafia tre anni dopo. Bilancio di un'esperienza applicativa*, cur da. Giovanni Fiandaca e Salvatore Costantino. Milano: Franco Angeli.

<sup>109</sup> Fantò E. (1999), *L'impresa a partecipazione mafiosa: economia legale ed economia criminale*, Dedalo editore.

<sup>110</sup> *Ibid.*

Nonetheless, he agrees with Catanzaro concerning the violent form used to conduct the business as one of the fundamental elements of discrimination between the criminal firms and the non-criminal ones<sup>111</sup>; moreover, he argued that the first criminal firms, those operating in the South of Italy during the 1970s, had not yet the possess of the huge amount of financial resources as theorized by Arlacchi, but succeeded in the legal activities undertaken mainly through the violence used with respect to the other firms, with the aim to remain the only participant in the market.<sup>112</sup>

In more recent times the scientific literature, whilst maintaining the main position on the discouragement of the concurrence, does refer to the abandonment of the violence, or at least to its drastic decrease<sup>113</sup>; this is confirmed by the Anti-mafia Parliamentary Commission, that report how the lower number of homicides and violent actions undertaken in the North are part of the willingness to adequate to the world of the affairs, where the permanent use of the violence is anti-economic by definition.<sup>114</sup>

However, the phenomenon of the discouragement of the concurrence does not imply necessary a higher level of efficiency and profitability. Many times, indeed, the mafia organizations use the criminal firms to launder the proceeds from the illegal activities performed, without pursuing an additional economic return from the legal side of the economy; the type of firms mainly used by the criminal organizations are characterized by a low technological level and high-intensity of manual workforce, as well as low openness to the foreign market.

In the lights on the considerations reported, and due to the type of data collected for the sake of this dissertation, it is not possible to test the existence of this competitive advantage exploited by the criminal firms, because the economic and financial information reported in the financial statements are quantitative-type, and they do not include qualitative elements necessary to test the use of the violence and of the intimidation.

### **2.3.2 The wage compression**

The second competitive advantage of the criminal organizations in a specific economic sector is the compression of the wages paid to the employees.

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<sup>111</sup> *Ibid.*, p.81.

<sup>112</sup> Fantò E. (1998), *L'impresa mafiosa e la sua crisi*, Fondazione Istituto Gramsci, Anno 39, No. 4, Doppia lealtà e doppio Stato nella storia della Repubblica (Oct. - Dec., 1998), pp. 1075-1095.

<sup>113</sup> Dalla Chiesa N., *L'impresa mafiosa, tra capitalismo violento e controllo sociale*, Cavallotti University Press, Milano, 2012, p.63.

<sup>114</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, p. 16.



The wage compression is usually implemented by way of tax evasion for the social and security contributions and the no payment of overtime<sup>115</sup>, other than the tendency to discourage any form of protest of the employees, that many times are forced to operate under unsecured and unstable conditions.<sup>116</sup>

Another relevant element is the progressive decrease of the trade union associations, that becomes irrelevant when the decisions are not concorded between the two parties but are imposed by the bosses. In addition, many times the workforce used does not result at all in the public registers, thus in the income statement, in these cases, there is no evidence of that cost<sup>117</sup> incurred.

This interpretation is largely shared among the scientific literature: Arlacchi reported the diffusion of that phenomenon to the 1970s, providing the theory with many examples referred to the Calabria and Sicilia situations, highlighting how the phenomenon was particularly relevant for the economy of the territory due to its pervasiveness<sup>118</sup>.

The wage compression, according to Fantò, can be even reconducted as an instrument used by the mafia organizations to obtain the control of the territory, especially in the past decades and mostly in the South: in this way, indeed, the entrepreneurs could offer a job to personnel that otherwise would have been unemployed.<sup>119</sup>

Concerning the employment of undeclared workers by the criminal firms, the literature provides a distinction between the different reasons that push the workers to accept an undeclared position:<sup>120</sup>

- escaping from the poverty: from a supply side perspective, the employment, albeit undeclared, avoids conditions of extreme poverty and provides the main source of income. This type is common within populations that are restricted from entering the labour market through regular employment, due to the macroeconomic context or due to the difficult economic conditions.

On the demand side, the firms have an incentive to choose that workforce due to the

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<sup>115</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell'Inferno*, Il Saggiatore p.106.

<sup>116</sup> Ferrara M., Mavilia R. (2011), *La strategia aziendale e il rischio di criminalità organizzata*. IPSOA Gruppo Wolters-Kluwer, Editors: Giuseppe Minutol. p. 37-51.

<sup>117</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>118</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell'Inferno*, Il Saggiatore p.106-110.

<sup>119</sup> Fantò E. (1999), *L'impresa a partecipazione mafiosa: economia legale ed economia criminale*, Dedalo editore. Catanzaro R. (1988), *Il delitto come impresa. Storia sociale della mafia*, Liviana Editrice, Padova.

<sup>120</sup> Ravenda D., Argilés-Bosch, Josep M<sup>a</sup>.; Valencia-Silva, Maika M. (2015), *Labor Tax Avoidance and its Determinants: The Case of Mafia Firms in Italy* Journal of Business Ethics, 2015, vol. 132, num. 1, p. 41-62

possibility to implement a cost-saving strategy for tasks that require relatively low skills and high level of repetitiveness;

- the second type is called the “moonlight”<sup>121</sup> which covers mainly qualified craftsmen who are not registered as self-employed and so can be used for their professional skills;
- the third group include the solidarity-orientated workers, employed because of a mutual support within social networks, more than the monetary gain, whenever the firms face conditions of crisis and lack of resources to pay the personnel.

The preferred group by the mafia organizations is the first one, and the empirical evidence shows that, in the Southern of Italy, that is often the case, considering the structural weakness of the economy and of the labour market.<sup>122</sup>

According to Santino, the management of the workforce, together with the recourse to the violence and to the corruption, are the elements through which is possible to distinguish the criminal firms from the non-criminal ones<sup>123</sup>; therefore, the management of a criminal firm, as well as the payment of wages under the table, represent a possibility to launder the proceeds coming from the illegal activities without any suspect, guaranteeing a legitimation from the society for the jobs offered.

However, in the last years the wage compression has been revised by recent researches conducted both at European and Italian level<sup>124</sup>: in detail, they have identified cases in which the affiliates of the mafia organizations were employed by the criminal firms and paid with extremely high salaries and benefits, with two main advantages: on one side, the exercise of the money laundering of the illegal proceeds; on the other side, the retribution of the members affiliated for their work and their contributions.

In the light of these considerations, the main hypothesis to be tested is whether or not, in the sample of criminal firms collected, the phenomenon of the wage compression occurs.

The analysis will be performed to observe whether the incidence of the cost of labour, incurred by the criminal firms, on the total revenues, is lower than the same ratio measured for the non-criminal firms, as it would be logical to expect by reading the theories reported.

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<sup>121</sup> *Ibid.*

<sup>122</sup> *Ibid.*

<sup>123</sup> Santino U. and La Fiura G., *L'impresa mafiosa. Dall'Italia agli Stati Uniti*, Franco Angeli, Milano, 1990.

<sup>124</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

The value observed is not the absolute cost of personnel, due to the fact that it could be influenced by many factors whose data are not available, as the number of employees or their level of specialization; instead it will be used the labour-to-revenue ratio, a financial analysis tool that compares the amount of money a company spends on its employees to the amount of money it makes as revenues.

### **2.3.3 The availability of financial resources**

The third advantage of the criminal firms is represented by the higher availability of financial resources that these entities hold with respect to non-criminal ones.

According to Arlacchi, the criminal entrepreneurs have the possibility to invest more in the market thanks to the higher resources coming from the management of the illegal activities and by other criminal actions undertaken in the territory<sup>125</sup>.

However, the mafia organizations have not always had the huge financial resources as estimated nowadays<sup>126</sup>. One of the ways through which the mafia organizations, especially during the 1970s, accumulated financial resources was the phenomenon of the kidnappings of parents and relatives of rich entrepreneurs and professionals in the North of Italy; one of the most relevant case was the kidnapping of John Paul Getty III, son of the rich oil manager John Paul Getty II, from which the 'Ndrangheta asked a redemption of 1 bln of lire<sup>127</sup>, used to acquire the trucks necessary for the monopoly of the works started for the construction of the industrial port of Gioia Tauro, in the province of Reggio Calabria, among other things<sup>128</sup>.

Fantò focuses on the phenomenon of the money laundering, extremely important for the concealment of the capitals obtained from the illegal activities, by identifying it as one of the key element of identification and advantage of the criminal companies, that succeed to gather more financial resources and to avoid problems of liquidity:<sup>129</sup> legal and illegal activities are therefore closely intertwined within criminal firms as the legal activities mostly serve to launder profits stemming from illegal ones.

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<sup>125</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell'Inferno*, Il Saggiatore p.111.

<sup>126</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

<sup>127</sup> In the 1973, 1 bln of lire worth, more or less, € 7.1 M of today (<https://inflationhistory.com/>).

<sup>128</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell'Inferno*, Il Saggiatore p.99.

<sup>129</sup> Fantò E. (1999), *L'impresa a partecipazione mafiosa: economia legale ed economia criminale*, Dedalo editore.

Some years before, it was Sciarrone that referred to the twofold use of the criminal firms by the mafia organization as instrumental to the money laundering (“screen firms”<sup>130</sup>, as previously reported) as well as a way to control the territory and its economic activities, highlighting the centrality of the huge availability of financial resources in achieving these goals.

Moreover, the higher availability of the financial resources has the consequence to allow the criminal firms to reduce the recourse of the indebtedness, due to the possibility to invest in the firms through equity. Indeed, the recent analysis performed by the Italian Ministry of the Interior has been shown that the criminal firms, on average, are financed mostly by equity<sup>131</sup>. In addition, the higher availability of financial resources is used even to fuel the phenomenon of the usury, especially in the last years subsequent the crisis occurred in the 2008, when the recourse to the financing from financial institutions has become more difficult to achieve for the legal firms. In these conditions, the lawful entrepreneurs have more often decided to recur to the mafia organizations to solve the lack of liquidity, although the interests asked is much higher than the ones asked in the market, feeding the phenomenon of the so-called “credito mafioso”.<sup>132</sup>

However, this dynamic, examined by Sciarrone more than 10 years before the financial crisis of the 2008, proves that this feature is not contingent to the economic situation, although the crisis has increased the number of cases observed<sup>133</sup>.

Nevertheless, more recent studies, conducted to empirically prove the existence of this advantage, have not confirmed the higher availability of cash by the criminal firms: among them, a recent study (Bianchi, Marra, Masciandaro and Pecchiari, 2017) has empirically shown that the economic consequences of the presence of the organized crime on private firms are both a lower level of profitability and a lower level of cash holdings, providing the explanation according to which the criminal firms are used by the mafia organizations mainly for money laundering purposes; moreover, the low level of cash is useful to reduce the risk of detection.<sup>134</sup>

Although the study on the level of profitability and cash availability is statistically significant, it has been conducted on firms operating solely in the province of Milano; therefore, it is

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<sup>130</sup> Fantò E. (1999), *L'impresa a partecipazione mafiosa: economia legale ed economia criminale*, Dedalo editore.

<sup>131</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>132</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34, p. 113.

<sup>133</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>134</sup> Bianchi Pietro A., Marra A., Masciandaro D., Pecchiari N., (2017), “Is It Worth Having the Sopranos on Board? Corporate Governance Pollution and Organized Crime: the Case of Italy”, Bocconi Legal Studies Research Paper No. 2017-59.

interesting to reperform the analysis with a sample of firms collected all across the Country, both in the North and in the South, to see whether the phenomenon observed is limited just to one single region or otherwise is widespread across the Country.

In the lights of the considerations made, the hypothesis that this dissertation proposes to verify is whether, in the sample of firms considered, there is evidence of a higher level of financial resources on the total assets reported in the balance sheet of the criminal companies with respect to the liquidity held by the non-criminal ones.



# Chapter 3

## Analysis of the characteristics of the criminal firms

### 3.1 Framework for the analysis

The purpose of this chapter is to summarize the theoretical concepts illustrated in the previous paragraphs and to provide an analytical framework useful for the analysis of the characteristics of the criminal firms.

Therefore, the work will be oriented to analyse and test whether the companies that have been processed due to their affiliation with a mafia-type organization:<sup>135</sup>

- A) pay a lower cost of personnel with respect to the non-criminal firms, in relation to the amount of operating turnover realized; the cost of the labour considered includes both the remuneration due to the workers in terms of salaries and other benefits, the social security contributions due to the public authorities and the severance costs charged to the income statement (i.e. the line B-9 of the income statement under the Italian GAAP);
- B) possess or not a higher availability of financial resources, in terms of cash and cash equivalents, with respect to the non-criminal firms (i.e. the line C- III and C – IV of the balance sheet under the Italian GAAP).

### 3.2 Outline of the analysis

The analysis takes into consideration a number of firms that have at least one director connected with a mafia-type organization, who sit on board of the firm, or represents the relevant shareholder of the company.

For the sake of this dissertation, a criminal firm is defined as such if:

- it has been seized or confiscated by the Italian authorities due to its connections with a mafia-type organization;
- a person arrested and condemned due to mafia-type crimes committed is one of the board member of the company;

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<sup>135</sup> Talamo G. (2008), *A recent Analysis of the mafia assets*, Online at <https://mpa.ub.unimuenchen.de/35855/MPRA Paper No. 35855>, posted 17. January 2012.

- a person arrested and condemned due to mafia-type crimes committed is a shareholder and own at least the 10% of the shareholders capital<sup>136</sup>.

The identification of the criminal firms connected with the criminal organizations is disciplined by the Art. 416 bis of the Italian Penal Code, the so-called “Legge Rognoni – La Torre”, that explicitly rule the crimes linked to the mafia.

According to this Article, the Mafia-type organizations are those groups whose “participants take advantage of the intimidating power of the association and of the resulting conditions of submission and silence to commit criminal offences, to manage or at all events control, either directly or indirectly, economic activities, concessions, authorizations, public contracts and services, or to obtain unlawful profits or advantages for themselves or for others”.<sup>137</sup>

This dissertation represents a continuation of the work on the collection of data of the criminal firms operating in Italy initiated by Alberti<sup>138</sup>, who used information relative to processes active on the Court of Milan for the years 2000-2015 in order to study the possible law enforcement activities against the mafia’s infiltrations in the economy of the North of Italy.

Part of the database used for the analysis is the result of the work made by researchers of the University of Padova who have collected data on police investigations occurred in the Centre-North of Italy in a period between the years 2005 and 2014<sup>139</sup>.

This dataset has been integrated with further observations from investigations occurred in the Southern of Italy, especially in the Calabria region, where the degree of mafia infiltration is the highest of Italy<sup>140</sup>. Although the investigation occurred in Calabria, the criminal firms identified are based in almost all the Italian regions, highlighting the high degree of infiltration of the ‘Ndrangheta, the mafia-type organization which the investigations mainly refer to<sup>141</sup>.

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<sup>136</sup> Parbonetti A., Fabrizi M., Malaspina P., (2017), *Caratteristiche e Modalità di Gestione delle Aziende Criminali*, Rivista di Studi e Ricerche sulla Criminalità Organizzata, Osservatorio sulla Criminalità Organizzata dell'Università degli Studi di Milano, Cross Vol.3 N°1.

<sup>137</sup> Legge 13 settembre 1982, n.646 *Disposizioni in materia di prevenzione di carattere patrimoniale ed integrazione alle leggi 27 dicembre 1956, n.1423, 10 febbraio 1962, n.57 e 31 maggio 1965, n. 575.*

<sup>138</sup> Alberti A., (2016), *L’espansione della Criminalità Organizzata nell’Attività di Impresa al Nord: Economia Lecita e Criminalità Organizzata a Milano dal 2000 al 2015*, Osservatorio sulla Criminalità Organizzata, Vol. 2, N.4.

<sup>139</sup> Parbonetti A., Fabrizi M., Malaspina P., (2017), *Caratteristiche e Modalità di Gestione delle Aziende Criminali*, Rivista di Studi e Ricerche sulla Criminalità Organizzata, Osservatorio sulla Criminalità Organizzata dell'Università degli Studi di Milano, Cross Vol.3 N°1.

<sup>140</sup> Gratteri N., Nicaso A., (2009), *Fratelli di Sangue*, Strade Blu.

<sup>141</sup> *Ibid.*



The steps followed by the study of the University of Padova are:

- identification of the investigations through the reports of the Italian Antimafia Parliamentary Commission, websites and newspapers;
- elimination of the operations for which the judicial sentences (of first instance) were not available yet;
- obtainment of the personal data of the arrested individuals, the company name and the address of the legal establishment of the seized companies from the official documents related to the ordinances of precautionary detention;
- elimination of the individuals judged as innocents whose firm has been released;
- verification of the infiltrations by the individuals on legal firms, by using the database “Telemaco” of the Italian Chambers of Commerce.<sup>142</sup>

The analysis has been performed on 728 firms, observed for a period of years that range from the 2005 to the 2015 (for the South, the analysis does not consider the years 2005 and 2006 because of the unavailability of the data), for a number of observations equal to 2,865.

The criminal firms have been considered as such if:

- have been constituted by the mafia-type organization to serve its illegal activities and to pursue its illegal objectives; in there, there are members of the organization who compare as shareholders or as directors;
- have been infiltrated, wholly or in part, by a mafia-type organization through the acquisition of shares (or quotes) by the infiltrates or through the nomination of members of the criminal group as managers.<sup>143</sup>

The analysis of the financial statements has been conducted on the data collected on the criminal companies both via “Telemaco”, “AIDA”, a data provider that contains the financial statements of Italian firms established as “Società a responsabilità Limitata” (i.e. S.r.l.), “Società per Azioni” (i.e. S.p.A.) and “Società in Accomandita per Azioni” (i.e. S.a.p.A.) and “AMADEUS”, a database that contains data of the financial statements of European Companies with a turnover of at least € 10.0 M.

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<sup>142</sup> Parbonetti A., Fabrizi M., Malaspina P., (2017), *Caratteristiche e Modalità di Gestione delle Aziende Criminali*, Rivista di Studi e Ricerche sulla Criminalità Organizza, Osservatorio sulla Criminalità Organizzata dell'Università degli Studi di Milano, Cross Vol.3 N°1.

<sup>143</sup> *Ibid.*

### 3.2.1. Criminal firms by regions

The criminal firms analysed are established in all the Italian regions, with the exceptions of Valle d'Aosta, Marche and Molise. This is due not to the immunity of these regions to the mafia infiltrations (there is no one single region that is not interested by such phenomenon<sup>144</sup>), but to the fact that:

- many police investigations are still opened, so the data are not available yet;
- there are objective difficulties in conducting the investigations due to the ability of the criminal groups to hide themselves behind the mask of the legality and to the high degree of silence still in place among the population.<sup>145</sup>

The control group has been constructed collecting data of firms established in the same geographical territory of the criminal ones, in the same period of time and that operate in the same business sector, according to the Ateco Code.

As far as concerned the non-criminal firms of the Southern of Italy, the control group is constituted by all the firms established in Calabria whose financial statements have been deposited in the local Chamber of Commerce in the period 2007-2015, that corresponds to the timeframe used for the collection of data for the criminal firms located in the same area.

The majority of the criminal firms observed are located in Lombardia, Lazio, Veneto, Emilia-Romagna and Calabria, as reported in the Figures below.

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<sup>144</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>145</sup> Gratteri Gratteri N., Nicaso A., (2009), *Fratelli di Sangue*, Strade Blu.

	<b>Criminal firms</b>	
<b>Region</b>	<b>Firms</b>	<b>Observations</b>
Piemonte	87	344
Liguria	20	71
Lombardia	251	912
Triveneto	113	477
Emilia-Romagna	63	225
Toscana	28	117
Umbria	2	6
Marche	0	0
Lazio	109	517
Abruzzo	8	28
Campania	4	16
Puglia	8	17
Calabria	29	126
Sicilia	4	5
Sardegna	2	4
<b>TOTAL</b>	<b>728</b>	<b>2865</b>

Figure 3.1 (a) - Criminal firms by regions

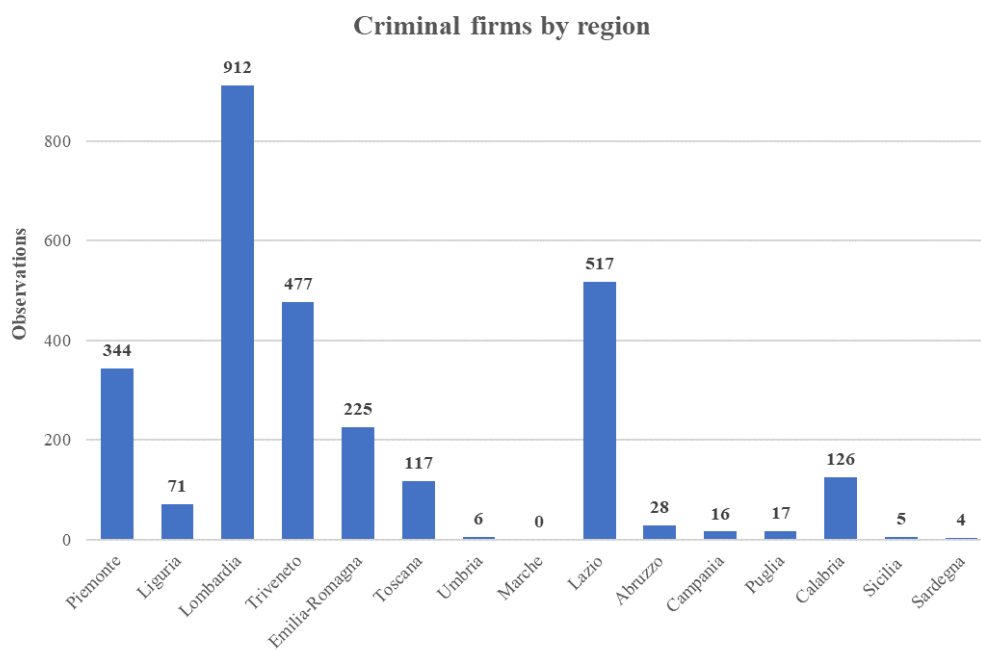


Figure 3.1 (b) - Criminal firms by regions

### 3.2.2. Criminal firms by industry

The Figures 3.2 (a) and (b) provide a list of the business sectors where the criminal firms are present the most.

As it is possible to see, the criminal firms operate mainly in the building and construction industry, in the real estate activities (i.e. the activities related to the trade of houses, renting and intermediation between the constructor and the potential acquirer of the house, etc.) and wholesale and retail activities; all these sectors have in common a low level of specialization, a low degree of openness to foreign markets, the low level of public regulations and the high presence of public resources and founding, in terms of public contracts and contract tenders for the realizations of public infrastructures.<sup>146</sup>

Therefore, the data confirms the results of the analysis conducted by the Ministry of Interior to study the sectors where the mafia-type organizations are present and invest the most.<sup>147</sup>

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<sup>146</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

<sup>147</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<b>Code</b>	<b>Description</b>	<b>Observations</b>
18	Printing and reproduction of recording media	10
23	Manufacture of other non-metallic mineral products	13
25	Manufacture of fabricated metal products, except machinery and equipment	35
28	Manufacture of machinery and equipment	20
30	Manufacture of other transport equipment	14
35	Electricity, gas, steam and air conditioning supply	32
38	Waste collection, treatment and disposal activities	81
41	Building construction	413
42	Civil engineering	12
43	Specialised construction activities	70
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	48
46	Wholesale trade, except of motor vehicles and motorcycles	122
47	Retail trade, except for motor vehicles and motorcycles	39
49	Land transport and transport via pipelines	68
52	Warehousing and support activities for transportation	18
56	Restaurant and catering services	62
58	Publishing activities	17
64	Other financial services, except insurance and pension funding	40
66	Activities auxiliary to financial services and insurance activities	14
68	Real estate activities	511
70	Business and management consulting services	100
71	Architecture and engineering activities	50
72	Scientific research and development	12
73	Advertising and market research	20
77	Rental and leasing activities	12
81	Services to buildings and landscape activities	17
82	Office administrative, office support and other business support activities	55
92	Gambling and betting activities	24
93	Sports activities and amusement and recreation activities	35
96	Personal care services	25

*Figure 3.2 (a) – Criminal firms by sectors (Ateco Code)*



*Figure 3.2 (b) – Criminal firms by sectors (Ateco Code)*

The figure 3.3 below represents a summary of all the firms analysed and the related observations, clustered on the base of the geographical area of establishment, distinguishing the criminal and the non-criminal ones.

AREA	NUMBER OF FIRMS	NUMBER OF OBSERVATIONS
South	54	197
of which Calabria	29	126
Centre-North	673	2,668
<b>Criminal firms</b>	<b>728</b>	<b>2,865</b>
South	22,978	181,446
of which Calabria	22,978	181,446
Centre-North	145,184	1,078,122
<b>Non-criminal firms</b>	<b>168,162</b>	<b>1,259,568</b>

*Table 3.3 - Criminal and non-criminal firms by area*

### 3.2.3 Criminal firms by year period

The data on the financial statements of the criminal firms collected refer to the period 2005 – 2015 for those firms established in the Centre-North, and 2007 – 2015 for those in the South of Italy.

The figure 3.4 provides a clustering of the criminal firms and related observations collected by years, dividing the criminal firms (left side) from the non-criminal ones (right side).

Year	Criminal firms		Non-criminal firms	
	Firms	Observations	Firms	Observations
2005	286	289	58,212	58,224
2006	75	310	13,227	67,259
2007	128	396	33,804	100,967
2008	102	450	18,118	128,943
2009	41	399	10,386	120,560
2010	40	355	9,779	137,786
2011	27	285	7,934	132,687
2012	14	213	4,546	107,507
2013	9	125	2,804	105,690
2014	4	28	946	131,772
2015	2	15	878	168,173
<b>Total</b>	<b>728</b>	<b>2,865</b>	<b>160,634</b>	<b>1,259,568</b>

Table 3.4 – Criminal and non-criminal firms by year

### 3.3 Descriptive statistics

The classification of the criminal firms by industry, by region and by year period is useful to isolate the differences existing between the heterogeneous economic and financial data registered for the companies observed.

In the following sections will be reported some descriptive statistics of the sample of criminal firms used for the analysis, with a distinction of the differences existing between the characteristics of the criminal firms and those of the non-criminal ones (3.3.1); then, the analysis will be focused on the differences between the characteristics of the entities operating in the Centre-North infiltrated by the mafia organizations and those operating in the South (3.3.2), in order to verify whether or not there are significant changes on the *modus operandi* with subsequent impacts in the financial statements among the two parts of Italy.

### 3.3.1 Criminal and non-criminal firms

Total assets - € 000							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,865	859.30	12,225.96	1,783.93	95,519.54	8,728.04	15,723.88
Non-Criminal	1,080,946	529.18	3,663.98	78.11	81,213.51	3,510.88	3,817.08
	1,083,811						
	<b>Difference in mean</b>	=	8,561.98				
	<b>t</b>	= -	5.63				
	<b>P ( T  &gt;  t )</b>	=	0.0000***				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.5 – Total assets of criminal and non-criminal firms

The figure 3.5 shows that the criminal firms analysed, without distinction between those operating in the North and those in the South, have, on average, a higher amount of capital invested than the non-criminal ones. This result is also confirmed by the median value, that, on the contrary to the mean, is not affected as much by extreme values far from the mean; even that value is significantly higher than the non-criminal ones, confirming the high amount of capital that the mafia organizations invest in the legal economy.

In the table it has been shown the t-test: it has several applications, but for the purpose of this analysis it is used to provide further information on the significance of the mean values obtained.

In particular, it can be used to test the null hypothesis according to which the means of two populations are equal.<sup>148</sup>

In this case, the null hypothesis is that the mean values of the total assets are equal for both criminal companies and non-criminal companies. The analysis has shown that it is possible to reject the null hypothesis with a 5% significance level and conclude that criminal companies, on average, hold more assets than comparable non-criminal companies.

<sup>148</sup> Rice, J. A. (2003). *Mathematical statistics and data analysis*. Beijing: China machine press.



Total revenues - € 000							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,865	356.33	6,372.59	756.14	40,479.81	4,889.96	7,885.21
Non-Criminal	1,080,751	282.00	2,565.32	35.52	36,928.06	2,495.70	2,634.93
	1,083,616						
	<b>Difference in mean</b>	=	3,807.27				
	<b>t</b>	=	-5.10				
	<b>P (  T  &gt;  t  )</b>	=	0.0000***				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.6 – Total revenues of criminal and non-criminal firms

The figure 3.6 report the values of the total revenues of the companies analysed. It is possible to note that the criminal firms, on average, show better economic performances than the non-criminal ones; this result is confirmed by the median, that is higher than the legal firms, although the difference is less pronounced; therefore, the criminal organizations not only invest a considerable amount of resources in the legal economy, but are also capable to generate consistent streams of revenues.

As for the previous case, the analysis of the t-test conducted on the significance of the mean confirms the results obtained. Indeed, with a 5% significant level we can reject the null hypothesis of equality among the means.

EBITDA - € 000							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,865	23.73	742.51	113.94	6,096.39	519.11	965.92
Non-Criminal	1,080,751	22.85	151.57	8.98	8,527.10	133.98	169.17
	1,083,616						
	<b>Difference in mean</b>	=	590.94				
	<b>t</b>	=	-3.70				
	<b>P (  T  &gt;  t  )</b>	=	0.0002***				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.7 – EBITDA of criminal and non-criminal firms

The figure 3.7 represents the EBITDA (Earnings before interests, taxes, amortization and depreciation) of the firms in the sample. It possible to note that, on average, the criminal firms have higher operating margins than the non-criminal ones, even if, by looking at the median value, this difference is sensibly smaller; this is due to the characteristic of the median, less affected by the presence of outliers that increase sensibly the average value.

Considering the difference between the high spread in the total revenues among the two groups and the spread observed in this configuration of operating income, it is possible to conclude that the criminal firms incur, on average, higher operating costs, showing a lower level of efficiency in their cost structure.

A possible explanation can be reconducted to the phenomenon of the ML, according to which the criminal firms records in the income statement costs for services and raw materials that in reality do not occur, to prove the flow of money toward other entities, often controlled by figureheads, that issue false invoices to document the transaction, layering the capitals originated elsewhere.<sup>149</sup>

The t-test performed on the significance on the mean allows to reject the null hypothesis with a less than 1% of significant level.

Assets Turnover ratio - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,865	0.4980	0.8892	0.04	2.08	0.8131	0.9653
Non-Criminal	1,080,751	0.7923	1.1248	0.00	2.73	1.1192	1.1305
	1,083,616						
	<b>Difference in mean</b>	= -	0.24				
	<b>t</b>	=	4.62				
	<b>P (  T  &gt;  t  )</b>	=	0.0000***				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.8 – Asset Turnover ratio of criminal and non-criminal firms

The table 3.8 shows the asset-turnover ratio, an index widely used to measure the efficiency of the company's investments in generating streams of revenues.

Although the higher dimensions, in terms of assets, and the higher bulk of revenues that the criminal firms are able to generate, the index shows that the criminal companies are, on average, less efficient than the others, and that the difference in means is statistically significant.

<sup>149</sup> Financial Action Task Force (2006), *Trade Based Money Laundering*, Paris N.1.

The result seems to confirm the theory according to which the criminal firms, that have been established through the use of violent forms, are penalized by the presence of the same element inside the organization, that represents the source of internal tensions and conflicts that make difficult the management of the company itself, revealing the economic weakness of this form of entrepreneurship with respect to the legal one<sup>150</sup>.

In addition, this output confirms that the objectives to which the criminal firms aim at are manifold, and the succeeding in the market is not the priority, albeit with some exceptions.

Leverage - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,865	0.8381	0.8251	0.01	0.65	0.8002	0.8501
Non-Criminal	1,080,751	0.7583	0.7315	0.00	0.61	0.7302	0.7326
	1,083,616						
	<b>Difference in mean</b>	=	0.09				
	<b>t</b>	=	-7.88				
	<b>P (  T  &gt;  t  )</b>	=	0.0000***				
* p < 0.1; ** p < 0.05; *** p < 0.01							

Table 3.9 – Leverage of criminal and non-criminal firms

The figure 3.9 shows the leverage of the firms observed: the leverage is a measure of the level of indebtedness of the companies with respect to the total sources of financing. From the data it is possible to observe that the criminal firms, on average, have higher leverage than the non-criminal companies, and the result is confirmed even by looking at the median values. Therefore, the outcome seems to deny the assumption according to which the criminal companies use the equity as the main source of funding due to the availability of the proceeds from the management of the illegal activities; on the other side, the numbers lay the emphasis on the pervasiveness of the phenomenon in the economy: the criminal firms, indeed, in this way are potentially subtracting financial resources to the legal companies, especially in a context where these resources are limited<sup>151</sup>.

<sup>150</sup> Fantò E. (1998), *L'impresa mafiosa e la sua crisi*, Fondazione Istituto Gramsci, Anno 39, No. 4, Doppia lealtà e doppio Stato nella storia della Repubblica (Oct. - Dec., 1998), pp. 1095.

<sup>151</sup> Parbonetti A., Fabrizi M., Malaspina P., (2017), *Caratteristiche e Modalità di Gestione delle Aziende Criminali*, Rivista di Studi e Ricerche sulla Criminalità Organizzata, Osservatorio sulla Criminalità Organizzata dell'Università degli Studi di Milano, Cross Vol.3 N°1.

The t-test performed allows to reject the null hypothesis of equality of the means and conclude that criminal companies, on average, have higher level of indebtedness than comparable non-criminal companies.

Cost of debt - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,588	0.0126	0.0592	0.02	1.06	0.0182	0.1000
Non-Criminal	984	0.0139	0.0932	0.00	2.94	0.0900	0.0990
	1,604						
	<b>Difference in mean</b>	= -	0.03				
	<b>t</b>	=	0.59				
	<b>P (  T  &gt;  t  )</b>	=	0.5540				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.10 – Cost of debt for criminal and non-criminal firms

After the analysis on the leverage, the focus is on the cost of the debt; at first sight, as shown in the figure 3.8, the criminal companies, on average, pay a lower rate on the sources of funding borrowed from outside, and this data is confirmed even by the median value. However, there is no statistical significance to reject the null hypothesis of the t-test, therefore it is not possible to conclude that the criminal companies pay less financial interests than non-criminal firms.

### 3.3.1 Criminal firms in the Centre-North and criminal firms in the South

While in the previous paragraph it has been conducted a description of the characteristics of the sample of criminal and non-criminal firms, pointing out the main differences between the two groups, in this section will be reported the same dimensions to verify the existence or not of significative differences between the criminal firms operating in the Centre-North of Italy and those operating in the Southern of the Country.

The aim is to verify whether the criminal organizations adopt different strategies based on the place of establishment, considering their characteristic of flexible organizational structure and perfect adaptation to the local economic context, especially as far as concerned the ‘Ndrangheta.

Total assets - € 000							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Centre-North	197	881.57	12,538.20	1,908.14	98,615.92	8,796.62	16,279.78
South	2,668	649.48	7,970.87	2,167.18	30,340.53	3,696.75	12,244.99
	2,865						
	<b>Difference in mean</b>	=	4,567.33				
	<b>t</b>	= -	0.65				
	<b>P (  T  &gt;  t  )</b>	=	0.5183				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.11 – Total assets of criminal firms by area

The figure 3.11 shows the dimension, in terms of total assets, of the criminal firms in the Centre-North with respect to those in the Southern of Italy.

On average, the formers have a larger size with respect to the latter; however, the result of the t-test performed does not allow to reject the null hypothesis according to which the two means are equal for the two groups of companies, since the  $P ( |T| > |t| )$  is not lower than the threshold of the 5% significance level.

Total revenues - € 000							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Centre-North	197	268.09	6,085.69	746.18	38,563.77	4,622.54	7,548.83
South	2,668	182.37	2,094.28	341.20	4,764.64	1,421.34	2,767.23
	2,865						
	<b>Difference in mean</b>	=	3,991.41				
	<b>t</b>	=	-1.44				
	<b>P (  T  &gt;  t  )</b>	=	0.1488				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.12 – Total revenues of criminal firms by area

From the table 3.12 it is possible to note similar considerations made for the total capital invested: indeed, although the criminal firms operating in the Centre-North show, on average, better economic performances in terms of revenues generated, the difference between the two means are not sufficiently significant to reject the null hypothesis.

However, from the observation of the median, it is possible to note how the sample analysed differ both in terms of capital invested and revenues: in the South of Italy the amount of resources managed by the criminal organizations and represented in the financial statement are smaller than those moved in the Centre-North of the Country.

Similar considerations can be made for the EBITDA of the two groups observed.

On one side, the median value of the frequency distribution of the EBITDA capture that difference, that can be explained, as for the difference between criminal and non-criminal firms, by the lower efficiency of the criminal firms in the South.

On the one side, however, there is no statistical significance to state that the two means are different and to reject the null hypothesis: therefore, it is not possible to state with an acceptable significance level that the criminal companies operating in the Centre-North have higher operating margins with respect to those in the South. This is confirmed by the EBITDA margin (i.e. the ratio between the EBITDA and the total revenues) that is lower for the firms operating in the Centre-North of Italy (median values: 6.37% for firms in the Centre-North; 9.09% for those in the South).

The table 3.13 summarizes the considerations made for the EBITDA.

<b>EBITDA - € 000</b>							
<b>Group</b>	<b>Obs</b>	<b>Median</b>	<b>Mean</b>	<b>Std. Err.</b>	<b>Std. Dev.</b>	<b>[95% Conf. Interval]</b>	
Centre-North	197	23.99	755.98	121.18	6,259.04	518.37	993.59
South	2,668	18.25	558.21	222.96	3,113.51	118.47	997.95
	2,865						
	<b>Difference in mean</b>	=	197.77				
	<b>t</b>	=	-0.44				
	<b>P (  T  &gt;  t  )</b>	=	0.6620				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.13 – EBITDA of criminal firms by area

Assets Turnover ratio - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Centre-North	197	0.5155	0.9035	0.04	2.12	0.8226	0.9843
South	2,668	0.3421	0.6926	0.08	1.09	0.5384	0.8469
	2,865						
	<b>Difference in mean</b>	=	0.21				
	<b>t</b>	=	-1.36				
	<b>P (  T  &gt;  t  )</b>	=	0.1731				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.14 – Asset Turnover ratio of criminal firms by area

The table 3.14 reports the asset turnover ratio observed for the two groups: the p-test does not allow to reject the hypothesis of equality of the two means, but the median values are indicative of the lower efficiency of the criminal firms operating the South.

Leverage - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Centre-North	197	0.8440	1.6224	0.23	11.42	1.1682	2.0765
South	2,668	0.7535	0.7989	0.06	0.78	0.6883	0.9095
	2,865						
	<b>Difference in mean</b>	=	0.82				
	<b>t</b>	=	-1.00				
	<b>P (  T  &gt;  t  )</b>	=	0.3165				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.15 – Leverage of criminal firms by area

As far as concerned the structure of the sources of funding, the table 3.15 provides useful insights: indeed, although the t-test performed highlights that there is not sufficient significance to reject the null hypothesis of no difference between means, the median value of the distribution observed shows that the criminal firms operating in the South of Italy have more equity than those in the Centre-North, albeit the majority of the funds raised come from the indebtedness.

A possible explanation is that the mafia organizations, that in the South are longer established and where are more radicalized in the economic fabric, decide to adopt a different *modus*

*operandi* with respect to the one used in the Centre-North. Although the phenomenon of the money laundering of the proceeds of their illegal activities is widespread across the whole Country, in the South it is more evident <sup>152</sup>.

Cost of debt - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Centre-North	197	0.0131	0.0226	0.00	0.04	0.0209	0.0242
South	2,391	0.0076	0.0148	0.00	0.02	0.0116	0.0179
	2,588						
	<b>Difference in mean</b>	=	0.0078				
	<b>t</b>	=	-2.67				
	<b>P (  T  &gt;  t  )</b>	=	0.0077***				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.16 – Cost of indebtedness for criminal firms by area

The table 3.16 shows the cost of debt for the two groups. It is possible to observe that here the t-test performed on the difference between the two means allows to reject the null hypothesis with a 1% significance level and conclude that criminal companies established in the Centre-North of Italy pay, on average, lower cost on the debt than those established in the South of Italy.

The economic implications are particularly important if we consider that the median of the cost of debt of the non-criminal firms established in the Southern Italy is around the 10.53%, while the rate paid by the criminal companies in the same area is much lower, as shown in the above table.

Thus, the criminal firms not only can use the huge amount of resources coming from the illegal activities, but, by using mostly sources in the form of debt, subtract further resources to the legal economy, especially considering a situation in which it is more difficult and costly to borrow sources of financing.

<sup>152</sup> Savona E. U., Riccardi M., (eds), (2017), Assessing the risk of money laundering in Europe. Final Report of Project IARM ([www.transcrime.it/iarm](http://www.transcrime.it/iarm)). Milano: Transcrime – Università Cattolica del Sacro Cuore.



In addition, the much lower cost can be interpreted as a flag of the phenomenon of corruption that interests the public and financial institutions, many times infiltrated by the mafia organizations or colluded with them<sup>153</sup>.

To sum up, in general terms the criminal firms observed are larger and generate higher bulks of revenues than the non-criminal ones, and this phenomenon is particularly evident in the Northern of Italy. However, the criminal companies are more inefficient, as shown by the lower value of the asset turnover ratio, as well as by higher incidence of the operating costs on the revenues generated, observed both in the Centre-North and in the South of the Country.

By looking at the funds used to finance the investments, it is notable the prevalence of the recourse to the indebtedness, and the phenomenon is particularly evident in the North, where the incidence of the debt on the total sources of funding is higher than the 84%.

In the South, instead, considering both the lower dimensions of the firms observed and the higher incidence of equity, it is possible to infer that the phenomenon of the money laundering, that is present the most in these regions (Calabria, Sicilia and Campania)<sup>154</sup>, is used through the constitution of many front business activities, as bars, restaurants and hotels, where the cash intensiveness of the industry and the facility to mix the legal with illegal proceeds in this kind of activities allow to better avoid the controls of the judicial authorities.

### **3.4 Statistical analysis**

After the description of the criminal firms presented in the previous paragraph, in this section it will be presented the analysis performed to verify the existence of the competitive advantages of the criminal firms in the markets where they operate.

As far as concerned the first competitive advantage, it is materially difficult to verify the discouragement of the market concurrence undertaken by the criminal firms with the data available, because of the nature of the phenomenon and due to the fact that these actions do not find a representation in the financial statements.

However, according to this dissertation it is fundamental the comprehension of the importance of the discouragement of the concurrence to understand the *modus operandi* of the criminal firms, and more in general of the mafia organizations which ultimately control them.

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<sup>153</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>154</sup> Savona E. U., Riccardi M., (eds), (2017), *Assessing the risk of money laundering in Europe. Final Report of Project IARM* ([www.transcrime.it/iarm](http://www.transcrime.it/iarm)). Milano: Transcrime – Università Cattolica del Sacro Cuore.

For this reason, the analysis that will be shown are focused on the testing of the other two competitive advantages theorized:

- I) the wage compression, thus the expected lower incidence of the cost of labour, intended as the sum of all its components, on the total revenues reported in the income statement;
- II) the higher availability of financial resources, intended as the expected higher incidence of the cash and cash equivalents on the total assets of the firm, as reported in the balance sheet.

The analysis will be performed with the use of a statistic technique: the multivariate linear regression (MLR).

Multivariate linear regression (MLR) is a statistical technique that uses several explanatory variables to predict the outcome of a set of response variables. The objective of multivariate linear regression is to model the relationship between the explanatory and response variables.

In the following paragraphs it will be presented the results of the analysis.

### 3.4.1 Preliminary considerations

The first step is a preliminary analysis of the items to be tested, performed with the use of a the very basic statistics tools, as the mean, median and standard deviation of the distribution, in order to provide some first considerations. Moreover, it will be performed a t-test to verify the significance of the difference in means between the criminal firms and the control group.

Personnel cost / Total revenues - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,865	0.0709	8.1314	5.43	268.59	-	2.5093 18.7722
Non-Criminal	1,080,751	0.0747	5.7336	0.44	399.55		4.8758 6.5900
	1,083,616						
	<b>Difference in mean</b>	= -	2.40				
	<b>t</b>	=	-0.30				
	<b>P (  T  &gt;  t  )</b>	=	0.7666				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.17 – Incidence of the personnel cost on the total revenues for criminal and non-criminal firms

As shown in the table 3.17, the criminal firms shown, on average, an higher incidence of the cost of personnel on the total revenues than the non-criminal ones. However:

- the t-test conducted on the difference between the two means is not significative, thus it is not possible to reject the null hypothesis of equality among the two means with a sufficient level of significance;
- the median value, not affected by the presence of some outliers, provides a different scenario, in which the incidence of the personnel cost on the total revenues is lower for the criminal firms than the control group.

For this reason, it is useful to winsorise the variable for the 1% and check whether the results found are mainly due to the presence of outliers.

Winsorization is a method of averaging that initially replaces the smallest and largest values with the observations closest to them. This is done to limit the effect of abnormal extreme values, or outliers, on the calculation<sup>155</sup>. The advantage of the use of the winsorization is that it can lead to a considerable increase of the efficiency of estimators and tests.<sup>156</sup>

Personnel cost / Total revenues - %							
Group	Obs	Median	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
Criminal	2,865	0.0709	0.1667	0.00	0.24	0.1573	0.1762
Non-Criminal	1,080,751	0.0747	0.1640	0.00	0.26	0.1632	0.1643
	1,083,616						
	<b>Difference in mean</b>	= -	0.0027				
	<b>t</b>	=	-0.01				
	<b>P (  T  &gt;  t  )</b>	=	0.5660				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.18 – Incidence of the personnel cost on the total revenues for criminal and non-criminal firms, after winsorization

The table 3.18 shows that the incidence of the personnel cost on the total revenues, after the winsorization. However, some considerations are needed:

- the mean values observed after winsorization are far from the values observed in the previous table, demonstrating the presence of few outliers that impacted on the distribution;

<sup>155</sup> <https://www.investopedia.com>.

Ruppert, D. (2004). Trimming and winsorization. *Encyclopedia of statistical sciences*, 14.

<sup>156</sup> *Ibid.*

- after the winsorization the mean value is much closer to the median one, albeit showing a slightly different outcome: indeed, by looking at the means, it is notable that, on average, the criminal firms have a higher incidence of the cost of labour on their turnover;
- the t-test performed, however, does not provide a good significance level to reject the null hypothesis of equality among the two means.

Therefore, according to the results of this preliminary analysis, it is not possible to state that the criminal firms have higher or lower incidence of the cost of labour on the total revenues than the non-criminal ones, albeit the distribution of the sample shows that the second case is more frequent than the first.

<b>Liquidity / Total assets - %</b>							
<b>Group</b>	<b>Obs</b>	<b>Median</b>	<b>Mean</b>	<b>Std. Err.</b>	<b>Std. Dev.</b>	<b>[95% Conf. Interval]</b>	
Criminal	2,865	0.0222	0.1048	0.00	0.22	0.0968	0.1127
Non-Criminal	1,080,751	0.0395	0.7424	0.01	11.29	0.7191	0.7657
	1,083,616						
	<b>Difference in mean</b>	=	0.64				
	<b>t</b>	=	3.02				
	<b>P (  T  &gt;  t  )</b>	=	0.0025***				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.19 – Incidence of the liquidity on the total assets for criminal and non-criminal firms

As far as concerned the incidence of the liquidity on the total assets, it is possible to observe that, at first sight, the criminal firms have a lower incidence than the non-criminal ones. Moreover, the t-test performed shows that the result is significant at 1% level, so it is possible to reject the null hypothesis of equality among the two means.

By looking at the median, the result has similar outcomes, thus it is not influenced by the presence of outliers.

However, for sake of consistency<sup>157</sup>, below are presented the results obtained after the winsorization of the variable for the 1%.

<sup>157</sup> Ruppert, D. (2004). Trimming and winsorization. *Encyclopedia of statistical sciences*, 14.

<b>Liquidity / Total assets - %</b>							
<b>Group</b>	<b>Obs</b>	<b>Median</b>	<b>Mean</b>	<b>Std. Err.</b>	<b>Std. Dev.</b>	<b>[95% Conf. Interval]</b>	
Criminal	2,865	0.0222	0.1082	0.00	0.20	0.1007	0.1157
Non-Criminal	1,080,751	0.0395	0.1309	0.00	0.21	0.1305	0.1313
	1,083,616						
	<b>Difference in mean</b>	=	0.0038				
	<b>t</b>	=	5.89				
	<b>P ( T  &gt;  t )</b>	=	0.0000***				
* p < 0.1; ** p<0.05; *** p<0.01							

Table 3.20 – Incidence of the liquidity on the total assets for criminal and non-criminal firms, after winsorization

As it is possible to observe, the results are quite similar to the ones obtained after the winsorization, confirming that, on average, the criminal firms have a lower amount of cash and cash equivalent in their balance sheet than the control group.

However, the results obtained consider only the relation between the dependent variables (i.e. Incidence of personnel cost on total revenues and the incidence of the liquidity on the total assets) and the dummy variable indicating whether or not the firm is a criminal one, but they do not provide any indication on the effect that the affiliation to a mafia organization has with respect to the dependent variables to analyse.

Therefore, it is necessary to develop a model that takes into account other factors that may have an impact on the values taken either by the dependent variable or the independent variables.

The following list reports the control variables that will be used in the multivariate regression analysis.

- **SIZE\_w**: the first control variable represents the size of the firm analysed and it is expressed in terms of the logarithm of the total assets: it is expected to have an influence both on the choices related to the management of the liquidity and on those related to the workforce to employ in the organization;
- **ROE\_w**: the second control variable is the ROE (i.e. return on equity), a measure of the financial performance calculated by dividing the net income by the shareholder's equity, that is expected to positively influence the liquidity of the firm;
- **LEVERAGE\_w**: this third control variable represents the rate of indebtedness over the total assets; it is expected to positively influence the incidence of the cost of personnel

when the level reaches a very high value, as is for the criminal firms, due to the burden of debt that can lead to worse the economic performances expressed by the total revenues.

- NETSALES\_w: the last control variable represents the net sales of the company: better economic performances should lower the incidence of the cost of labour on the total revenues and increase the level of liquidity.

The control variables listed, that are used in the multivariate regression model, are described in the table below.

Variable	Observations	Mean	St. Deviation	Percentile_25	Percentile_50	Percentile_75
SIZE_w	1,080,616	3,686.63	81,255.81	171.28	529.81	1,665.00
ROE_w	1,080,616	0.4731	361.3100	-0.0454	0.0364	0.2069
LEVERAGE_w	1,080,616	9.4835	1161.5000	0.4687	0.7481	0.9147
NETSALES_w	1,080,616	2,455.99	35,282.08	37.76	247.48	927.79

Table 3.18 – Control variables used in the multivariate analysis

In order to understand the strength and direction of the relationship between the variables of the model, it is possible to use a correlation matrix.

It is a table showing correlation coefficients between sets of variables, other than the significance of the correlation, expressed by a star (\*).

	INC_LABOUR_w	CASH_ASSETS_w	CRIMINAL	SIZE_w	ROE_w	LEVERAGE_w	NETSALES_w
INC_LABOUR_w	1.0000						
CASH_ASSETS_w	0.1583*	1.0000					
CRIMINAL	0.0006	-0.0062*	1.0000				
SIZE_w	-0.1188*	-0.3679*	0.0151*	1.0000			
ROE_w	0.0094*	0.0506*	0.0012	-0.0202*	1.0000		
LEVERAGE_w	0.2335*	0.2703*	-0.0018	-0.3142*	0.0378*	1.0000	
NETSALES_w	-0.0171*	-0.1283*	0.0166*	0.6412*	0.0161*	-0.1260*	1.0000
* p < 0.5							

Table 3.19 – Control variables used in the multivariate analysis

From the correlation matrix it is possible to note that:

- the dummy variable “Criminal” is negatively and significantly correlated with the incidence of the liquidity on the total assets (CASH\_ASSETS\_w) and positively,

although not significantly, correlated with the incidence of the personnel cost on the total revenues; in addition, it is significantly and positively correlated with the total assets (SIZE\_w) and the total revenues (NETSALES\_w) and even with the ROE (ROE\_w), while is negatively correlated with the leverage, albeit not significantly;

- the incidence of labour is significantly and positively correlated with the liquidity managed by the firm (CASH\_ASSETS\_w), with the profitability of the firm (ROE\_w) and with the level of indebtedness (LEVERAGE\_w); on the other side it is negatively and significantly correlated with the net sales (NETSALES\_w) and with the total capital invested (SIZE\_w);
- the incidence of liquidity over the total assets is positively and significantly correlated with the level of profitability (ROE\_w) and with the level of indebtedness of the firm (LEVERAGE\_w), while is negatively and significantly correlated with the capital invested (SIZE\_w) and with the operating turnover of the firms (NETSALES\_w).

### 3.4.2 Analysis on the competitive advantages

#### 3.4.2.1 Wage compression

The first multivariate regression performed is to test whether in the criminal firms there is a higher incidence of the personnel cost on the total revenues with respect to the non-criminal firms.

In the light of the considerations made, the model used to examine the determinants of the incidence of the labour cost on the total revenues is:

$$INC\_LABOUR_{i,t} = \beta_0 + \beta_1 CRIMINAL_{i,t} + \beta_2 SIZE\_w_{i,t} + \beta_3 ROE\_w_{i,t} + \beta_4 LEVERAGE\_w_{i,t} + \beta_5 NETSALES\_w_{i,t} + \varepsilon_{i,t}$$

In the equation are included year fixed effects and are clustered robust standard errors by firm to correct for serial dependence<sup>158</sup>, due to the fact that the model uses observations that are clustered into companies (identified through their ID<sup>159</sup>) observed for consequent periods.

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<sup>158</sup> Petersen, M. A. (2009) *Estimating standard errors in Finance panel data sets: comparing approaches*. Review of financial studies, 22(1), 435-480.

Bianchi Pietro A., Marra A., Masciandaro D., Pecchiari N., (2017), “Is It Worth Having the Sopranos on Board? Corporate Governance Pollution and Organized Crime: the Case of Italy”, Bocconi Legal Studies Research Paper No. 2017-59.

<sup>159</sup> Identification code is the “Codice Fiscale – CF”.

Therefore, in the first column (1) are presented the results of the regression performed using the robust option, while in the second column (2) the analysis is adjusted considering even the serial dependence of the observations, thus clustering the data into the 168,890 firms present in the sample.

	INC_LABOUR (1)	INC_LABOUR (2)
CRIMINAL	0.025 0.000***	0.025 0.006***
SIZE_w	0.0158 0.000***	0.0158 0.000***
ROE_w	-0.0017 0.000***	-0.0017 0.007
LEVERAGE_w	0.0211 0.000***	0.0211 0.000***
NETSALES_w	0.0053 0.000***	0.0053 0.000***
INTERCEPT	0.2221 0.000***	0.2221 0.000***
Time fixed effect	Yes	Yes
Robust option	Yes	Yes
Cluster option	No	Yes
Observations	1,083,616	1,083,616
R-squared	0.087	0.087
* p < 0.1; ** p<0.05; *** p<0.01		

*Table 3.20 – Linear regression on the incidence of the personnel cost on the total revenues*

As it is possible to observe, in the first column it has been used the robust option, and the regression suggest that there is a positive effect on the incidence of the cost of labour on the total revenues due to the affiliation of the firm to a mafia organization: the result is statistically significant at less than 1% level.



By looking at the second column, where it has been applied the cluster option<sup>160</sup>, the results are very similar to the ones already found, with a slight lower level of significance, albeit under the 1% level.

Therefore, the analysis conducted does not confirm the hypothesis according to which the criminal firms pay, on average, a lower cost for personnel, including the salaries, the social and security contributions and the severance payments, in relation to the total revenues.

### ***3.4.2.2 Availability of financial resources***

The second multivariate regression performed is to test whether there is a positive relation between the liquidity hold by a company and the infiltration of a mafia organization in the company itself.

The model used to examine the determinants of the incidence of the liquidity, expressed in terms of cash and cash equivalents, on the total revenues is the following:

$$\text{CASH\_ASSETS}_{i,t} = \beta_0 + \beta_1 \text{CRIMINAL}_{i,t} + \beta_2 \text{SIZE\_W}_{i,t} + \beta_3 \text{ROE\_W}_{i,t} + \beta_4 \text{LEVERAGE\_W}_{i,t} + \beta_5 \text{NETSALES\_W}_{i,t} + \varepsilon_{i,t}$$

The test variable (CRIMINAL) and all the controls are the same of those in the equation of the incidence of the cost of labour on total revenues.

As for the other test, also in this case are presented two columns: the first in which it has been used the robust option, and the second where it has been applied the cluster option, considering that many observations are related to same firms observed for many years.

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<sup>160</sup> The robust option is implicitly included in the cluster option. See Petersen, M. A. (2009) *Estimating standard errors in Finance panel data sets: comparing approaches*. Review of financial studies, 22(1), 435-480.

	CASH_ASSETS (1)	CASH_ASSETS (2)
CRIMINAL	-0.0188 0.000***	-0.0188 0.000***
SIZE_w	-0.0639 0.000***	-0.0639 0.000***
ROE_w	0.007 0.000***	0.007 0.000***
LEVERAGE_w	0.0171 0.000***	0.0171 0.000***
NETSALES_w	0.0148 0.000***	0.0148 0.000***
INTERCEPT	0.321 0.000***	0.321 0.000***
Time fixed effect	Yes	Yes
Robust option	Yes	Yes
Cluster option	No	Yes
Observations	1,083,616	1,083,616
R-squared	0.2478	0.2478
* p < 0.1; ** p<0.05; *** p<0.01		

*Table 3.21 – Linear regression on the incidence of the liquidity on the total assets*

The results highlight a significant negative coefficient on CRIMINAL (p-value < 0.01), which provides evidence that firms controlled by a mafia organization show lower levels of liquidity, in terms of incidence over the total assets, than non-criminal firms.

This is confirmed by looking at both the first and second column, demonstrating that, even adjusting the analysis by considering the serial dependence of the observations, the results are extremely similar, with a higher level of statistical significance in both cases.

Moreover, by looking at the control variables, it is possible to note that all of them are statistically significant in the regression, in both the first with the robust option and in the second, with the cluster option.

### 3.5 Results and implications

The aim of the research performed in the last paragraph was to test the existence or not of two of the competitive advantages that the criminal firms are expected to have with respect to the other companies, as theorized and discussed by the scientific literature: the wage compression and the availability of a higher amount of financial resources, in terms of cash and cash equivalents.

However, from the results of the regressions performed, it is possible to note that the infiltration of the mafia organizations in the legal economy leads the firms controlled to have a higher incidence of the cost of personnel over the total revenues and to hold less liquidity, relatively to the amount of total assets, than the other companies operating in the same areas; moreover, the results are statistically significant both using the cluster option (i.e. considering that many observations relate to the same firm observed through a period of time) or not, with a p-value lower than the 1% significance level.

The results obtained through the performance of the multivariate analysis seems to be against the main strand of research, according to which the criminal firms, on average, pay lower costs in terms of salaries, social and security contributions and severance indemnities, and hold higher amount of liquidity than the comparable non-criminal companies.

Nonetheless, they represent a very interesting starting point for some qualitative considerations:

1. As far as concerned the first analysis, conducted on the incidence of the personnel cost over the total revenues, it is important to remind that the criminal firms are mainly used for ML purposes by the mafia organizations, as explained in the second chapter: the payment of salaries can fraudulently be done to figureheads or affiliates of the same mafia organization, or even to make appear a provision of a specific service in order to elude a specific rule, or even for a large-scale organized benefit fraud<sup>161</sup>. As far as concerned this last case, an important example is the one that regards a private company established in Sweden, where the firms providing care assistance for disabled persons receives approximately € 30 per hour of work, that should then be turned to the employees; this company has built a fraudulent and criminal scheme according to which it reported to the public Social Insurance Agency (the equivalent of the Italian INPS) a

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<sup>161</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

certain amount of hours worked by the employees, that in reality have never been worked. The salaries were paid to consent employees that returned the money back to the owners of the infiltrated company<sup>162</sup>.

Another explanation for the higher incidence of the cost of labour can be found on the willingness to increase the salaries paid to the employees to maximize the salary guarantees when the firm is close to the bankruptcy<sup>163</sup>: this strategy is particularly efficient because the money paid will be turned back to the organizations from the colluded workforce, most of the time affiliated as well.

Therefore, besides the classical view, shared by many authors<sup>164</sup>, of the existence of the wage compression, there are many other views that instead offer a different perspective. Another consideration regards the fact that many of the revenues reported in the financial statement are not always related to real provisions of good and services: according to Catanzaro, indeed, many criminal firms, established as shell or paper companies, are characterized by the lack of or minimum productive activities<sup>165</sup>. At the accounting level, this can be reflected into a higher incidence of the personnel cost on the total revenues.

2. Even the second result of the analysis performed shows a different outcome than the one expected: indeed, it has been found that the criminal firms hold less liquidity, expressed in terms of cash and cash equivalents, than the non-criminal ones. Also in this case, however, there are many possible explanations: the first is linked with the money laundering phenomenon, according to which the criminal organizations use the legal economy as instrumental for the concealment of the illicit profits obtained from the illegal activities managed: in this case, however, only a small portion remains as liquid cash uninvested, and most importantly only a fraction is reported in the financial statement<sup>166</sup>: most of the times the funds are transferred abroad, through figureheads,

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<sup>162</sup> *Ibid.*

<sup>163</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries (www.arielproject.eu). Trento: Transcrime – Università degli Studi di Trento, p. 110.

<sup>164</sup> Arlacchi P., (2007), *La Mafia Imprenditrice: dalla Calabria al Centro dell'Inferno*, Il Saggiatore.

Catanzaro R. (1988), *Il delitto come impresa. Storia sociale della mafia*, Liviana Editrice, Padova.

Fantò E. (1999), *L'impresa a partecipazione mafiosa: economia legale ed economia criminale*, Dedalo editore.

<sup>165</sup> Catanzaro R. (1988), *Il delitto come impresa. Storia sociale della mafia*, Liviana Editrice, Padova.

<sup>166</sup> Financial Action Task Force (2006), *Trade Based Money Laundering*, Paris N.1.

often on “tax heavens”, by using “smurfs” or other structuring transactions<sup>167</sup>; many other times, instead, are moved through many and repetitive transactions, to other infiltrated companies. The second reason may lie behind the willingness to lower the risk of detection: in this case the criminal firms prefer to hide the most their financial resources, and to disinvest the assets that can be subjected to seizure by the public authorities, as reported by Savona in its report<sup>168</sup>, demonstrating also the efficacy of the measures that include the use of the seizure. A third motivation can be found on the characteristics of the sectors where the rate of infiltration by the mafia organizations is very high, as the front office businesses (bars, hotels, restaurants, etc...), characterized by a very high level of cash intensiveness and by lower and more difficult controls by the authorities. In there, the criminal firms move high quantities of cash without needing to display them in the financial statement because they circulate in the underground economy.<sup>169</sup>

In the lights of these considerations, it is important to point out the need of further researches. The combination of quantitative data and qualitative information may represent a turning point in the fight against criminal organisations, against the money laundering and against the distortions that the presence of the criminal firms lead to the market and to the economy as a whole.

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<sup>167</sup>Schneider S, (2004) *Money laundering in Canada: a quantitative analysis of Royal Canadian Mounted Police cases*, Journal of Financial Crime, Vol. 11 Issue: 3, pp.282-291.

<sup>168</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

<sup>169</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell’Interno, [www.investmentioc.it](http://www.investmentioc.it).



# CONCLUSIONS

The mafia organizations, unfortunately, have a secular relationship with the Italian history. Starting from the regions located in the South of Italy, today there is no a single area that can be considered as immune to the phenomenon of the mafia infiltrations, with the exception of the Garda Lake<sup>170</sup>. The reasons behind this transplantation to the north are manifold: on the one side, the capacity of adaptation of the organizations, especially the ‘Ndrangheta, that is particularly able to penetrate in new and different societies and to hide the illegal activities performed behind apparently legal actions; on the other side, however, there is a mix of cultural, social, political and economic factors that encourage the creation of the so-called “grey area”, external to the mafia itself and to the society, but that represents the meeting point of the interests of the two counterparts, as confirmed by the annual report of the Italian Antimafia Parliamentary Commission.

The mafia groups have entered, to all the intents, the legal economy, driven by profitable opportunities as well as by other factors, such as the willingness to exercise the control of territory and to gain a social consensus among the population.

Last but not least, the criminal organizations use the investments in the legal economy to conceal the funds illicitly gained from the undertaking of the illegal activities, whose returns still represent the principal source of financing.

The money laundering, therefore, is one of the key elements that steers the strategies of the criminal firms, the link between the black and white economy, as theorized by Sciarrone; in this scenario, the criminal firm is the instrument through which this conjunction is realized. Thus, understanding its functioning and structure is fundamental to have a clearer idea on the *modus operandi* of the mafia organizations, or at least part of it.

In the light of these considerations, the objectives of the dissertation are twofold: on one side, it aims at providing a framework for the analysis of the characteristics of the criminal firms and the elements of differentiation with respect to the other companies operating in the Italian territory, both those established in the South of Italy, where the phenomenon of the mafia association moved its first steps, and those in the Centre and North of the Country, where, especially in the recent decades, the mafia organizations have reserved a particular interest.<sup>171</sup>

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<sup>170</sup> Parbonetti A., Fabrizi M., Malaspina P., (2017), *Caratteristiche e Modalità di Gestione delle Aziende Criminali*, Rivista di Studi e Ricerche sulla Criminalità Organizzata, Osservatorio sulla Criminalità Organizzata dell'Università degli Studi di Milano, Cross Vol.3 N°1.

<sup>171</sup> Commissione Parlamentare Di Inchiesta Sul Fenomeno Delle Mafie E Sulle Altre Associazioni Criminali, Anche Straniere, Approvata dalla Commissione nella seduta del 21 dicembre 2017, Doc. XXIII N. 34.

On the other side, it aims at demonstrating the existence of the competitive advantages most commonly attributed to the criminal firms and discussed in the scientific literature:

- 1) the discouragement of the concurrence;
- 2) the wage compression;
- 3) the availability of financial resources.

Although the first competitive advantage is fundamental to understand the *modus operandi* of the mafia organizations and that, through the use of the violence, represents the key distinctive element of the old “metodo mafioso”<sup>172</sup>, the nature through which it is manifested is not suitable with an empirical analysis performed on the financial data of the companies. For this reason, for the sake of this dissertation have been considered the other two advantages, the wage compression and the availability of financial resources.

In detail, the data used for the analysis are the economic and financial information recorded in the financial statements of the firms that resulted by the police investigations and judged by an Italian Court for their affiliation to a mafia organization, according to the Art. 416-bis of the Italian Penal Code (the so-called “legge Rognoni – La Torre”).

The results of the analysis show that the criminal firms are, on average, larger, with higher revenues and higher level of indebtedness than the non-criminal ones; moreover, in spite of the lower efficiency, measured in terms of asset turnover ratio, these companies can raise high quantities of debt at lower costs than the ones incurred by the other firms. In addition, by looking at the differences between the indicators observed for the criminal firms established in the Centre-North of Italy with those in the South, it is possible to note that all the characteristics founded are more pronounced in the formers than in the latter group.

Then, the last part of the third chapter has been dedicated to the testing of the hypothesis concerning the existence of the two competitive advantages, namely the incidence of the cost of personnel over the total revenues, expected to be lower than the other firms, and the amount of liquidity over the total assets, expected to be higher than the control group.

The results have shown a scenario that provides useful insights on the phenomenon; although neither the first nor the second hypothesis have been verified by the multivariate regressions (whose results are statistically significant at 1% level), it is possible to provide a plausible explanation to the data using more recent case studies conducted by a pilot European project that has analysed cases of infiltrations by the criminal organizations in the legitimate

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<sup>172</sup> *Ibid.*



businesses<sup>173</sup>; moreover, another study performed by the Università Cattolica del Sacro Cuore di Milano in collaboration with the Italian Ministry of Interior<sup>174</sup>, despite the theoretical acceptance of the existence of the competitive advantages, has shown applicative exceptions to the assertions, highlighting that, from the analysis of the financial statements, it does not always result the wage compression and the higher availability of financial resources.

Therefore, the higher incidence of the cost of labour on the total revenues can be justified by a deliberate strategy, decided by the criminal organizations, to use these costs for money laundering purposes, showing in the income statement a cost that is incurred only formally, but that on the substance does not lead to a monetary esbourse to the employees, as happens for the legal firms.

On the other side, the lower liquidity shown in the balance sheet is not a signal of liquidity problems of the criminal companies, but instead it is the proof of the existence of a series of incentives that the management has to hide, to conceal, to move or simply to invest elsewhere the funds obtained from the illegal channels.

One of the main limitation implicit to this work, and more in general to the works performed through similar modalities, is the reliability of the data included in the financial statements, that are often subjected to manipulations.

In addition, for further researches it is suggested to use more qualitative data that can provide useful information as, for example, the percentage of participation in other companies that does imply a control stake, especially if the participated companies have other equity investments abroad, forming a sort of “chinese box”; moreover, the name, the nationality, as well as number of crimes committed by the owners of these firms; a distinction between firms participated by the mafia organizations and firms established (or acquired) from zero by the criminal group, to see what are the differences between these two types of criminal companies, etc...

Another guidance for new studies can be related to the statistical technique used for the analysis. One of the main downsides of the multivariate regression is related to the problem of endogeneity; in the MLR, indeed, the estimates of the dependent variable are not sufficiently adjusted for the independent variables whether the relation between the two is mis-specified<sup>175</sup>.

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<sup>173</sup> Savona E. U., Berlusconi G., (2015). *Organized Crime Infiltration of Legitimate Businesses in Europe: A Pilot Project in Five European Countries*, Final Report of Project ARIEL – Assessing the Risk of the Infiltration of Organized Crime in EU MSs Legitimate Economies: a Pilot Project in 5 EU Countries ([www.arielproject.eu](http://www.arielproject.eu)). Trento: Transcrime – Università degli Studi di Trento.

<sup>174</sup> Transcrime, (2013), *Progetto PON Sicurezza 2007-2013: Gli investimenti delle mafie. Rapporto Linea 1*. Milano: Ministero dell'Interno, [www.investmentioc.it](http://www.investmentioc.it).

<sup>175</sup> Rajeev H. Dehejia, Sadek Wahba (1999), *Causal Effects in Nonexperimental Studies: Reevaluating the Evaluation of Training Programs*, *Journal of the American Statistical Association*, 94:448, 1053-1062.

This issue is a specific kind of endogeneity called functional form misspecification: the effects of the proper functional form are limited to the error term and are correlated with the treatment, biasing the estimator. One way to alleviate this bias is the use of the propensity score matching<sup>176</sup>, that consists on a building of a control group composed not by the whole population of non-criminal firms, but of a part of it, based on the highest probability assigned to each observation (p-score) to be matched with the observations subject to the treatment (in this case, the firms infiltrated by the mafia group).

Then, the PSM calculate the difference between the mean values observed for the matched observations and those calculated for the unmatched ones, to arrive at the conclusion on whether the treatment has a causal relation with the dependent variable to study.

However, the implementation of this model requires a particular attention on the selection of the proper variables to use for the analysis and on the particular design choices to undertake, and not always the results obtained are better, or more precise, then those obtained by using the multivariate analysis<sup>177</sup> as adopted for the sake of this dissertation.

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<sup>176</sup> Jonathan E. Shipman, Quinn T. Swanquist, and Robert L. Whited (2017) Propensity Score Matching in Accounting Research. *The Accounting Review*: January 2017, Vol. 92, No. 1, pp. 213-244.

<sup>177</sup> *Ibid.*

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