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Introduction

The concept of corporate fraud is becoming ever more relevant in today's world, with an ever-increasing number of companies reporting having been victims of such a crime. It is therefore necessary to understand how this phenomenon works, in order to be able to clearly determine whether a certain behaviour can be considered as inducing fraud or not. In particular, the study of this dissertation will be centred on the category of accounting fraud, which, despite being the least frequently occurring type of fraud, nevertheless causes the biggest losses. It will therefore describe how accounting fraud is implemented within corporations, through the analysis of an empirical case study.

In chapter 1, the concept of fraud will be defined in general terms, with explanations of the main elements a crime must contain to be classified as fraud. Following, the definition of corporate fraud will be given, as well as its categories.

In chapter 2, the model of accounting fraud will be analysed in detail, and a thorough explanation of the categories it can be divided in will be provided.

Chapter 3 will describe how the concept of accounting fraud has been recognised by Italian judicial system, and the articles of the civil code that identify said concept will be analysed. Particularly, the basic elements of accounting fraud will be identified and explained.

Lastly, chapter 4 contains an empirical case study intended to illustrate how accounting frauds have been carried out in the past. Specifically, the case study chosen for this dissertation is the case of the Bio-On company, which was the subject of investigations due to serious accounting fraud committed by its top-ranking executives.

CHAPTER 1

THE FRAUD

1.1 – INTRODUCTION

The purpose of this first chapter is to give a general overview of the criminal phenomenon defined as fraud.

In paragraph 1.2 the general concept of fraud will be given, with an explanation of the origins of the term and a specification of the elements and characteristics that make it distinguishable from other types of crimes.

In paragraph 1.3 the concept of corporate fraud will be introduced. An historical excursus on how the definition of corporate frauds has evolved over time will first be illustrated. It will then be provided an explanation as to why frauds are committed, before delineating the subdivision of corporate frauds into external and internal (otherwise also known as occupational) frauds. Internal frauds will also be the focus of our analysis throughout the paper.

In paragraph 1.4, a taxonomy of fraud schemes will be provided. In particular, the classification of internal frauds that has been conceived by the Association of Certified Fraud Examiners will be analysed; further, a description of the main fraud schemes will be provided.

Lastly, in paragraph 1.5 some numbers regarding the frequency of the frauds in the Italian economic system will be provided.

1.2 – WHAT IS A FRAUD

Before we commence our analysis, it would be useful to get a better understanding of what we are referring to when we are talking about frauds. Generally speaking, a fraud indicates a misleading behaviour whose purpose is to obtain the property of a certain item. More specifically, a fraud is an “*intentionally deceptive action designed to provide the perpetrator with an unlawful gain or to deny a right to a victim*”¹ that does not require the use of violence.

In this definition it is possible to identify all the elements that characterize the fraud:

- the intentionality
- the deception
- the damage

The first element, the intentionality, refers to the *modus operandi* of the perpetrator. It may be useful to make an example that can provide a better understanding of this element. When performing accounting tasks, if some values are based on incorrect estimates, there will inevitably be misstatements in the financial records of an organization.

However, these misstatements cannot be considered as fraud if they have been committed “by mistake”, which is the situation that arises when the numbers have been unintentionally written down in an incorrect way. Instead, it is possible to talk about a fraud if the values in the accounting records have been willingly omitted or modified. We can then conclude that a criminal activity cannot be classified as a fraud if it is committed without the element of intentionality.

Regarding the second element, the deception, it is interesting to notice that the etymology² of the word itself recalls the principle stating that at the root of the entire process there is the intent to cause damage to someone for deceitful reasons.

¹ Source: Investopedia

² Mid-14c., “criminal deception” (mid-13c. in Anglo-Latin); from Old French *fraude* “deception, fraud” (13c.), from Latin *fraudem* (nominative *fraus*) “a cheating, deceit,” of persons “a cheater, deceiver,” of uncertain origin. Connections have been proposed to Sanskrit *dhṛuti*- “deception; error.” Meaning “a fraudulent production, something intended to deceive” is from 1650s. The meaning “impostor, deceiver, pretender; humbug” is attested from 1850. *Pious fraud* (1560s) is properly “deception practiced for the sake of what is deemed a good purpose;” colloquially used as “person who talks piously but is not pious at heart.”

Source: Online Etymology Dictionary

Lastly, the damage element can be further divided into two different components: the actual damage and the potential damage. The actual damage consists in the loss that is suffered by the victim due to the denial of one of his rights. However, it is not necessary for a loss to take place in order to qualify an action as being fraudulent, since the damage can also be found in a deceitful project conceived by the perpetrator.

In conclusion, it is possible to say that to classify a crime as a fraud:

- there have to be a perpetrator and a victim
- the crime has to be committed through deceitful actions
- there has to be an unlawful gain or a denial of rights of the victim

The process with which the fraud takes place can be simplified as a linear one, where the perpetrator, through deceitful actions, tricks the victims into complying with the perpetrator's actions. As an outcome of this course of actions, the criminal obtains a personal gain in spite of the unjust damage the victim has to sustain. The mentioned relationship can be outlined as follows:

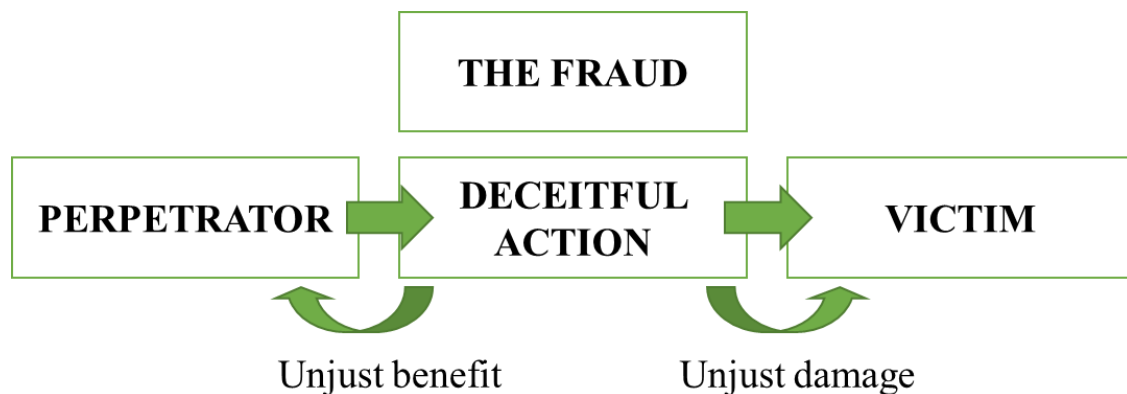


Figure 1: The fraud process. Source: Allegrini M., D'Onza G., Mancini D., Garzella S., *Le frodi aziendali. Frodi amministrative, alterazioni di bilancio e computer crime*, Franco Angeli, 2003. Reproduction made by the author.

1.3 – THE CORPORATE FRAUD: A BRIEF OVERVIEW

1.3.1 – Historical background

Among the different types of fraud that have been identified through the decades, the most relevant one for the purpose of our study is the corporate fraud.

We can define a corporate fraud as the totality of the dishonest and deceitful activities that aim at subtracting, directly or indirectly, value from a business in order to generate a benefit to whoever is committing the action, which can be either an individual or a company.

The first definition of corporate fraud can be traced back to 1939, when the definition of white-collar crime was first introduced by sociologist Edwin Sutherland³, and it was associated with crimes that are committed by “*a person of respectability and high social status in the course of their occupation*”⁴ as opposed to the crimes that were committed by people from the middle and lower classes. This definition was later integrated into his studies regarding the theory of differential association, which stated that criminal behaviour “*is learned in interaction with persons in a pattern of communication, and that the specific direction of motives, drives, rationalizations, and attitudes (...) is learned from the persons who define the codes as rules to be observed and from persons whose attitudes are favourable to violation of legal codes*”⁵.

³ Edwin Hardin Sutherland (August 13, 1883 – October 11, 1950) was an American sociologist and one of the most influent criminologists of the 20th century. He completed his Ph.D degree work at the University of Chicago, and throughout the course of his life he managed to collaborate with other universities such as the University of Illinois and the University of Minnesota. His studies have been deeply influenced by the so called «school of Chicago», which stated that the human behaviour is determined by social and environmental factors rather than hereditary ones. Some of his most important works are *Principles of Criminology* (1924) and *White-Collar Crime* (1949).

Source: <https://www.asanet.org/>

⁴ Shuterland E. H., *White Collar Crime*, Holt, Rinehart & Winston, New York, 1949. Even though the theory was first elaborated in 1939, the author decided to publish it ten years later in 1949. The version that was published at the time was severely censored, and the name of the society, as well as the names of the entrepreneurs that were examined, were completely removed from the analysis. The work was published without censorship in 1983.

⁵ Cressy D. R., *The Theory of Differential Association: An Introduction*, «Social Problems», Vol 8, No.1, pp 2-6, Los Angeles, 1960.

The idea that people commit crimes because they are born criminals is debunked: people behave against the law since they learn such criminal behaviour by interacting with other members of society.

The theory formulated by Edwin Sutherland gained importance as it changed the way criminal phenomena were perceived. Not only did it question the origins of criminal behaviour, but it also helped spread the awareness that people from lower classes were not the only ones that could committed crimes, wealthy people as well could actually be dangerous for the community. Society was facing a new type of crime characterized not only by the fact that violence was not involved, but also by the fact that those crimes were committed by subjects that were beyond suspicions. The definition of white-collar crime has evolved in the past decades as a result of the spreading of new technologies and new financial products, leading to an increase in the numbers of crimes that can be included in the definition. Nowadays, a white-collar crime is defined as “*a nonviolent crime committed for financial gain*”⁶, which is characterized by a violation of trust or by the presence of deceit or concealment and whose motivation is obtaining a personal benefit, usually represented as a financial gain. In this definition we can include offenses that are not only committed by an individual that undertakes them in order to obtain a personal benefit, but also the ones perpetrated by a certain number of individuals that operate through a corporation or a government institution.

Even though the definitions of corporate fraud and white-collar crime may look similar, they are not to be considered as the same. The main difference between the two terms resides in the fact that with corporate frauds, the person committing the crime is working for the company, while the definition of white-collar crime is broader and refers to all the crimes committed in the financial sphere.

1.3.2 – The Fraud Triangle

Before proceeding with our discussion, it is necessary to give a brief explanation as to why individuals commit frauds. The biggest contribution regarding this matter was given by D.R Cressey⁷ in 1953 during his studies concerning white-collar

⁶ Source: Investopedia

⁷ Donald R. Cressey (1919-1987) was one of the most prominent American criminologists of the 20th century. His major contributions were given in the studies related to the sociology of crime and delinquency. He became notorious for carrying on the theories

crimes. After making an empirical analysis on frauds, Cressey was able to identify the three variables that are at the roots of every crime:

- The pressure that can lead to committing crimes, generated by the perception that individuals have to satisfy a multitude of needs
- The mechanism of rationalization
- The opportunity to committing the fraud with the knowledge that there is the possibility of hiding the crime, so that it is possible to avoid any kind of sanction

THE FRAUD TRIANGLE



The Fraud Triangle by Donald R. Cressey

Figure 2: The Fraud Triangle. Source: Internal Auditor – Middle East, *The fraud Triangle*, 2016

When working in an organization, individuals develop several types of needs (e.g., financial needs, social needs) that are kept satisfied through different rewards, such as a higher remuneration or a career advancement. However, problematic circumstances can occur, and these can push the employee into finding other methods to solve these problems, such as committing illegal activities. In this sense,

elaborated by Edwin Sutherland and for his innovative contribution to the study of criminal theory. Noteworthy are also his works on white-collar crimes.

Source: Akers R. L., Matsueda R. L., *Donald R. Cressey: An Intellectual Portrait of a Criminologist*, «Social Inquiry», Vol 59, No 4, pp 423-438, 1989.

Donald R. Cressey's theory of the fraud triangle can be found in his work *Other People's money: A Study in the Social Psychology of Embezzlement*, (1953).

it is possible to identify the variable of pressure as one of the main drivers in committing crimes.

Another driver underneath the fraudulent behaviour is the psychological mechanism of rationalization, which consists in the ability that the perpetrator of the crime has into convincing himself that the crime he just committed was justified. Some of the most common forms of rationalization consist into minimizing the extent of the fraudulent action, perceiving the crime as a compensation for eventual injustices sustained by the criminal, generalizing the problem or creating an alibi to justify the illegal action. It is also important to notice that in an organization with a bad corporate culture it is more likely for frauds to be committed. This is also attributable to the rationalization mechanism: if the higher ups commit crimes, the employees will feel justified when committing the crimes themselves.

The last driver that has been identified by Cressey is, as we mentioned before, the opportunity to commit the fraud. As a matter of fact, no fraud could ever take place if it was not present an opportunity that could be used by employees to exploit the deficiencies in the corporation's control systems

We can therefore say that the opportunity driver is linked to two different factors, the first being the level of information that the perpetrator has in relation to the control system. An employee is more likely to commit frauds if he is aware of the deficiencies that affect the control system. The second factor is linked to the abilities that the perpetrator possesses and that can use to exploit said deficiencies, so that he can commit the crime without any risk.

In order to commit the fraud, the three drivers have to be simultaneously taken into account. An individual will commit the fraud if he is able to find a justification for his illicit behaviour, under the pressure exercised by the events and the circumstances of a company characterized by a lack of internal controls. The agent will consequently make a rational choice, pondering the benefits linked to the crime to be committed and the risks linked to the scenario where the perpetrator is caught, which are namely the legal consequences of being caught that would impact the life of the criminal.

1.3.3 – Internal and External frauds

Corporate frauds can be committed either by individuals that work outside the organizations (e.g., customers and vendors) or by individuals that work within the organizations (e.g., employees, shareholders and managers). Such distinction leads to two macro-categories in which corporate frauds can be grouped:

- External fraud
- Internal fraud

The definition of these two different types of fraud is given by the Association of Certified Fraud Examiners (ACFE)⁸.

Concerning the external fraud against a company, this macro-category covers a vast number of different schemes. For example, a customer could submit fake or manipulated checks, or could send account information that are not representative of its actual financial situation. Likewise, a vendor could take part in bid rigging schemes, or could ask the company to pay for products or services that were never provided in the first place. In general, an external fraud can be identified with every type of fraud involving external third parties.

The other macro-category of corporate fraud mentioned previously is the internal fraud. This kind of fraud can also be referred to as occupational fraud, defined by ACFE in its *“Report to the Nations”* as *“the use of one’s occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization’s resources or assets”*⁹. Generally speaking, a fraud can be identified as an internal fraud when it is committed by an employee against his employing organization.

FOCUS: THE NUMBERS OF OCCUPATIONAL FRAUD¹⁰

The ACFE report gives a general picture of the extent to which companies worldwide are affected by occupational frauds. ACFE decided to adopt a global approach regarding the disclosure of the phenomenon, given the global nature of the threat; there is hardly any country where frauds do not occur.

⁸ ACFE is the largest anti-fraud organization, as well as the main provider of anti-fraud training courses. Counting more than 85,000 members worldwide, the scope of the organization is to reduce the number of frauds committed in corporations.

⁹ ACFE, *Report to the Nations*, 2020

¹⁰ Main source: ACFE, *Report to the Nations*, 2020

The study covered 2,504 occupational fraud cases that occurred in 125 countries, resulting in a total loss of USD 3.6 billion. Out of all the 2,504 cases, 21% caused losses whose value was higher than USD 1 million.

It is estimated that the value of the actual loss that can be attributed to frauds is actually higher than the value mentioned previously. This is attributable to the fact that most of occupational frauds are not reported, making it difficult to provide a correct estimate of the costs linked to the phenomenon.

A different estimate of the global cost of fraud has been given by CFEs. According to this new estimate, organizations lose in a year 5% of their revenues due to the implementation of fraudulent schemes. In terms of GWP, whose value in 2019 has been equal to USD 90.52 trillion, we can derive a value for the total loss that is higher than USD 4.5 trillion.

1.4 – A TAXONOMY OF FRAUD SCHEMES: THE FRAUD TREE

When an employee commits a fraud against an organization, several major issues occur. In fact, the actions undertaken by the individual will have repercussions not only on the victim (which is, in this case, the organization itself), but also on the other employees and on third parties as well. It is then a priority for the corporations to learn which are the most used fraud schemes, so that they can easily be taken care of without damaging all of the stakeholders involved with the company.

To better detect and prevent frauds, every organization should be aware of all the different types of frauds that can be committed by individuals.

One of the best and most complete frauds classifications available is the one provided by the ACFE in its previously mentioned report. Even though it is true that new types of frauds emerge every day, it is also true that the classification operated by ACFE includes the main categories under which it is possible to identify the majority of the frauds schemes. What is more, its convenience resides in having regrouped every possible fraud scheme in three macro categories, thus facilitating the job of those who need to check whether someone is committing a fraud or not. The ACFE model, also called the fraud tree, subdivides the three macro categories into other subcategories, which are then subdivided again, thus making the model look just like a tree.

The three main fraud schemes are identified as follows:

- Corruption
- Asset misappropriation
- Financial statement frauds

Before proceeding in explaining the differences between these three macro categories, it is necessary to clarify that they concern only internal frauds¹¹, hence they do not help in defining all those frauds that are committed by individuals that are external to the organization.

¹¹ See paragraph 1.3.3 – Internal and external frauds, pp. 13-14.

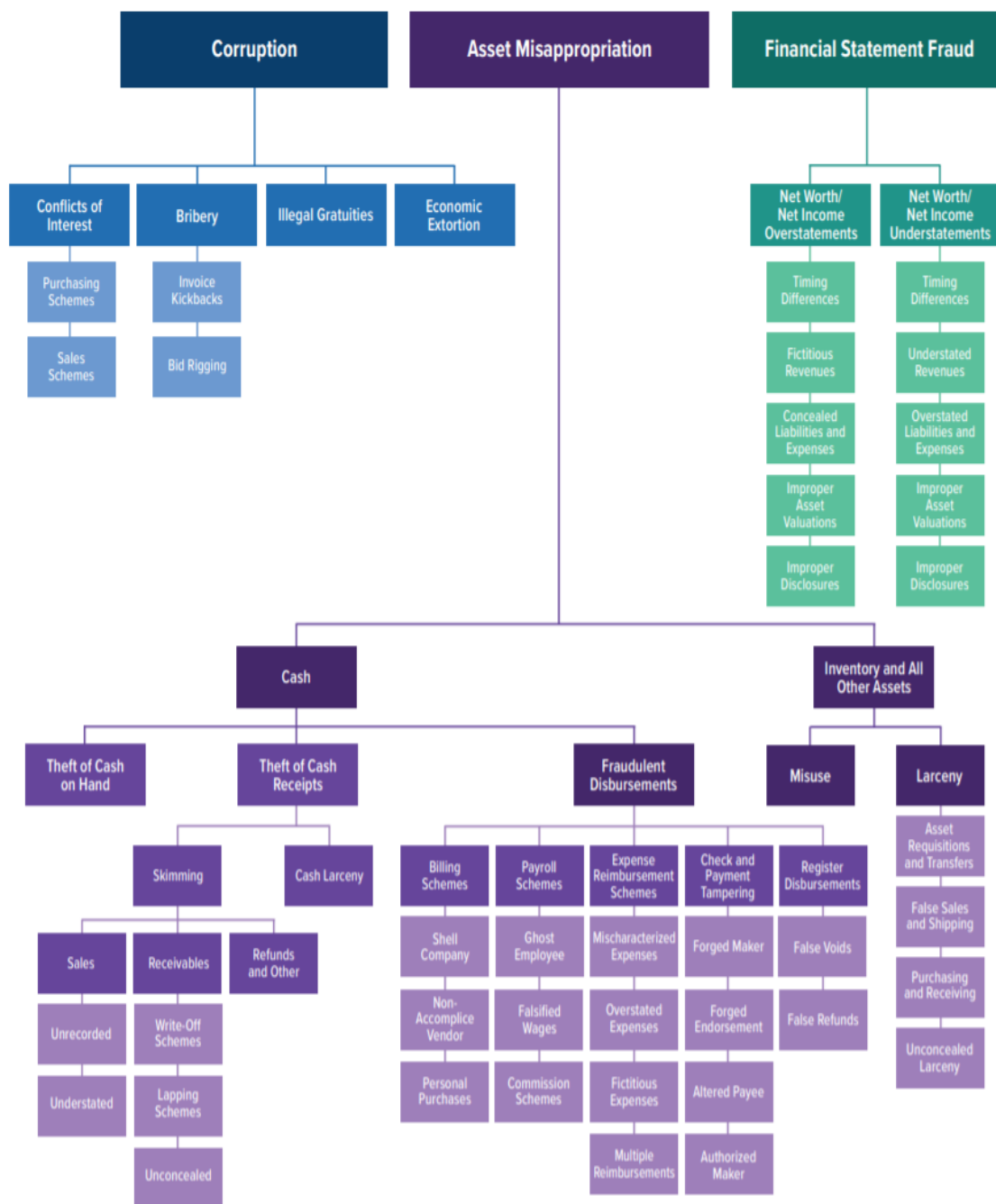


Figure 3: The Fraud Tree. Source: ACFE, Report to the Nations, 2020

The first category that we are going to analyse is the one regarding the fraud scheme of corruption. This category includes crimes such as conflict of interests, bribery and economic extortion. It is ranked in second place in terms of both the frequency with which the crimes related to this scheme are committed and the financial damage that derives from these kinds of frauds. In particular, these schemes occur in 43% of the cases and generate a median loss of USD 200,000¹².

The second category indicated in the fraud scheme is the one related to the fraud scheme of asset misappropriation. The crimes related to this scheme are committed by employees that decide to steal or misuse resources owned by the employing organization. This is the category that occurs with the highest frequency, since these schemes represent the 86% of the total fraud schemes committed but it generates the lowest median loss among the three main schemes (USD 100,000).

The last category, financial statement fraud, involves those fraud schemes where the perpetrator intentionally manipulates the financial statements of the organization by misreporting or omitting values or information. These kinds of schemes are the ones with the lowest frequency, since out of the total frauds they occur only in the 10% of cases, but they generate the highest median loss among the categories, equal to USD 954,000. It is possible to get a better understanding of these figures by looking at the picture presented below.



Figure 4: Percent of cases and Median loss associated to the main fraud schemes. Source: ACFE, Report to the Nations, 2020

¹² ACFE, *Report to the Nations*, 2020.

It is also interesting to spend some words here to make some considerations on the relationship between the person that commits the fraud and the total number of frauds committed. In particular, ACFE reported that the person committing the fraud has committed more than one of the three main fraud schemes in one third of the cases that were analysed. Specifically, as we can see in the pictures below, 26% of the criminals committed both asset misappropriation and corruption, 5% committed all of the three categories of fraud and 3% committed asset misappropriation and financial statement fraud.

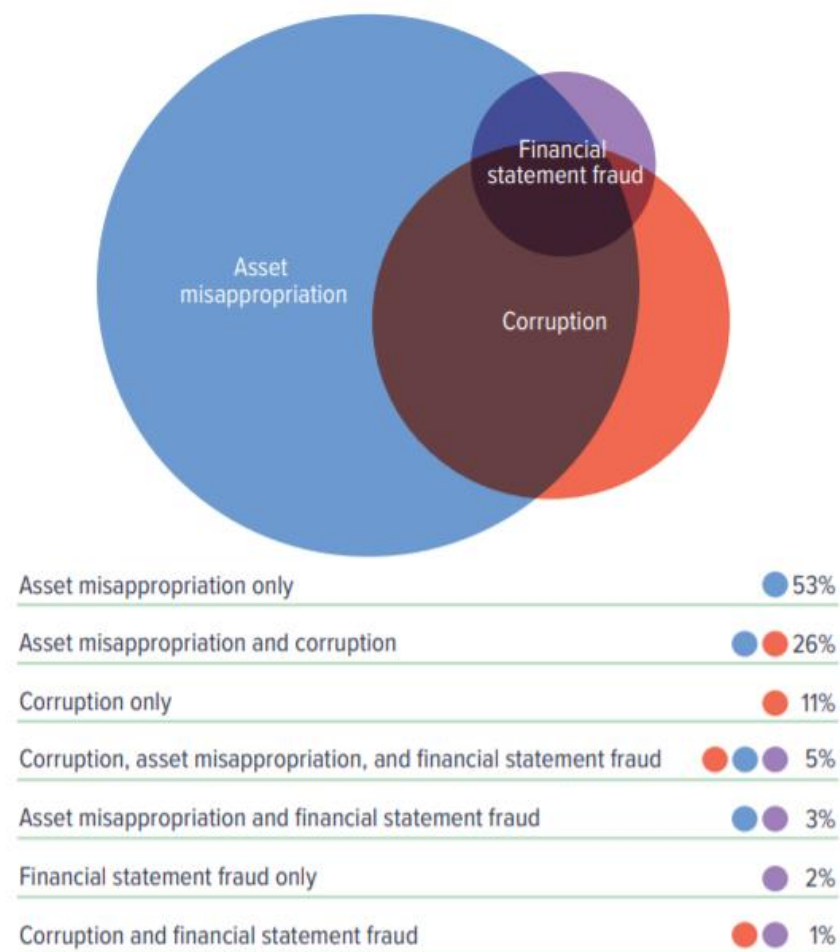


Figure 5: How often do fraudsters commit more than one type of fraud scheme. Source: ACFE, Report to the Nations, 2020

To reduce the costs linked to fraudulent behaviour, the fraud scheme has to be detected in the shortest amount of time possible. This is mainly due to the relationship between the length of the time period in which the fraud is committed and the loss that is associated to it.

As a matter of fact, the longer the duration¹³ of the fraud scheme, the higher the loss of value.

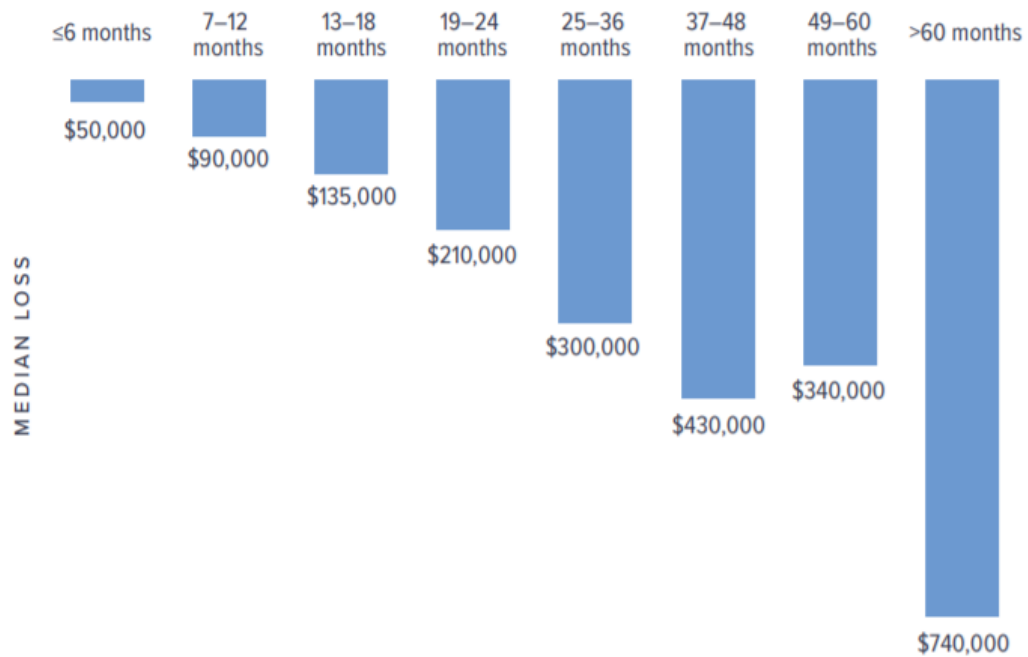


Figure 6: Relationship between duration and median loss. Source: ACFE, *Report to the Nations*, 2020

Usually, the median duration of a fraud scheme is 14 months¹⁴. Among the different types of fraud schemes that can be implemented, the ones with the highest duration are those related to the main categories of asset misappropriation and financial statement fraud. Companies may take up to 2 years to detect frauds schemes such as payroll, check and payment tampering, register disbursements, financial statement frauds, expense reimbursement and billing. Meanwhile, the one that is detected more quickly is the noncash fraud scheme.

¹³ Intended as the period of time that goes from the first implementation of the fraud scheme to the detection of the criminal behaviour. Source: ACFE, *Report to the Nations*, 2020.

¹⁴ ACFE, *Report to the Nations*, 2020.

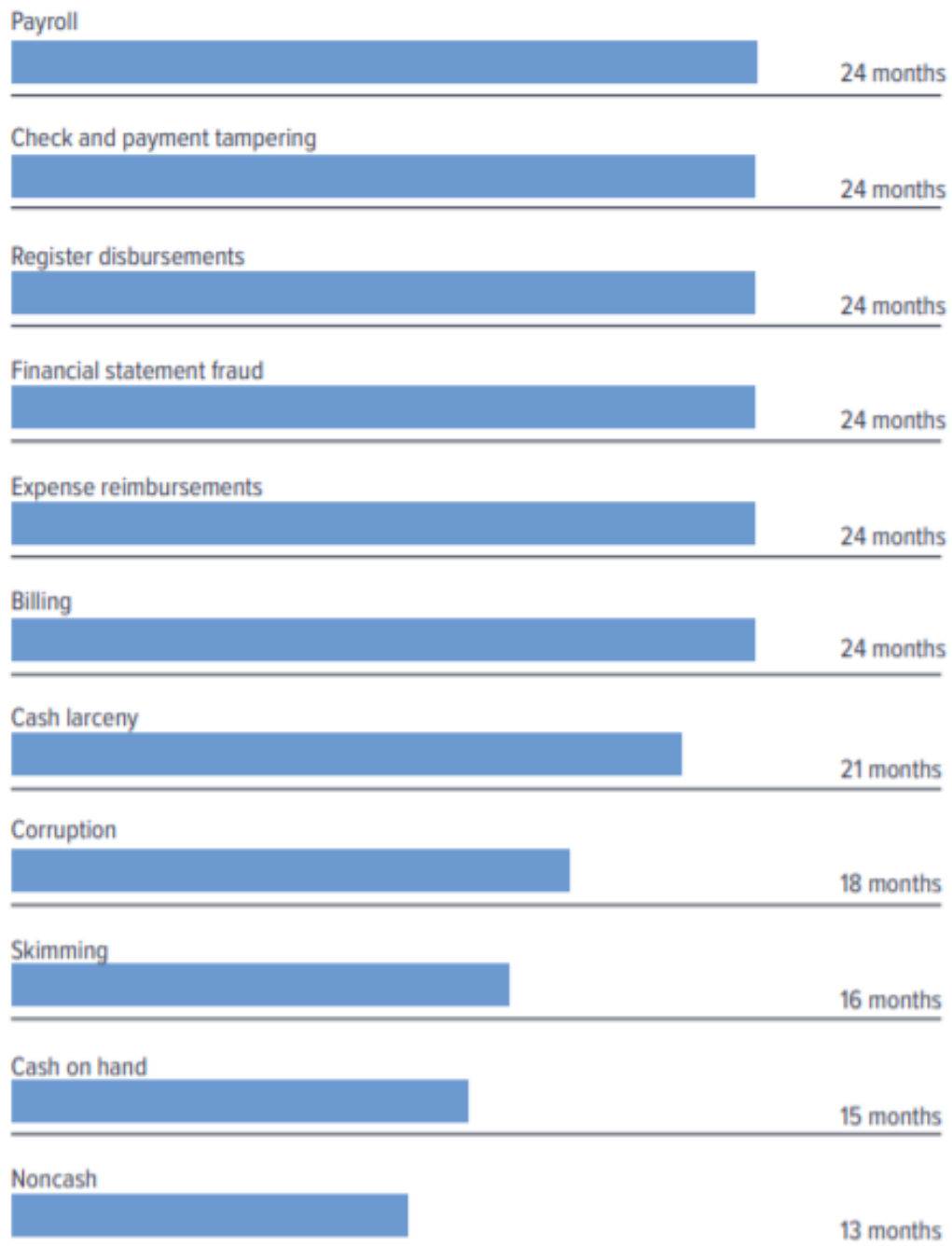


Figure 7: Duration of fraud schemes. Source: ACFE, *Report to the Nations*, 2020.

Now that a general overview of the fraud schemes has been provided, it is useful to analyse more in depth the three main categories, explaining their definitions, who commits them and indicating what their possible red flags could be and how to prevent them. In this first chapter, it will be provided a brief explanation of the corruption fraud schemes and the asset misappropriation fraud schemes. The third category, financial statement fraud schemes, will be examined more in details in the second chapter.

1.4.1 – Corruption

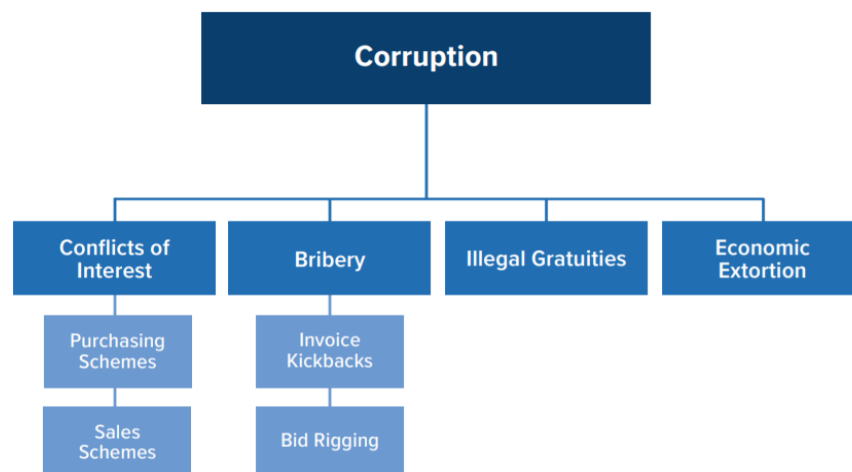


Figure 8: The corruption fraud scheme. Source: ACFE, Report to the Nations, 2020.

In the corruption scheme, the employee uses his influence improperly during a transaction in order to obtain a personal gain. This gain is usually obtained by using the resources of the employing corporation. In the fraud tree scheme, corruption is divided into four subcategories:

- Conflict of interest
- Bribery
- Illegal Gratuities
- Economic Extortion

Typical consequences linked to the adoption of corruption schemes include financial losses, falsification of fair competition, damage suffered by the corporate culture implemented within the organization which consequently leads to the

spreading of a climate of distrust among the employees, and the negative impact on the reputation of the organization, which can also result in a decrease in the number of sales of the products or services provided by the company.

Corruption frauds can be committed at every level of the organization. However, there are groups that are more susceptible than others to commit such illegal actions. Usually these kind of fraud schemes are implemented by accounting departments, since individuals working in them have free access to the organizations' funds and accounting records, and by executives or upper management employees, given the high level of power they generally hold.

To understand whether a corruption scheme is being implemented within an organization, we have to pay attention to every element that can be considered as a warning sign. In this scenario, typical red flags can be identified by looking at the location and the industry in which the business operates, checking how payments are carried out, looking whether there is the presence of unnecessary third parties and lastly investigating the whistleblower¹⁵ reports. For instance, cash payments can be perceived as a red flag due to the lack of a paper trail, hence making it difficult to give a justification for the related expenses.

To prevent the risks linked to corruption, an effective internal control system is to be implemented within the organization. Anti-corruption policies have to be introduced, and it will be up to the management to assure that all the employees comply with them. The best result can be achieved by resorting to external assessment of the policies implemented and encouraging employees to report fraudulent activities with the implementation of a whistleblower "hotline". The detection of the corruption scheme generally happens through suggestions advanced by the employees, internal audit procedures and management assessments. The internal audit however may not be effective whenever the individual committing the fraud is part of the high-level management, since they can easily avoid controls thanks to the power that is associated with the position

¹⁵ The whistleblower is whoever testify, while performing its working duties, an illegal activity that occurs within the work environment and decides to report the crime. Even though the whistle blower bears the risk of becoming the target of acts of retaliation, he undoubtedly plays a decisive role for the public interest, disclosing the possible dangers that can derive from the illegal activity to the employing organization and to the community. The whistleblowing consists of the activity of regulation of those procedures whose purpose is to encourage and protect those who make the report. Source: Transparency International Italia, *Whistleblowing, domande e risposte*, 2015.

occupied within the organization. In these cases, it is up to external auditors to identify whether or not a fraudulent scheme is being implemented.

1.4.2 – Asset misappropriation

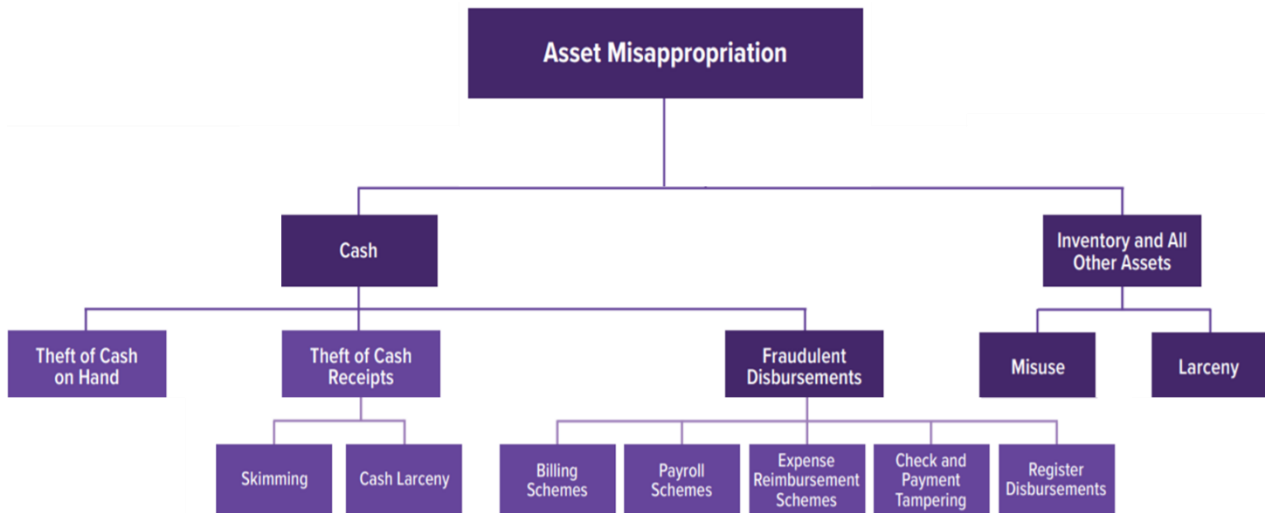


Figure 9: The asset misappropriation fraud scheme. Source: ACFE, Report to the Nations, 2020.

In the asset misappropriation scheme, as we briefly mentioned before, the employee misuses assets that are owned by the employing organizations to obtain a personal benefit. In the fraud scheme tree, ACFE has identified two main subcategories of asset misappropriation:

- Cash
- Inventory and all other assets (also referred to as noncash)

As we mentioned before, at the beginning of this paragraph, even though the median loss for this category is the lowest, it is the most commonly used fraud scheme. Typical behaviours associated with this kind of crime are skimming, theft of cash and misuse of properties or funds, tampering of checks and payments and billing and payroll schemes.

Same as for corruption, the individuals that are most likely to commit this crime are those working in accounting departments, since they can access to the financial data and the funds of the organization with ease. In this scenario, another element that has to be taken into account is the period of time an employee has worked for the employing organization; in particular, the longer an employee has worked for a

company, the higher the damage caused to the company by his fraudulent behaviour will be.

Regarding the warning signs, the red flags in this scenario can be identified in some behavioural aspects that the fraudster shows, such as living a lifestyle that is beyond the level that the individual should be able to afford, becoming irritable and evasive when asked questions and having an unusually close relationship with vendors.

There are different ways in which asset misappropriation can be prevented. The most effective ones are the preparation of a fraud risk assessment and the implementation of an adequate internal control system. These two methods are usually connected to each other: in order to implement internal controls in the most efficient way, a fraud risk assessment is required, since it can identify the organizational areas where the fraud is most likely to be committed.

FOCUS: THE BEHAVIOURAL RED FLAGS¹⁶

Among the several types of red flags that were mentioned throughout the paragraph, it may be interesting to spend a few more words on the behavioural ones. While carrying out his fraudulent scheme, the fraudster will generally display several behavioural traits that can be associated with a fraudulent activity. As a matter of fact, it was possible to identify at least one behavioural red flag in 85% of the fraud cases that have been analysed by ACFE, and more than one in 49% of the total cases.

The main warning signs that have been identified within the report are: living beyond means, which occurs in 42% of the total cases, financial difficulties, which occurs in 26% of the total cases, unusually close association with vendor/customer, which has been detected in 19% of the cases, and control issues and unwillingness to share duties, which was observed in 15% of the cases.

¹⁶ Main source: ACFE, *Report to the Nations*, 2020.

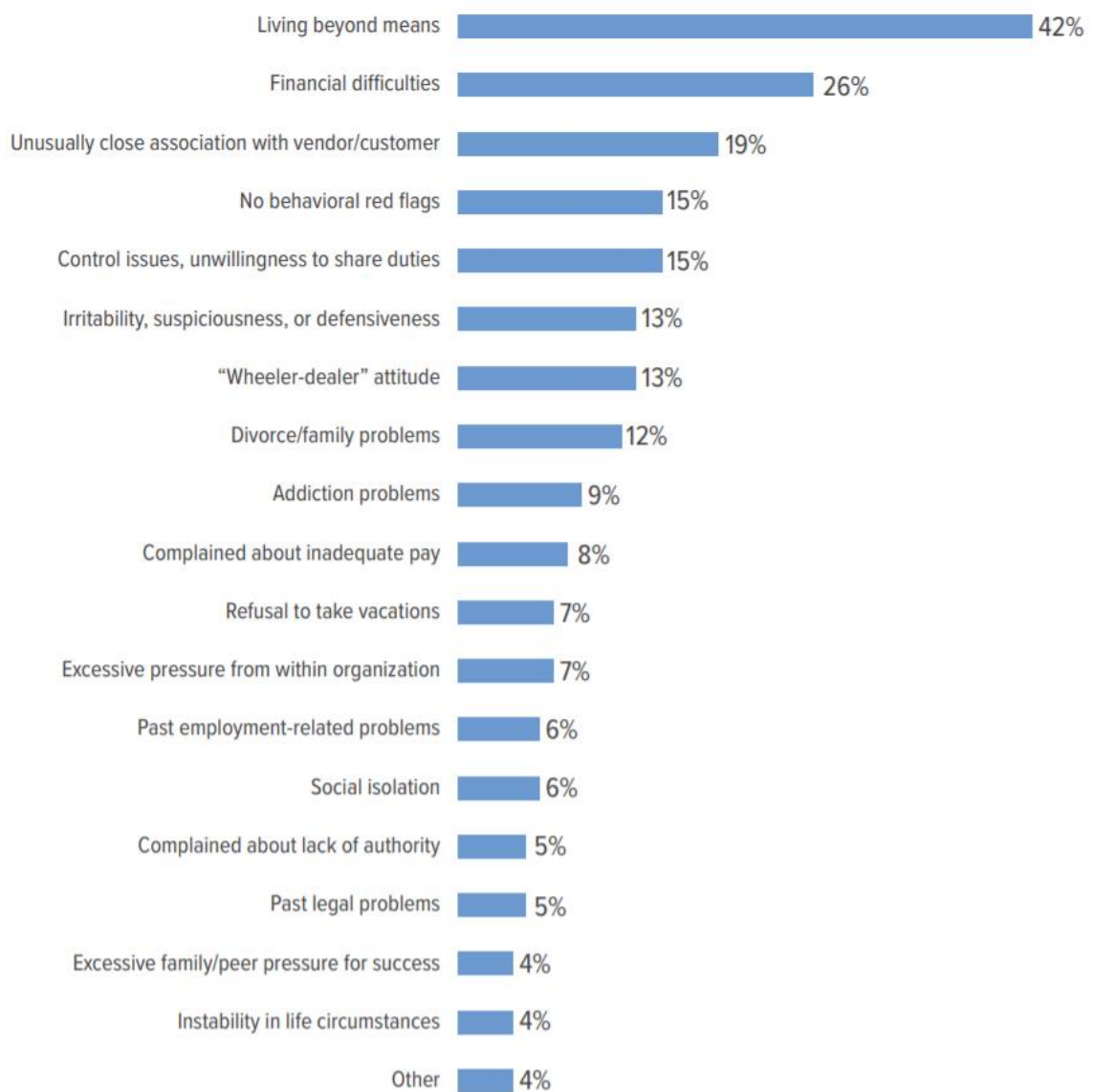


Figure 10: Frequency of behavioural red flags. Source: *ACFE, Report to the Nations, 2020*.

Recognizing behavioural red flags is particularly important, since it enables organizations to take actions as soon as the warning sign is detected. In this way, losses related to the fraudulent behaviour can be reduced.

1.5 – THE NUMBER OF FRAUDS: AN ITALIAN OVERVIEW

In Pwc's report *Global Economic Crime and Fraud Survey 2018: Summary Italia* it is delineated the dimension of the criminal phenomenon in Italy.



Figure 11: Percentages of organizations where a fraud has occurred classified for geographical areas. Source: Pwc, *Global Economic Crime and Fraud Survey 2018: Summary Italia*, 2018.

The report states that in Italy, 23% of the organizations that have been analysed have been victim of a fraudulent behaviour. This value is lower than the one that was registered globally (49%) or within western Europe (45%). However, this doesn't necessarily imply that in Italy companies are less exposed to frauds, as it could also refer to the possibility that Italian organizations are not aware that a frauds is occurring. So, the lower number could be explained by a lower capability to detect and prevent frauds.

Among the types of frauds that affects Italian businesses, the ones that are detected with the highest frequency are cybercrime, which is detected in 45% of cases, unlawful appropriation, identified in 42% of cases, frauds committed by the consumer, which count for 32% of cases, and the financial statements frauds, which occur in 24% of cases.

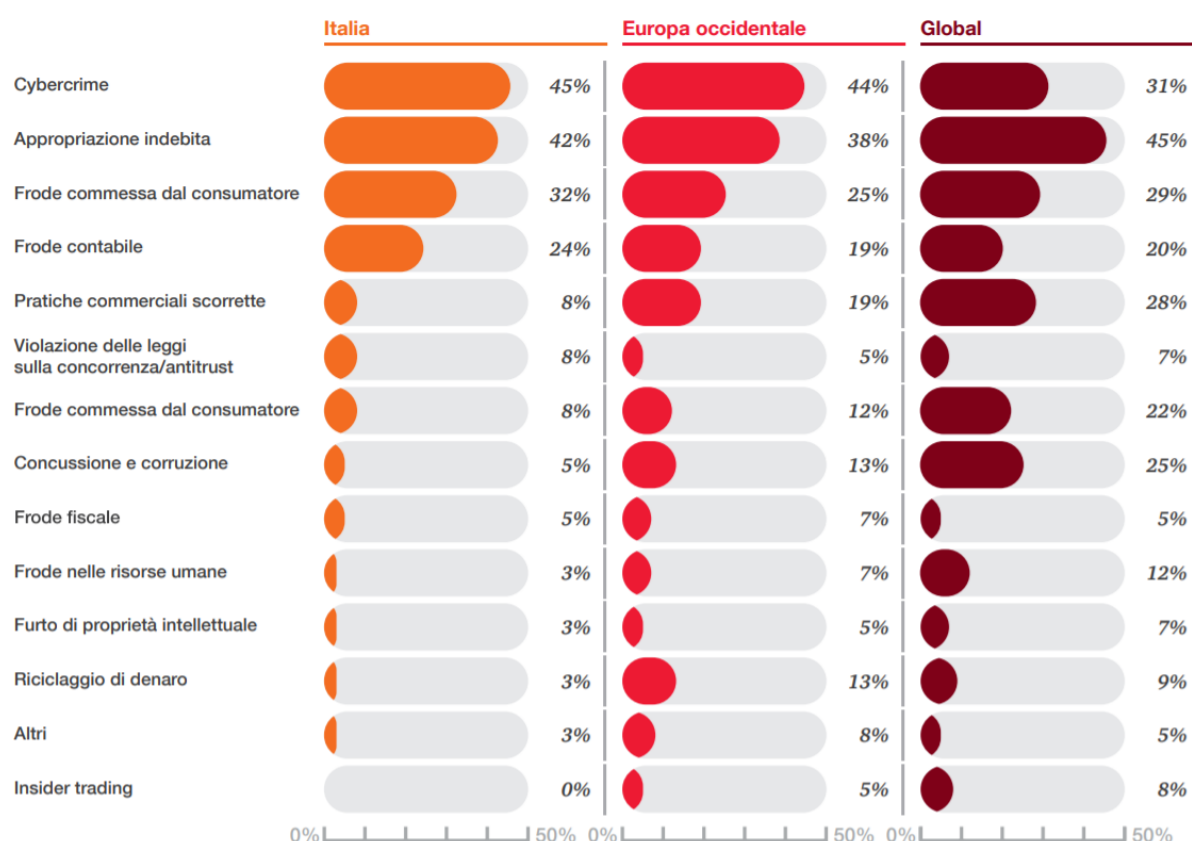


Figure 12: Frequency of types of frauds. Source: Pwc, *Global Economic Crime and Fraud Survey 2018: Summary Italia*, 2018.

Both in Italy and in western Europe, the fraud that is implemented with the highest frequency is the cybercrime. This is mostly due to two factors:

- Increase awareness of the phenomenon
- Increase in the dangerousness level associated with the crime

In Italy, more than a half of the companies that were affected by the fraud stated that their loss was higher than USD 50 thousands, while 24% claimed that they lost more than USD 1 million. The cost associated with the fraud has to consider both the direct losses, which are the ones that arise as a direct consequence of the implementation of the criminal behaviour, and the indirect losses, which are related to the costs that were sustained to investigate the crime and to the reputational damage that the deceived company has to suffer.

Among the organizations where a fraudulent behaviour has been implemented, one out of three sustained investigation costs that were higher than the loss caused by the fraud.

The main indirect costs can be classified as follows:

- Damage of business relationships
- Decrease in the employees 'morale
- Stricter relationship with the auditing authorities
- Reputational damage
- Decrease of the shares' value

CHAPTER 2

THE FINANCIAL STATEMENT FRAUD

2.1 – INTRODUCTION

Recalling the analysis that has been made in the previous chapter, a detailed overview of the third fraud scheme, the financial statement fraud, will now be presented.

In paragraph 2.2, a brief definition of what are the main financial statements will be given.

In paragraph 2.3, the main reasons that push individuals into committing fraudulent activities will be analysed.

Lastly, in paragraph 2.4 it will be provided an accurate description of the five main financial statements fraud schemes, which are:

- Timing differences
- Fictitious/Understated revenues
- Concealed/Overstated liabilities and expenses
- Improper Asset Valuation
- Improper Disclosures

2.2 – WHAT IS A FINANCIAL STATEMENT ?

Before getting started into the analysis of what a financial statements fraud is, it may be useful to give a brief definition of financial statements.

It is possible to define the financial statements as “*written records that convey the business activities and the financial performance of a company. Financial statements are often audited by government agencies, accountants, firms, etc. to ensure accuracy and for tax, financing, or investing purposes*”.¹⁷

The main financial statements are:

- The Balance sheet
- The Income statement
- The Cash flow statement
- The Management’s notes and disclosures

The balance sheet gives information regarding the assets owned by the organization and how these assets are being financed with the liabilities and the equity.

The income statement shows the economic results of the activity of the business, indicating whether a profit or a loss was generated.

The cash flow statement provides a picture of all the cash inflows and outflows that have occurred as a result of the operational activities.

Lastly, the management’s notes and disclosures serve the purpose of explaining in a narrative form the numbers and figures reported in the previously mentioned financial statements.

The importance of the financial statements resides in the fact that they are used by the stakeholders to make investment and management decisions.

¹⁷ Source: <http://www.investopedia.com/>.

2.3 – REASONS BEHIND FINANCIAL STATEMENT FRAUDS

It is possible to identify several reasons that push individuals into committing these types of frauds.

Generally speaking, the main goal of this kind of fraudulent activity is to make the financial position of the company look better than it actually is. In this scenario, the organization's financial records may be manipulated to increase the financial performance of the business and to make it look healthier in the eyes of the investors. An explanation of the methods used to reach this goal will be given in the following paragraphs.

Since the compensation of the managers is linked to the financial performance of the business, these may be more inclined than other individuals to commit a fraudulent activity. They may be motivated by the prospect of a personal gain: it is in their self-interest to increase the accounting values, since that would translate in a higher compensation value.

It is relatively easy to manipulate financial statements, since accounting principles usually give wide margins of discretion to the individuals in charge of writing the financial records.

Another cause behind this type of frauds taking place is the relationship between the external auditor and the organization. Theoretically, the external auditor should be an independent entity who provides an unbiased and objective judgement on the company's financial performance. However, a conflict of interest may occur whenever the external auditor receives a high compensation by the client company.

Other reasons behind committing a financial statement fraud may be:

- Increasing the market capitalization value
- Increasing the earnings value, so that more dividends can be distributed
- Avoiding the reputational damage that is linked to a bad financial performance
- Obtaining a loan or a funding

2.4 – FINANCIAL STATEMENT FRAUD SCHEMES

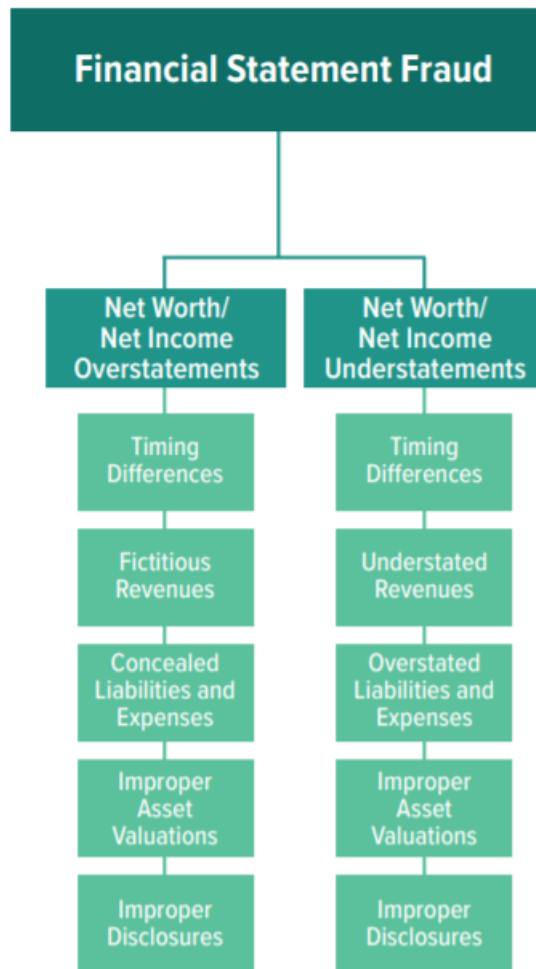


Figure 13: The financial statement fraud scheme. Source: ACFE, Report to the Nations, 2020

The last main category of fraud scheme that was tackled in the previous chapter was the financial statement fraud. This kind of fraud is defined by the ACFE as a fraudulent behaviour “*in which the perpetrator intentionally causes a material misstatement or omission in the organization’s financial statements*”¹⁸. In other words, in this scenario, the fraud is committed by an individual who is knowingly and wilfully changing the information reported within the organization’s financial records in order to misrepresent its financial condition. The main goal of the fraudster is to portray an untruthful representation of the organization’s performance in order to deceive the reader of the financial statements by influencing his opinion on the stability and profitability of the business.

¹⁸ ACFE, *Report to the Nations*, 2020.

As we mentioned in the first chapter¹⁹, financial statement frauds have the lowest frequency among the three fraud schemes categories, occurring in just 10% of the cases, and the highest median cost, equal to USD 954,000.

This kind of fraud is usually committed at the management level by highly qualified individuals, making it more difficult to detect such activity. As a result, the median duration of these kind of frauds is equal to two years. This is consistent with the fact that they hold the highest median cost, given the positive relationship between duration and the loss of value linked to the fraud scheme.

By looking at the fraud scheme tree picture, it is possible to identify two main subcategories of this fraud scheme:

- Net worth/ Net income overstatements
- Net worth/ Net income understatements

The most common financial statement fraud schemes concern revenues recognition, which can be altered by means of a report filled with fictitious revenues or understated revenues.

The first main subcategory consists in exaggerating the current net income value recorded in the financial statements. This can be realized by inflating revenues or deflating expenses of the current period in order to portray a better financial condition of the business.

On the contrary, the second main subcategory consists in minimizing the current net income value through the deflation of current revenues or the exaggeration of current expenses, as to make the financial condition of the organization look worse. This behaviour can be attributable to several reasons, such as avoiding potential acquisitions of the company or allocating bad financial results in a period of time that is characterized by macroeconomic conditions that are negatively affecting the market, so that the losses can be attributed to those conditions.

The repercussions that this kind of fraud has on the damaged organizations can be detrimental: the reputational impact and the negative publicity that the company suffers, once the fraud is discovered, generate losses for the business that exceed by far the actual cost of the fraud.

¹⁹ See paragraph “1.4 – A TAXONOMY OF FRAUD SCHEMES: THE FRAUD TREE”, pp 18.

One of the main consequences associated with the detection of the financial statement fraud is in fact the decrease of the company's capitalization value.

The corporations that are mostly affected by this kind of behaviour are usually the medium-sized listed ones.

Regarding the parties involved in this type of fraud scheme, it is possible to identify the perpetrators among the members of the top management. They are highly educated individuals that are trusted by the organization and that usually pertain to the upper class, whereas the offenders committing corruption or asset misappropriation frauds are usually individuals belonging to the middle class²⁰. Those that are more damaged by the misconduct of the fraudster are the stakeholders, such as shareholders and other investors, that would suffer the most in the case of a decrease in the stocks' value.

In this scenario, red flags can be divided into four different groups:

- Behavioural
- Organizational
- Financial
- Business

The major behavioural red flag can be seen when an individual is living beyond its means, a situation that can also happen in the scenario of a corruption fraud scheme. Among the organizational red flags, the most common ones are identified in internal control deficiencies, frequent changes in the structure of the organization, and lastly in a board of director where outsiders are absent or underrepresented. The third group of red flags, the financial red flags, refers to the deterioration of the earnings quality and to the reporting of financial results that don't match with the trends of the company's industry and that can be perceived as abnormal when compared to the historical performance of the business. The last group, made up of the business red flags, includes suspicious activities such as investments operated in highly volatile industries.

Prevention mechanisms involve the creation of a strong team composed by an audit committee and a board of directors. The purpose of the team is to become a role model for the employees by acting accordingly to the organization's ethical code, thus helping spread an ethical culture throughout the working environment.

²⁰ Holtfreter K., *Is occupational fraud "typical" white-collar crime? A comparison of individual and organizational characteristics*, «Journal of Criminal Justice», Vol 33, No 4, pp 353-365, 2005.

It is possible to identify five main financial statement fraud schemes which can be used to overestimate or underestimate the value of assets and revenues:

- Timing differences
- Fictitious/Understated revenues
- Concealed/Overstated liabilities and expenses
- Improper Asset Valuation
- Improper Disclosures

We will now move on to describe each of these categories.

2.4.1 – Timing Differences

We will begin our exposition by introducing the general concept of timing differences.

In accounting the timing difference can be defined as *“the amount of time between the point at which an asset or transaction affects a company's finances for reporting purposes and the point at which it affects it for tax purposes. This is especially important in depreciation: tax depreciation and reporting depreciation are sometimes calculated differently.”*²¹

The IAS²² 12 provides a definition of what can be considered as a timing difference by including it in the macro-category of the temporary differences, which can be defined as the difference that exists between the value of an asset or liability reported in the balance sheet and the value recognised for tax purposes. It is stated in the accounting standard that *“some temporary differences arise when income or expense is included in accounting profit in one period but is included in taxable profit in a different period. Such temporary differences are described as timing differences”*²³.

Concerning fraudulent activities, the timing differences fraud scheme refers to the type of fraud where items are recorded on the financial statements in a different

²¹ Source: Farlex Financial Dictionary.

²² The International Accounting Standards (IAS) are accounting principles that have been defined by the International Accounting Standards Board (IASB). Following the decision of IASC, the principles emitted after 2005 are defined as International Financial Reporting Standards (IFRS) and the international accounting principles are nowadays commonly referred to as IAS/IFRS. The IAS/IFRS are mandatory in more than 100 countries.

Source: Enciclopedia Treccani

²³ Source: IASB, IAS 12.

period than the one where they should be reported in accordingly to the accrual principle²⁴. The financial statement fraud scheme can take two principal forms: the first one being the overstatement of the net income value, and the second one consisting in the understatement of net income value.

Considering the first form, the timing differences fraud scheme can happen in two ways:

- An early recognition of revenues
- A late recording of expenses

In the first case, revenues that have not occurred are reported in the current period in spite of the period where they actually occur. In the second case, costs that have already occurred are reported in the following periods. Both of these methods lead to an increase in the income value.

Under the second form, the fraud scheme can happen through:

- A late recognition of revenues
- An early recording of expenses

The purpose of these actions is to reduce the performance of the company in the current period in order to show an improvement in the following periods.

2.4.2 – Fictitious/Understated Revenues

The fraud schemes that can be associated to this category focus on revenues manipulation, which can consist in either an increase or a decrease in value depending on the goal of the fraudster.

In the first scenario, the perpetrator manipulates the financial records in order to show a higher revenues value that is not backed up by an actual transaction. The fraudster can report sales of products or services that didn't occur or occurred in a lower amount. The counterpart of the transaction can be an actual client of the company or a fictitious entity created appositely for this kind of schemes. Since the transactions are either non-existent or lower than the recorded value, there is not an actual exchange of cash that can justify the amount of revenues reported.

²⁴ The accrual principle is an accounting concept that requires accounting transactions to be recorded in the time period in which they occur, regardless of the time period when the actual cash flows for the transaction are received. The idea behind the accrual principle is that financial events are most properly recognized by matching revenues against expenses when transactions – such as a sale – occur, rather than when the actual payment for the transaction may be received.

Source: <https://corporatefinanceinstitute.com/>.

In the second case, the fraudster can either underestimate the revenues value or misreport them in other accounting items. The first scenario is usually implemented by small businesses, which prefers to understate the value of their assets in order to obtain a lower taxable income. In these circumstances, the evidence of the transactions is destroyed, making it impossible to check the revenues.

2.4.3 – Concealed/Overstated Liabilities and Expenses

The fraudulent schemes that refers to this category consist in a concealment or in an overestimation of liabilities and costs, depending on the final goal of the fraudster.

Liabilities and expenses are usually concealed with the objective of portraying a financial situation of the company that is far better than the actual one.

Typical forms of this fraud scheme are:

- Manipulation of expenses and liabilities
- Capitalization of expenses
- Omission of expenses

By excluding expenses and liabilities, it is possible to conceal part of the organization's debt with the purpose of showing the company's investors that the business is financially sound. A low level of debt is usually perceived as a positive sign, since the lower the amount of debt is, the lower the credit risk²⁵ that the organization bears. Moreover, banks will likely avoid granting a loan to a company that his heavily indebted. For these reasons, it may seem profitable to reduce the value of the costs and the liabilities reported in the financial records.

Capitalizing²⁶ an expense can be seen as a profitable action, since it can bring many benefits to the organization. For example, since long-term asset are costly, it may seem convenient to spread their cost over future periods of time in order to prevent fluctuations of the income level and maintain a stable debt to equity ratio²⁷. This is

²⁵ It is possible to define the credit risk as a “*calculation of how likely it is that a person or company will not be able to pay back money they have borrowed from a bank or other organization*”.

Source: Cambridge Dictionary.

²⁶The process of capitalization can be defined as the recording of a “*cost/expense on the balance sheet for the purposes of delaying full recognition of the expense*”.

Source: Investopedia.

²⁷ The debt to equity ratio is “*an indicator of financial leverage. Compares assets provided by creditors to assets provided by shareholders. Determined by dividing long-term debt by common stockholder equity. In risk analysis, a way to determine a company's leverage. The ratio is calculated*”

especially true for small businesses, since both their income and debt to equity ratio can be deeply affected by such huge expenses. Another benefit linked to the capitalization is the possibility of rising the value of the company's assets without increasing the value of its liabilities, making the financial ratios²⁸ of the business look more favourable. The implementation of this scheme can therefore result in an overstatement of the assets and revenues values due to the capitalization process of the expenses.

There can also be situations where invoices from vendors are ignored when preparing the company's financial records; these omissions are committed in order to overstate profits.

Liabilities and expenses can also be overstated; this can be the case when the management does not want to share the net profit with the shareholders. It is also a method used to pay a lower amount of taxes; inflated expenses can reduce the value of the taxable income. Lastly, the perpetrator may want to increase expenses and liabilities without affecting the assets value: this result can be obtained by resorting to fake payments.

by taking the company's long-term debt and dividing it by the value of its common stock. Put graphically:

Debt/equity ratio = Long-term debt / Common stock

The greater a company's leverage, the higher the ratio. Generally, companies with higher ratios are thought to be riskier because they have more liabilities and less equity”.

Source: Farlex Financial Dictionary.

²⁸ Financial ratios are “relationships determined from a company's financial information and used for comparison purposes. Examples include such often referred to measures as return on investment (ROI), return on assets (ROA), and debt-to-equity, to name just three. These ratios are the result of dividing one account balance or financial measurement with another. Usually these measurements or account balances are found on one of the company's financial statements”.

Source: <https://www.inc.com/>.

2.4.4 – Improper Asset Valuation

The category of improper asset valuation includes all the fraud schemes consisting in an improper valuation of the company's assets, which can be either overstated or understated depending on the goal of the fraudster.

The overstatement of assets' value is usually committed in order to increase the attractiveness of the business and to attract potential buyers willing to acquire the company. In other cases, the organization has to have a certain amount of assets to be financed by financial institutions. This situation may push an employee into undertaking the fraudulent behaviour, increasing the reported assets value in order to meet the conditions required to obtain the funding.

It is difficult to detect this type of fraud since the accounting principles grant wide discretionary powers to the individuals preparing the financial statements. It may then be possible that employees exploit those powers to overstate the assets, thus committing a fraudulent action.

The assets that are most likely to be improperly valued are:

- Fixed assets
- Inventory
- Accounts receivables

One of the main methods employed to manipulate fixed assets is the booking of fictitious assets. In this case, the overstatement takes place in the financial records with the inclusion of the value of an asset that the company has never acquired. It is difficult to detect this kind of fraud, since the amount of the company's assets is usually so large that it is difficult to check how each one of them is used within the organization's activities. Another method involves the misrepresentation of the assets present in the financial records, which translates into a non-compliance with the accounting standards when the assets are reported.

Regarding the improper valuation of inventories, since they have to be valued at the lower between the acquisition cost and current market value, they should be reported at their current value in the financial records. An improper valuation of the inventories' value may result in an asset overstatement and a mismatch of COGS (cost of goods sold) and revenues. One of the most common method used to inflate the value of inventories is based on the implementation of fictitious inventory schemes, which usually *“involve the creation of fake documents such as inventory*

count sheets and receiving reports”²⁹. Another method used to overstate inventories consists in adding back the inventory sheets in the calculation system; as a result, the same value may be taken into account twice.

The two main schemes involving accounts receivable manipulation are fictitious accounts receivable and the failure to write off accounts receivables as bad debts. Fictitious accounts receivable usually arise from the implementation of the fictitious revenues’ fraud scheme³⁰. The fictitious accounts receivable scheme is more commonly implemented by increasing their value accordingly to the increase in the sales value. The individuals committing the fraud usually try to conceal their crime by providing auditors with false balances confirmations.

Failure to write off accounts’ receivable consists in failing to reduce the value of the accounts receivables by the amount that is not expected to be collected anymore. It is stated in the accounting standards that, if an account receivable cannot be collected anymore, the balance sheet value of the accounts receivables has to be reduced, and the reduction’s amount has to be equal to the value of the uncollectable accounts receivables. The fraud takes place whenever the employee decides to not operate the reduction. To put it simply, the “bad debt” associated with the receivables that will not be paid in the future is still taken into account, resulting in the reporting of an overstated value of the accounts receivable.

²⁹ Kranacher M. J., Riley R., Welles J. T., *Forensic Accounting and Fraud Examination*, John Wiley & Sons, 2010.

³⁰ See paragraph “2.4.2 – Fictitious/Understated revenues”, pp. 37-38.

2.4.5 – Improper Disclosures

The schemes associated with this last category concern the ways data are reported, classified and illustrated in the accounting records and are linked to the quality of the financial information disclosed.

The role of disclosures within an organization is extremely important since they serve the purpose of communicating the financial results to the stakeholders of the company. Given their importance, disclosures have to be extremely detailed in their portrayal of the financial condition of the business and have to report significant accounting values under the principle of the true and fair view³¹. It is possible for auditors to request information directly to the members of the top management when relevant events that occurred during the fiscal year are concerned. If managers do not comply with the request of the auditors, they may incur in a breach of corporate governance standards.

It is responsibility of the managers to check whether the information has been accurately disclosed under the above-mentioned principle of the true and fair view. While performing their duties, managers have to act in the best interest of the shareholders. If this does not happen, there could be the risk of the management being involved in a fraudulent scheme.

Hence, it is possible to delineate two obligations that managers have to comply with:

- disclosing to the stakeholders every relevant information
- checking that the facts are reported in a comprehensible and non-deceitful manner

An improper disclosure fraudulent scheme will be implemented whenever one of these two obligations is not respected.

³¹ In the accounting field, the concept of true and fair view is used to indicate that the accounts indicated in the financial statements are accurate and complete.
Source: Cambridge Dictionary.

CHAPTER 3

THE FINANCIAL STATEMENT FRAUD IN THE ITALIAN LEGISLATION

3.1 – INTRODUCTION

In this chapter, we will explain how the financial statement fraud has been implemented in the Italian legislation.

In paragraph 3.2, an exposition of the purpose of financial statements will be given. In particular, the paragraph will focus on the description of Art. 2423 of the Italian civil code and its main commas.

In paragraph 3.3 the definition of financial statement fraud that is delineated in the Italian civil code will be conveyed. The main characteristics of Art. 2621 and 2622 will be analysed. Among them, the main ones are:

- The parties involved
- The punishment thresholds
- The illicit behaviour

3.2 – PURPOSES AND GENERAL PRINCIPLES OF FINANCIAL STATEMENTS IN THE ITALIAN CIVIL CODE

Before proceeding with the analysis regarding how financial statement frauds have been acknowledged in the Italian legislation, it can be useful to briefly recall the purposes of financial statements and the rules that determine how they have to be drafted.

The main purpose behind the drafting of financial statement is the disclosure of information, so that the totality of the stakeholders can have access to them.

In particular, it is crucial for the top management to have such knowledge, since they will be using it to implement strategies that are aligned with the business performance. At the same time, external parties, such as vendors, clients, investors, and creditors, are interested in knowing the financial position of the business, so that they can take decisions in line with the performance of the business.

Art. 2423 of the Italian civil code indicates, in its first comma, which are the main financial statements that have to be redacted by the company.

In particular, it states that the administrators of the company have to write down the financial statements, which consist in the balance sheet, the income statement, the cash flow statement and the explanatory note. The first statement is a scheme that illustrates the value of the assets and liabilities owned by the company for the current year. The second statement aims at showing the operating result of the current year. The third statement shows the cash inflows and outflows that have been generated in the current year. Lastly, the fourth document consists in an exposition whose goal is to explain and clarify the content of the other three financial schemes.

In the second comma, the purpose of the financial statements is given. In particular, it states that financial statements have to be written with clarity and have to portray in a truthful and fair manner the financial position and the operating result of the organisation. The use of the term “truthful” does not translate into a demand of statements portraying an objective and absolute truth, which is not achievable for what concerns the values that are estimated; it requires instead that those preparing the financial records compute the estimates in a correct way. It is also introduced the principle of clarity, which states that financial records, in order to be clear, have to be redacted following the rules that dictate the formal content of the balance sheet and the income statement.

Lastly, the third comma states that whether the information required by law are not sufficient enough to give a true and fair view of the business financial condition, it is mandatory to provide other information that can help reaching the above-mentioned purpose. It is also established the mandatory derogation in those exceptional cases where the law disposition is in conflict with the true and fair view.

3.3 – THE FRAUDULENT FINANCIAL REPORTING

The financial statement fraud schemes are identified within the Italian law by the articles 2621 (*False comunicazioni sociali delle società non quotate, i.e. false corporate communications from unlisted companies*) and 2622 (*False comunicazioni sociali delle società quotate, i.e. false corporate communications from listed companies*) of the Italian Civil Code. The behaviours that are prosecuted by law are:

- the reporting of untruthful facts
- the omission of facts whose disclosure is mandatory

The main difference between the crimes that are identified by the two dispositions is linked to whether the victims suffer an actual damage: if this element is absent, the crime will be associated with article 2621. This distinction will lead to different ways in which the crime is punished; article 2622 states that the perpetrator can be imprisoned for a minimum of 3 years up to 8 years while article 2621 states that the imprisonment period can vary from a minimum of 1 year up to 5 years. The two cases also differ in the manner the crimes are prosecuted: in the first scenario, the crime is prosecuted as soon as the news regarding its manifestation surfaces. In the second scenario, the crime is prosecuted only after the victim files a formal complaint.

The main characteristics of the two dispositions are summarized in the following table.

	Art. 2621 c.c.	Art. 2622 c.c.
Perpetrators	Administrators, top management, internal auditors, liquidators	Administrators, top management, internal auditors, liquidators
Intent	To deceive shareholders and stakeholders	To deceive shareholders and stakeholders
Goal	To achieve an unjust gain	To achieve an unjust gain
Object of the fraud	Financial statements and other corporate disclosures	Financial statements and other corporate disclosures
Illicit behaviour	Recording of untruthful events, omission of information whose recording is mandatory	Recording of untruthful events, omission of information whose recording is mandatory
Damage	Absent	Material damage suffered by the company, the shareholders or the creditors
Formal complaint	Absent	Filed by the victim
Sanction	Imprisonment for 1 – 5 years	Imprisonment for 3 – 8 years
Cases in which the action is not punishable	<ul style="list-style-type: none"> - if the deceitfulness or the omissions don't affect in a significant way the portrait of the financial condition of the company - if the deceitfulness or the omissions determine a variation of the profit (before taxes) $\leq 5\%$ or a variation in the net worth $\leq 1\%$ - If the misleading estimates have a value that differ for an amount $\leq 10\%$ of the correct ones' value. 	<ul style="list-style-type: none"> - if the deceitfulness or the omissions don't affect in a significant way the portrait of the financial condition of the company - if the deceitfulness or the omissions determine a variation of the net profit (before taxes) $\leq 5\%$ or a variation in the net worth $\leq 1\%$ - If the misleading estimates have a value that differ for an amount $\leq 10\%$ of the correct ones' value.

Table 1: Main elements of articles 2621 and 2622 Italian c.c. . Source: Commissione Diritto Penale Dell'Economia ODCEC Roma, *Le false comunicazioni sociali: il Falso in Bilancio*. Reproduction made by the author.

3.3.1 – The Parties Involved

The perpetrators of the cases presented in the articles 2621 and 2622 are usually individuals such as administrators, top management, internal auditors and liquidators. However, it may occur that those committing such crimes do not occupy one of the above-mentioned working positions.

It is necessary to identify the author of the crime not only by relying on his working position, but also by basing the investigation on whether the individual is carrying out activities that are typically undertaken by administrators, top management, internal auditors and liquidators. This principle is contained in art. 2639 of the Italian c.c., which includes among the individuals indicated in art. 2621 and 2622 of the Italian c.c., the other entities performing the same functions as those individuals, even though such tasks are not part of their working tasks. In other words, it is possible to identify as perpetrators all the individuals which are *de facto* accountable for the misleading action that is committed.

Additionally, the perpetrators have to act with the specific intent that is the awareness of purposefully committing the crime to obtain an unlawful gain.

3.3.2 – Is the Action always Punishable?

There are some limits below which it is not possible to punish the previously mentioned crimes. These thresholds can be defined either as a percentage of some financial statements items (such as 5% of the profit (before taxes) or 1% of the net worth) or as a manipulation or an omission of information that are not considered as being significant, thus not influencing in a relevant way the representation of the business financial condition

It is possible to give a further classification of these limits. Specifically, they comprise of:

- A general flexible threshold, stating that it is not possible to punish misleading actions that resulted in the value manipulation of a non-significant item
- Two thresholds stating that it is not possible to punish misleading actions resulting in a variation of the profit (before taxes) that is not higher than 5% and a variation of the net worth that is not higher than 1%

- A threshold related to asset valuation that states that it is not possible to punish the misleading action if the value of the estimate that has been reported differs from the value of the correct value for an amount that is lower than 10%.

The fraudulent activity will be punished whenever one of these thresholds is surpassed.

It is interesting to notice that, while the two thresholds linked to the use of profit and net worth values are easy to compute, this cannot be said for the general and the asset valuation values. Nonetheless, the computations for these benchmarks are influenced by the accounting techniques used by the company. Hence, a deep knowledge of accounting principles is required in order to correctly compute them.

3.3.3 – The Illicit Behaviour

The criminal behaviour that is implemented by the fraudster can take two different forms.

The first form consists in reporting in financial records facts that are not truthful. This behaviour is characterized by the fact that the perpetrator takes an actual action in order to manipulate the financial statements; in this sense, this can be considered as an active behaviour. This behaviour is usually identified as “commissive behaviour”.

The second one instead is an omission from the financial records of a relevant information whose disclosure is mandatory. In this scenario, the behaviour can be considered as passive, and is generally defined as “omissive behaviour”.

We will now move on to a deeper analysis regarding the first type of behaviour.

As we mentioned previously, the commissive behaviour consists in reporting in financial records facts that are not truthful.

The truthfulness of these facts concerns both elements that are objectively determinable (such as events and data) and elements that are determined through a valuation process based on estimations. The commissive behaviour consist in the misstatement of one of these elements.

The valuation process has only recently gained importance from a criminal perspective. In particular, the Supreme Court of Cassation³² has established³³ that a financial statement fraud can occur when an individual does not follow the accounting principles when reporting in the financial statements values that can deceive the reader in its perception of the financial condition of the business.

A more in-depth explanation of the concepts of untruthfulness and of legal significance of valuations is probably in order.

There are three different approaches that can be taken when the concept of untruthfulness is to be interpreted:

- The “legal true” criteria
- The reasonableness criteria
- The compliance criteria of the declared and chosen methodology

The “legal true” criteria identify the untruthfulness of using accounting criteria that are different from the ones established by the law; as a result, figures will be wrongly reported in the financial records. The criteria further state that the Civil Code³⁴ provides the guidelines that have to be used in order to detect the deceitfulness in the financial statements.

The reasonableness criteria recognize that administrators can use a certain margin of discretion when estimating accounting items and consider an estimation as being untruthful only when the above-mentioned limits³⁵ are surpassed.

Lastly, the compliance criteria of the declared and chosen methodology state that valuations are untruthful when there is a mismatch between the methodology de facto employed in the valuations and the accounting principles declared in the financial statements. In other words, the valuation standards that have been effectively used are different from the ones that have been stated. This mismatch makes it impossible to reconstruct the process underlying the financial statements construction.

³² *In Italy, the Supreme Court is at the top of the ordinary jurisdiction; between the main functions that are conferred by the Basic Law on the Judiciary of 30 January 1941 no. 12 (art. 65) is to ensure "the exact observance and uniform interpretation of the law, the unity of the national objective law, compliance with the limits of the various jurisdictions.*

Source: <http://www.cortedicassazione.it/>.

³³ Corte di Cassazione, Sez. Un., n. 22474 del 2016.

³⁴ See paragraph “3.2 – PURPOSES AND GENERAL PRINCIPLES OF FINANCIAL STATEMENTS IN THE ITALIAN CIVIL CODE”, pp. 44-45.

³⁵ See paragraph “3.3.2 – Is the action always punishable?”, pp 48-49.

Among the three criteria, the “legal true” has been criticized by scholars since not all the financial statements that are not redacted in accordance to the accounting principles stated in the Civil Code can be considered as untruthful.

Critics were moved also against the compliance criteria of declared and chosen methodology, since it considers as non-punishable the misstatements that occur when it is absent a mismatch between the implemented valuation principles and the ones that have been stated to have been used.

In light of these critics, the criteria that may better take into account the concept of untruthfulness, is the reasonableness criteria, as it is stated in the Italian Civil Code (art. 2621 c.c. comma 4 and art. 2622 c.c. comma 6) that “reasonable” valuations are not punishable.

It is not possible to overlook the fact that the values reported in the financial statements cannot be represented as being “absolute”, since their estimate can change accordingly to the valuation principles that have been adopted. As a matter of fact, it is more appropriate to claim that there are several reasonable values that can be estimated for each accounting item, and they are as numerous as the number of accounting principles that can be used.

Given the fact that there are numerous elements that can be influenced by subjective estimates and hypothesis, there is not the concrete possibility of objectively claiming whether financial statements are true or false in an absolute sense. However, it is possible to express an opinion regarding the consistency between the estimates and the methods used in the formulation of the financial statements.

In other words, since in financial records absolute values coexist with estimated values, the “truth” that has to be portrayed by the accounting records must be interpreted as the consistency between the accounting principles that have been used for the valuation and the judgments that have been made by the individual preparing the accounting records. Those judgements have to be backed up by a strong technical knowledge.

In conclusion, it is possible to say that financial statements are truthful if they are prepared in compliance with all the rules underlying their reporting and if the recorded data are reasonable.

Lastly, for the crime to be identified as being part of the cases indicated in art. 2621 and art. 2622 of the Italian c.c., two more elements have to be present:

- Deceitful behaviour

- Unlawful gain

The first element is related to the fact that for the crime to happen, there has to be an intent of deceiving the victim; the second element is related to the fact that the misstated values have to grant the perpetrators (or other parties) an unjust gain.

The deceitfulness of the behaviour is related to the qualitative and quantitative aspects of the misstated information.

The quantitative aspect has been dealt with through the establishment of benchmarks³⁶ which, once surpassed, turn the action into a relevant one from a criminal perspective.

The qualitative aspect is as important as the quantitative aspect; financial statements are not only a result of some measurement processes, but they are also a product of activities of classification, logical aggregation and expressivity of values' descriptions. Hence, the "qualitative forgery"³⁷ can assume criminal significance. An example of qualitative forgery is the incorrect classification of an accounting item, which can deceive the reader as much as a quantitative misstatement, if not more.

The unjust gain is strictly correlated with the damage that is suffered by the victim and requires that the perpetrators act with a specific intent.

The unjust gain can have economic and non-economic nature; in the latter case, the activity is perpetrated to satisfy a psychological or moral need.

The profit can be considered as unfair when it cannot be obtained by legal means or when one of the following elements is missing:

- Legitimizing title
- Fair cause

The beneficiary of the unfair profit can also differ from the individual that is committing the crime.

³⁶ See paragraph "3.3.3 – Is the action always punishable?", pp. 48-49.

³⁷ It is defined as a qualitative forgery a manipulation of the way in which data are shown in the financial records. It does not affect the value of the assets reported in the accounting statements.

CHAPTER 4

AN EMPIRICAL STUDY: THE BIO-ON CASE

4.1 – INTRODUCTION

In this final chapter, we will have the opportunity to observe how financial statements frauds occur by means of analysis of an empirical case. In this study, evidences of how the company Bio – On committed its frauds will be provided.

In paragraph 4.2, an excursus on the company's history will be provided.

In paragraph 4.3, a description of the individuals that uncovered the fraud will be given. In particular, the paragraph will focus on the reasons and the red flags that pushed them into starting the investigation.

In paragraph 4.4, an in-depth analysis of the financial fraud will be given. The exposition will start with an explanation of how the fraud was carried out through the scheme of the fictitious revenues and improper asset valuation.

Then, it will be discussed the manner in which Bio – On misreported the costs associated with the implementation of one of his projects.

Lastly, in the final part of the paragraph, some examples of how Bio – On committed the fraud through transactions with its affiliated companies will be provided.

In paragraph 4.5, a brief overview of the consequences that followed the scandal will be provided.

4.2 – BIO-ON BACKGROUND INFORMATION

Bio – On was a society founded in 2007 by Marco Astorri and Guy Cicognani and placed in San Giorgio di Piano, near Bologna. The purpose of the society was to operate in the sector of biotechnologies to produce totally natural products and solutions that were 100% obtained by renewable sources. In practice, the society produced, through the bacterial fermentation of sugar beet and sugar cane remnants, bioplastics that were completely biodegradable.

On the 24th October 2014, the group got listed on the AIM³⁸ market of the Italian Stock Exchange, with a price of 5€ per share. At the time, the society managed to sell almost seven million of shares, reaching a capitalization value of 66.2 million of euros. At the end of the 2015, the value per share was equal to EUR 15.2, and the capitalization value of the company was equal to EUR 220 million. The price per share kept on increasing during the following years, making the company reach a capitalization value of over EUR 1 billion in 2018.

On the 23rd of July 2019, which is the day before the accounting fraud was revealed (24th July 2019), the company's price per share was equal to EUR 55.3, and its capitalization value was equal to EUR 1.04 billion.

³⁸ The Alternative Investment Market (AIM) is a stock market for small companies that is regulated by the London Stock Exchange (LSE). The AIM Italia the stock market for small italian companies, and it is characterized by a simplified listing procedure, limited obligations and funds available for investments.

Source: www.aim-italia.it/.

4.3 – WHO EXPOSED THE COMPANY

Some private investors aim at obtaining a financial gain by finding out which businesses are committing a fraud and have not been detected yet.

To generate a profit, the investors borrow a company's shares by a bank through a short selling operation³⁹. They will then proceed at selling the shares on the market. The company is chosen after an accurate private investigation is implemented by the investors: if something off is found out in the corporate disclosure of the company, the investors will proceed with borrowing its shares. After the selling, the investors publish their findings regarding the company financial condition, betting on the fact that, as soon as the news is shared in the market, the value of the shares will fall. The profit of the investors will be given by the difference between the price at which the shares have been sold and the price at which they have been bought back to be returned to the bank.

The Bio - On fraudulent behaviour has been detected by one of these private investors.

4.3.1 – Quintessential Capital Management

Quintessential Capital Management (QCM) *“is a New York-based asset management firm aiming for exceptional returns through the application of value investing, shareholder activism and deep due diligence”*⁴⁰. Its main activity consists in detecting, investigating, and disclosing to the public hidden disastrous financial conditions of listed companies, such as frauds and other criminal behaviours.

The fund uses the most advanced investigation methods to collect the data, and decides to disclose the criminal activity only if they have been able to find out enough evidences to back up their thesis. Since 2015, the firm has carried out 7 operations (8, if we include also the Bio – On one) against firms with a 100% success rate. In fact, in each one of the cases that QCM has examined, the company was actually committing a criminal activity.

³⁹ A short-selling scheme consists in selling financial instruments that are not owned by the seller, with the obligation to buy them back later directly from the person that lent them.

⁴⁰ Source: www.qcmfunds.com/.

The firm operates in a profit-making perspective, however it strongly believes in the moral value of its job, which aims at removing dangerous companies from the market.

4.3.2 – The Red Flags

Regarding the Bio – On case, there are several factors that induced QCM to start their investigation of the company.

In particular, the main red flags that pushed QCM were the following:

- contrast between free cash flow value and profits.
- change of the auditing firm before the 9 years⁴¹
- the continuous press releases stating the implementation of projects that have never been made
- Doubts regarding the technology implemented to produce the bioplastic
- Sales related almost entirely to account receivable

Regarding the first red flag, Bio – On stated in its financial records that profit were growing over the years with an exponential trend. However, this statement was considered suspicious, since the free cash flows were reported as being negative.

⁴¹ It is stated in the d.lgs. n. 39/2010 that companies that are being audited by an auditing firm have to choose a new firm every 9 years. Usually, the change of the auditing firm before the nine years is perceived as a suspicious move.

4.4 – THE FINANCIAL FRAUD

QCM analysis on the accounting statements has revealed that the financial records have been manipulated to depict a strong and healthy financial situation. The main findings of their inspection can be found in two reports⁴²:

- *Risposta alla Nota Stampa Bio On del 24.07.2019*
- *Quintessential Bio On Report (Italiano)*

Most of our considerations will be based on the findings of these two reports.

4.4.1 – Fictitious Revenues and Improper Asset Valuation

In Bio – On financial statements, it was reported a value of sales for 2018 equal to EUR 50 million. This value was considerably higher than the value registered in the previous year, equal to EUR 9.66 million. This may have induced the reader of the financial records into thinking that the company was a solid one, characterized by a high revenues growth rate.

However, this was not the case. Bio – On revenues had almost entirely a fictitious nature, and were generated by transactions where the buyer consisted in societies affiliated or controlled by Bio – On.

The fraudulent scheme implemented by Bio – On was based on generating revenues by selling its technology as “licenses” to societies that were created specifically for that scope. These companies could also be considered as “empty boxes”, since they didn’t seem to serve any other purpose.

Those companies acquired the licences from Bio – On and capitalized them as assets in the balance sheet, while Bio – On recorded the sales in its balance sheet (in the form of accounts receivables) and in its income statement (in the form of revenues). However, no payment was ever received by Bio – On. No cash inflow occurred, and the outstanding credit remained open.

⁴² Available on <https://www.qcmfunds.com/>.

Hence, Bio – On shows figures regarding the revenues that are mostly fictitious. This situation is easily observable by looking at the discrepancies existing between net income and cash flows figures and accounts receivable and sales' value.

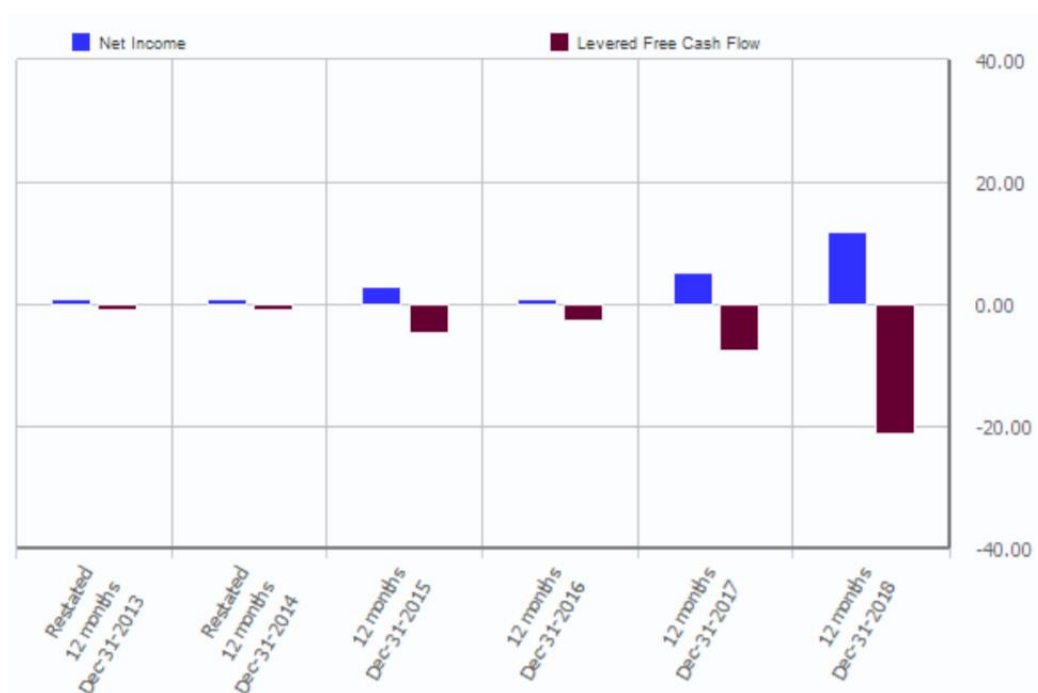


Figure 14: Comparison between net income and levered free cash flow. Source: QCM, *Quintessential Bio – On Report (Italiano)*, 2019. Available on <https://www.qcmfunds.com/>.

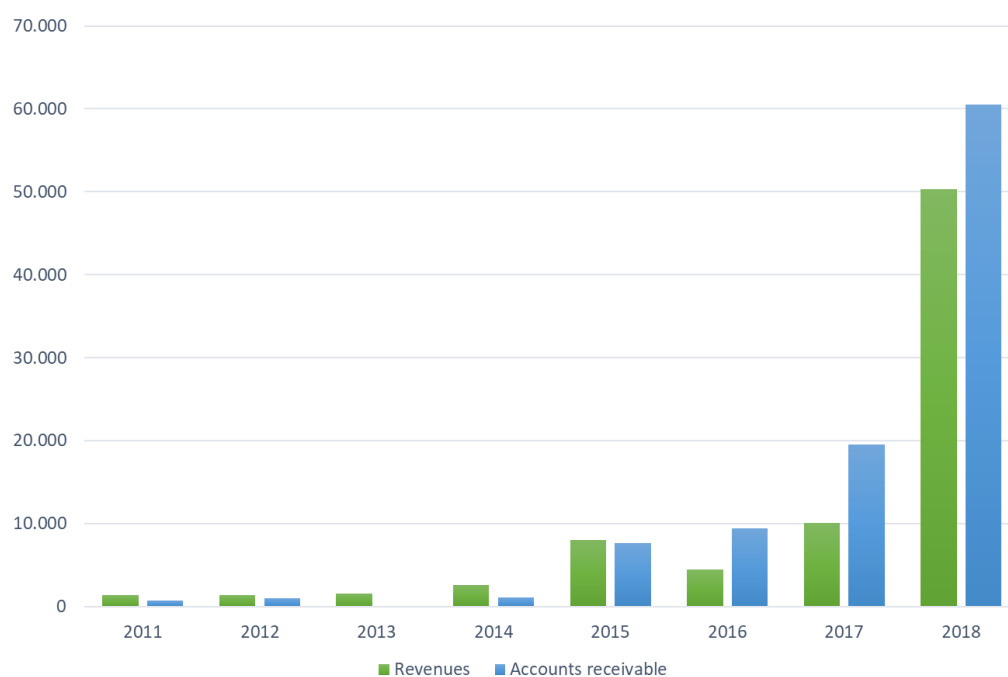


Figure 15: Comparison between revenues and accounts receivable values over the years⁴³.

⁴³ The graph has been constructed by taking the values of revenues and accounts receivable directly from Bio – On financial statements, available on <http://www.bio-on.it/>.

Following the classification operated by CapIQ⁴⁴ the levered free cash flow resulted as being equal to EUR -21 million. This further confirms what was said earlier: revenues were not being paid; hence cash was not collected. The company was not profitable, as it had been burning cash in all the years in which its disclosure was made available to the public.

The value of sales and accounts receivable have increased considerably in 2018 as in that year new “boxes” were created to acquire the licences from Bio – On. After analysing the financial statements of all the “empty boxes” societies affiliated with Bio – On, QCM concluded that, as previously mentioned, almost the entirety of Bio – On revenues and credits originated from transactions where the affiliate societies were involved. No trace of relevant sales to third parties was detected. It is also possible to come up with this conclusion by looking at the financial statements of Bio – On. In figure 16, it is possible to see the total amount of revenues and credits associated with the Joint Ventures. It is evident that the majority of the revenues that arose from transactions with the affiliated societies, which amount at EUR 44.791 million, were mostly generated by accounts receivables, whose value was EUR 33.643 million.

Considering that the total sales value amounted to EUR 50 million, it is possible to conclude that most of the total sales consisted of credits that Bio – On had with its affiliated societies.

⁴⁴ See *Risposta QCM alla “difesa” della Bio – On del 24/7/2019* available on <https://www.qcmfunds.com/>.

	Crediti		Debiti	
(Migliaia di Euro)	31/12/2018	31/12/2017	31/12/2018	31/12/2017
B-Plastic S.a.s.	2.750	2.750	-	-
Aldia S.p.A.	10.004	-	-	-
Liphe S.p.A.	6.004	-	-	-
Sebiplast S.r.l.	652	-	-	-
AMT Labs S.p.A.	7	-	-	-
Eloxe S.p.A.	4	-	-	-
Zeropack S.p.A.	11.715	-	-	-
U-COAT S.p.A.	2.507	-	1.335	-
Totale	33.643	2.750	1.335	-

	Ricavi		Costi	
(Migliaia di euro)	31/12/2018	31/12/2017	31/12/2018	31/12/2017
B-Plastic S.a.s.	-	-	-	-
Aldia S.p.A.	10.003	-	-	-
Liphe S.p.A.	6.003	-	-	-
Sebiplast S.r.l.	270	-	-	-
AMT Labs S.p.A.	6.006	-	-	-
Eloxe S.p.A.	6.503	-	-	-
Zeropack S.p.A.	10.000	-	-	-
U-COAT S.p.A.	6.006	-	-	-
Totale	44.791	-	-	-

Figure 16: Account receivables and sales arising from transactions with the Joint Ventures. Source: Bio – On S.p.A., *Relazione sulla Gestione del Bilancio al 31/12/2018 OIC*. Available on <http://www.bio-on.it>.

Lastly, QCM analysis has also shown that, regarding the recording of the transactions where licenses had been “sold”, some violation of the Italian Civil Code Articles occurred. In particular, it was found out that almost all of the affiliate societies didn’t comply with that was established in articles 2343 and 2343-bis concerning the estimate⁴⁵ that has to be made by a professional when properties are transferred.

⁴⁵ The goal of the estimate is to verify the congruity of the properties’ values.

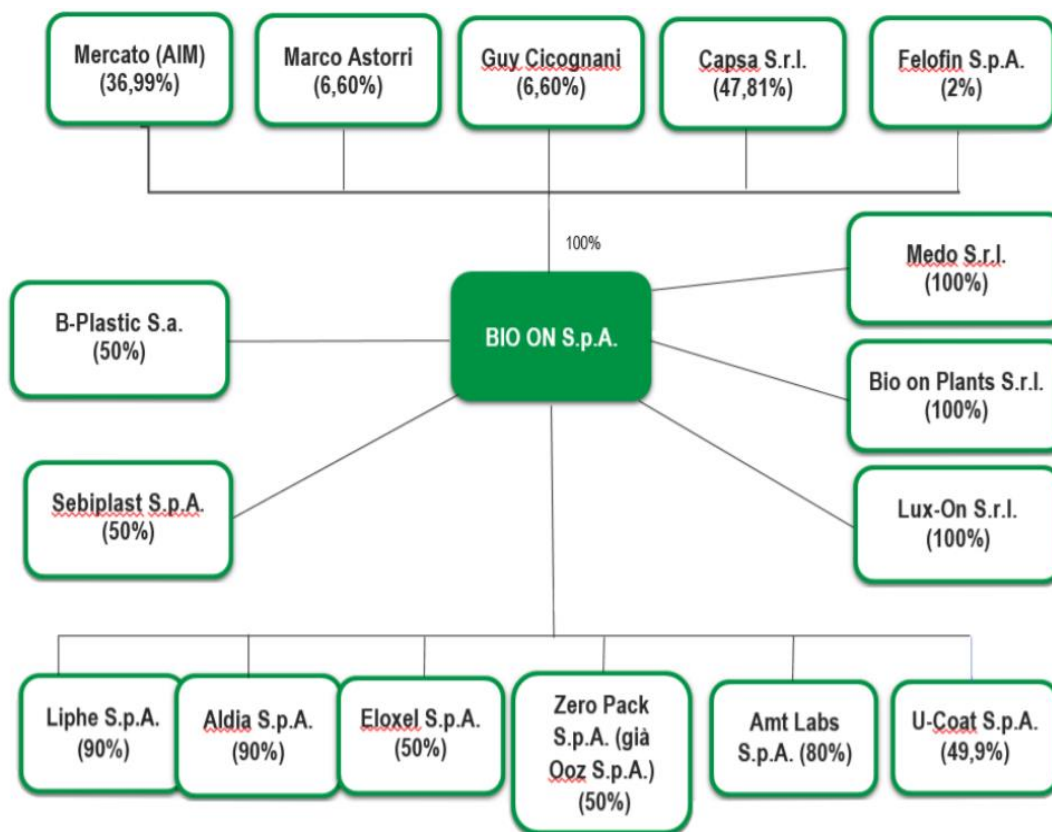


Figure 17: the structure of the Bio – On Group. Source: Bio – On S.p.A., *Relazione finanziaria semestrale consolidata al 30 giugno 2019*. Available on <http://www.bio-on.it/>

4.4.2 – Disproportionated Costs and Lack of Marketability

In 2018, Bio – On has claimed the completion of a production implant situated in the city of Castel San Pietro Terme. Initially, the production capacity and the cost of the implant were estimated as being equal, respectively, to 1000 tons and EUR 15 million. However, both these estimates have been proved to be wrong.

Regarding the cost of the implant, Bio – On stated that the final cost that was actually sustained to complete the implant was equal to EUR 51 million (EUR 44 million if we don't include the licenses' costs). This value can be perceived as being suspicious for several reasons.

First, the cost sustained by Bio - On implied a production cost that was several times higher than the production costs of the competitors. To further explain this point, it may be useful to compare Bio – On costs with the ones of two of its competitors, which are Novamont and Matabolix. The findings are summarized in the table below.

<i>Company</i>	<i>Capacity (tons)</i>	<i>Cost (€m)</i>	<i>Cost/ton (€)</i>
<i>Novamont</i>	80,000	234	2,990
<i>Matabolix</i>	50,000	154	3,080
<i>Bio - On</i>	1,000	44	44,000

Table 2: Comparison of production costs. Source: Source: QCM, *Quintessential Bio – On Report (Italiano)*, 2019. Available on <https://www.qcmfunds.com>. Reproduction made by the author.

It is noticeable that the production cost per ton sustained by Bio – On was higher than the production costs per ton sustained by the competitors (respectively, EUR 44,000 per ton vs EUR 2,990 and EUR 3,080 per ton). What is more, the costs sustained by the two competitors were consistent with each other and had a very similar value. Hence, the values of Bio – On was an anomaly.

Secondly, with a cost estimate that was so exorbitant, also the selling price of the final product had to be high in value. The price at which the propylene is sold is usually equal to USD 2 per kilo. If we take into account the development costs linked to the implant, as well as the fixed costs, the selling price that Bio – On should have used to break even is USD 12.5 per kilo, which is six times the price at which the propylene is sold. It is simple to conclude that, with such a high price, it was nearly impossible for the product to be sold in the market. What is more, the selling value of the 1000 tons of bioplastic was estimated as being equal to EUR 4 million. Considering that the implant had a useful life of 10 years, the predicted total revenues would have been EUR 40 million at best, which would not even have been enough to cover the development costs (equal to EUR 51 million).

In the following table, it is possible to see the estimates that QCM used to obtain the break-even price:

Castel San Pietro Terme production implant cost estimates

	Actual
Facility cost	50,736,000
Useful life	10
Depreciation cost	5,736,000
Staff per facility	10
Annual salary	47,900
Labour cost	479,000
Sugar beet/ton	49.82
Capacity (tons/year)	1,000
Conversion factor	3
Sugar beet required (tons/year)	3,000
Feedstock cost	149,460
Total operating costs	5,702,060
Capacity (tons/year)	1,000
Capacity (kg/year)	1,000,000
Opex/kg EUR	5.70
EURUSD FX	1.13
Opex/kg \$	\$ 6.42
Total production costs	11,104,953
Capacity (kg/year)	1,000,000
“All in” expenses/kg	11.10
EURUSD FX	1.13
“All in” expenses/kg \$	\$ 12.50

Table 3: Estimation of the break even price. Source: Source: QCM, *Quintessential Bio – On Report (Italiano)*, 2019. Available on <https://www.qcmfunds.com>. Reproduction made by the author.

4.4.3 – Unfeasible Projects

Bio – On has stated the beginning of several collaboration projects with other societies. However, none of these projects seem to have been successfully implemented.

In 2015 a collaboration project with the Brazilian fund Moore Capital was announced with a press release⁴⁶. The project consisted in selling licenses to Moore Capital for EUR 5.5 million and in the implementation of a production implant worth EUR 80 million. In 2019, the construction of the production implant was yet to be started, and out of the EUR 5.5 million that Moore Capital should have paid to get the technological licence, only EUR 200 thousands have been remunerated to Bio – On⁴⁷. What is more, Moore Capital declared that it did not have the financial means to conclude the payment, nor had a clear idea of how to obtain the required funds.

Other examples of failed projects can be provided looking at some of the Joint Ventures created by Bio – On.

The Joint Ventures of the Bio – On group can be summarized as follows:

<i>JV name</i>	Book Value (€)	Profit (Loss) of the last financial year (€)	Market value (€)	Shares value (€)	Shares ownership (%)	Balance sheet value
<i>Sebiplast S.p.A.</i>	50,000	(107,706)	109,042	25,000	50	64,964
<i>B-Plastic s.a.s</i>	2,000,000	(37,977)	1,911,790	1,000,000	50	1,000,000
<i>Eloxel S.p.A.</i>	8,000,000	(13,633)	7,986,368	4,000,000	50	4,000,000
<i>Zeropark S.p.A.</i>	50,000	(12,762)	487,237	25,000	50	250,000
<i>U-Coat S.p.A.</i>	7,500,000	(11,901)	7,488,100	3,742,500	49,9	3,742,500
<i>Aldia S.p.A.</i>	50,000	(14,029)	35,971	45,000	90	45,000
<i>Liphe S.p.A.</i>	50,000	(15,552)	34,448	45,000	90	45,000
<i>Amt Labs S.p.A.</i>	10,000,000	(11,633)	9,988,367	8,000,000	80	8,000,000
<i>Total</i>						17,147,464

Table 4: Summary of the Joint Ventures of Bio – On group. Source: Bio – On, *Bilancio Esercizio OIC Nota Integrativa al Bilancio di Esercizio chiuso al 31/12/2018*. Available on <http://www.bio-on.it>.

⁴⁶ See *Comunicato Stampa Bio – On S.p.A. – Moore Capital: Verrà realizzato in Brasile il primo impianto per produrre bio plastica PHAs da co-prodotti della canna da zucchero. Concessa la seconda licenza industriale*. Available on <http://www.bio-on.it>.

⁴⁷ See QCM, *Quintessential Bio – On Report (Italiano)*, 2019. Available on <https://www.qcmfunds.com/>.

First, we will proceed by analysing the transactions between Bio – On and its Joint Venture B – Plastic. The society was created as a result of the collaboration between Bio – On and the French Cooperative Cristal Union, and it was owned for a 50% by Bio – On (see table 4) and for the remaining 50% by the French society. In 2015, Bio – On recorded an increase in revenues and accounts receivable due to the sale of a licence (worth EUR 3.250 million) to B – Plastic. Now, several suspicious elements arise when looking into the transaction. Above all, even though Bio – On reported the operation in its financial statements, there is no trace of the transaction in B -Plastic financial records: in fact, no increase in liabilities nor assets was detected by the company.

Bio – On reported in its 2015 Consolidated Financial Statements a value of revenues equal to EUR 8.011 million. Among them, an amount of EUR 6.500 million could be attributed to the sale of two licenses, one of them being the licence that was sold to B-Plastic. Along with the increase in sales, an increase in the accounts receivable was recorded. Bio – On stated in its financial statements that, out of EUR 7.7076 million of accounts receivable, EUR 3.250 million surged in relation to the sale of the license.

Principali dati economici e finanziari

I Ricavi operativi registrano nell'esercizio 2015 un incremento del 222% rispetto al precedente esercizio, dovuto principalmente alla sottoscrizione dei primi due contratti di licenza per un importo complessivo di Euro migliaia 6.500.

ATTIVO CORRENTE**(3.6) Crediti Commerciali**

I crediti commerciali verso clienti sono così dettagliati:

Crediti commerciali	31/12/2015	31/12/2014
Crediti verso clienti e JV	7.076	1.095
Totale crediti verso clienti e JV	7.076	1.095
Lavori in corso	536	1.360
Totale crediti commerciali netti	7.612	2.455

L'incremento di 5.157 Euro migliaia è principalmente imputabile ai crediti maturati a fronte della concessione delle prime due licenze avvenuta nella seconda metà del 2015, i cui effetti finanziari si manifesteranno principalmente nel corso del 2016, di cui 3.250 Euro migliaia si riferisce al credito per la concessione di una licenza alla joint venture posta in essere con la società francese B Plastic s.a.s., originariamente appartenente al Gruppo Cristal Union.

La parte più rilevante del saldo al 31 dicembre 2015 dei lavori in corso è rappresentata dal progetto di ricerca commissionato dal Gruppo Eridania Sadam S.p.A. per definire ed ottimizzare la produzione di Acido Levulinico, oltre allo studio di fattibilità commissionato dalla brasiliana Moore Capital e al PDP commissionato dal Gruppo francese Cristal Union.

CONTO ECONOMICO COMPLESSIVO**(3.17) Ricavi**

Nei ricavi delle vendite sono iscritti i proventi derivanti dall'attività caratteristica della Società nella fattispecie le prestazioni effettuate per le attività di ricerca applicata relativamente alla progettazione ed ingegneria di dettaglio dell'impianto industriale per la produzione di bio plastica oltre allo studio di specifiche applicazioni industriali di nuove tecnologie PHAs, per conto di clienti terzi; a queste tradizionali tipologie di ricavi si è aggiunta, nel 2015, la concessione delle prime due licenze.

Tali ricavi, pari a 8.011 Euro migliaia risultano essere notevolmente aumentati rispetto al valore dell'esercizio precedente (2.485 Euro migliaia) proprio in virtù della concessione delle suddette licenze per un valore pari a 6.500 Euro migliaia.

Figure 17. Source: Bio – On, *Bilancio di Esercizio e Bilancio Consolidato IAS al 31 Dicembre 2015*. Available on <http://www.bio-on.it/>.

However, as of 2019, the company confirmed in its financial statements that the accounts receivable (whose value had decreased due to value losses) had yet to be paid⁴⁸. Thus, they were still accounted as credits. No money was collected by Bio – On, hence the revenues arising from this transaction could be considered as fictitious.

5.6 Crediti Commerciali

I crediti commerciali verso clienti sono così dettagliati:

(Migliaia di euro)	31/12/2018	31/12/2017
Crediti verso clienti lordi	49.244	14.521
Attività contrattuali	1.197	1.396
Svalutazione dei crediti verso clienti e delle attività contrattuali	(274)	(70)
Crediti commerciali e attività contrattuali nette	50.167	15.847

I crediti verso clienti lordi ammontano alla data del 31 dicembre 2018 ad Euro 49.244 migliaia. Si registra un incremento di tale voce per Euro 34.723 migliaia rispetto al 31 dicembre 2017. L'incremento è principalmente imputabile ai contratti di concessione in uso delle tecnologie Bio On alle joint venture Aldia S.p.a., Liphe S.p.A. e Zeropack S.p.A. oltre alla vendita di una licenza al Gruppo Taif. Si rimanda al commento della voce Ricavi per i dettagli relativi.

All'interno dei crediti verso clienti lordi sono presenti crediti commerciali verso joint venture non movimentati nel corso dell'esercizio 2018 pari a Euro 2.750 migliaia i quali si riferiscono al credito per la concessione di una licenza alla joint venture francese B Plastic S.a.s. con il Gruppo Cristal Union costituita nella seconda metà del 2015, i cui effetti finanziari si manifesteranno entro l'esercizio 2019 dopo aver subito un ritardo legato ad imprevisti rallentamenti nel permitting da parte delle autorità francesi, che hanno ritardato l'avanzamento dei lavori.

Figure 18. Source: Bio – On S.p.A., *Bilancio Consolidato al 31 Dicembre 2018 e relazione sulla gestione IAS*. Available on <http://www.bio-on.it/>

Looking now at B-Plastic financial statements, no evidence can be found regarding the transaction. As of 2019, the balance sheet of B-Plastic had no intangible asset recorded, as well as and no debt nor payment that could be associated with Bio – On accounts receivables.

What is more, in the press release⁴⁹ Bio – On stated the project would include the production of an implant worth EUR 70 million. However, the value of the assets owned by B – Plastic is less than EUR 1.5 million, implying that the construction of the implant never started.

⁴⁸ The accounts receivables can also be seen in figure 16, pp 60.

⁴⁹ See *Comunicato Stampa Bio – On S.p.A. – Cristal Union: Accordo per realizzare in Francia il primo impianto per produrre bio polimeri PHAs da co-prodotti della barbabietola da zucchero*. Available on <http://www.bio-on.it/>.

Date de clôture	31-01-2019	31-01-2018	Variation
Durée de l'exercice	12 mois	12 mois	12 mois
Devise	€	€	--
Actif immobilisé net	1 382 200	1 117 200	23,72 %
immobilisations incorporelles	0	0	0,00 %
immobilisations corporelles	1 382 200	1 117 200	23,72 %
immobilisations financières	0	0	0,00 %
(amortissements et provisions)	+ de détails	+ de détails	+ de détails
Actif circulant net	644 700		-27,90 %
stocks et en-cours	0	0	0,00 %
créances	629 200	847 700	-25,78 %
disponibilités : trésorerie	15 500	46 600	-66,74 %
(Provisions)	+ de détails	+ de détails	+ de détails
Total actif	2 026 900	2 011 400	0,77 %

Date de clôture	31-01-2019	31-01-2018	Variation
Durée de l'exercice	12 mois	12 mois	12 mois
Devise	€	€	-
Capitaux propres	1 911 800	1 949 800	-1,95 %
écarts, réserves et autres fonds propres.	+ de détails	+ de détails	+ de détails
Provisions	0	0	0,00 %
Dettes	115 100	61 600	86,85 %
dettes financières et emprunts	0	0	0,00 %
dettes fournisseurs	115 100	61 600	86,85 %
dettes fiscales et sociales	0	0	0,00 %
autres dettes (comptes courants, ...)	0	0	0,00 %
Compte de régularisation passif	0	0	0,00 %
Total passif	2 026 900	2 011 400	0,77 %

Figure 19: B-Plastic balance sheet. Source: <https://www.societe.com/>.

A similar scheme has been found in the analysis of the Joint Venture Sebiplast. This society was created in 2015 as a result of the collaboration between Bio – On, which owned 50% of the shares, and S.E.C.I. S.p.A., holding del Gruppo Maccaferri, which owned the other 50% of the shares. As in the case of B -Plastic, Bio – On announced with a press release⁵⁰ that the project would include the construction of a production implant worth EUR 55 million. However, there is no trace of such an investment in the financial statements of Sebiplast, since the value of the assets was recorded as equal to EUR 1.5 million. Those assets were likely to be the licenses “sold” by Bio – On, but no evidence of the payment was provided.

STATO PATRIMONIALE

Attivo	2018	2017
Immobilizzazioni	1.469.462	446.320
Attivo circolante	505.037	281.312
Ratei e risconti	16	702
Totale attivo	1.974.515	728.334
Passivo	2018	2017
Patrimonio netto	109.042	46.846
Fondi per rischi ed oneri	0	0
Trattamento di fine rapporto	334	0
Debiti	1.865.131	681.480
Ratei e risconti	8	8
Totale passivo	1.974.515	728.334

CONTO ECONOMICO

	2018	2017
A) Valore della produzione	5.049	0
B) Costi della produzione	122.061	11.236
Differenza tra valore e costi della produzione (A - B)	-117.012	-11.236
C) Proventi ed oneri finanziari	-2.137	1
D) Rettifiche di valore di attivita' e passivita' finanziarie	0	0
risultato prima delle imposte (A-B+-C+-D)	-119.149	-11.235
Imposte sul reddito dell'esercizio, correnti, differite e anticipate	-11.443	0
Utile (perdita) dell'esercizio	-107.706	-11.235

Figure 20: Sebiplast financial statements. Source: Camera di Commercio Industria Artigianato e Agricoltura di BOLOGNA Registro Imprese - Archivio Ufficiale delle CCIAA

⁵⁰ See *Comunicato Stampa Bio – On S.p.A. – S.E.C.I. S.p.A.: In Italia il primo impianto al mondo per produrre bioplastica da Glicerolo, sotto-prodotto del Bio diesel. Concessa la licenza industriale*, available on <http://www.bio-on.it/>.

It is also interesting to notice that the company's production value was negligible (EUR 5 thousand). Hence, it is possible to say that it would have been very unlikely for those licenses to get repaid.

The last case that we are going to analyse is the one concerning the two Joint Ventures Aldia and Liphe.

These two societies were first established at the end of 2017.

As of 2019, both of those companies' shares were owned for 90% by Bio – On. The problem here arised with regards to the owner of the remaining 10%. It was stated in Bio – On financial statements that the owner of those shares was an “important financial partner”, and no further information regarding the matter was provided.

Le Società Aldia S.p.A. e Liphe S.p.A., sono detenute per il 90% da Bio On, e per il 10% da un importante partner finanziario.

Sulla base dei patti parasociali, entrambe le società risultano controllate congiuntamente con l'altro azionista nella condivisione della realizzazione rispettivamente del progetto Sun Protection Factor e Oral Care che vede Unilever e Bio-on parti di una partnership strategica per lo sviluppo, la produzione e la commercializzazione di prodotti per l'igiene e cura della persona che garantiscono un ridotto o nullo impatto ambientale.

Figure 21. Source: Bio – On Bilancio esercizio OIC nota integrativa, 2019.
Available on <http://www.bio-on.it/>.

Eventually, it was found out that the owner of those shares was Finnat bank, as stated in the corporate disclosure of the two Joint Ventures:

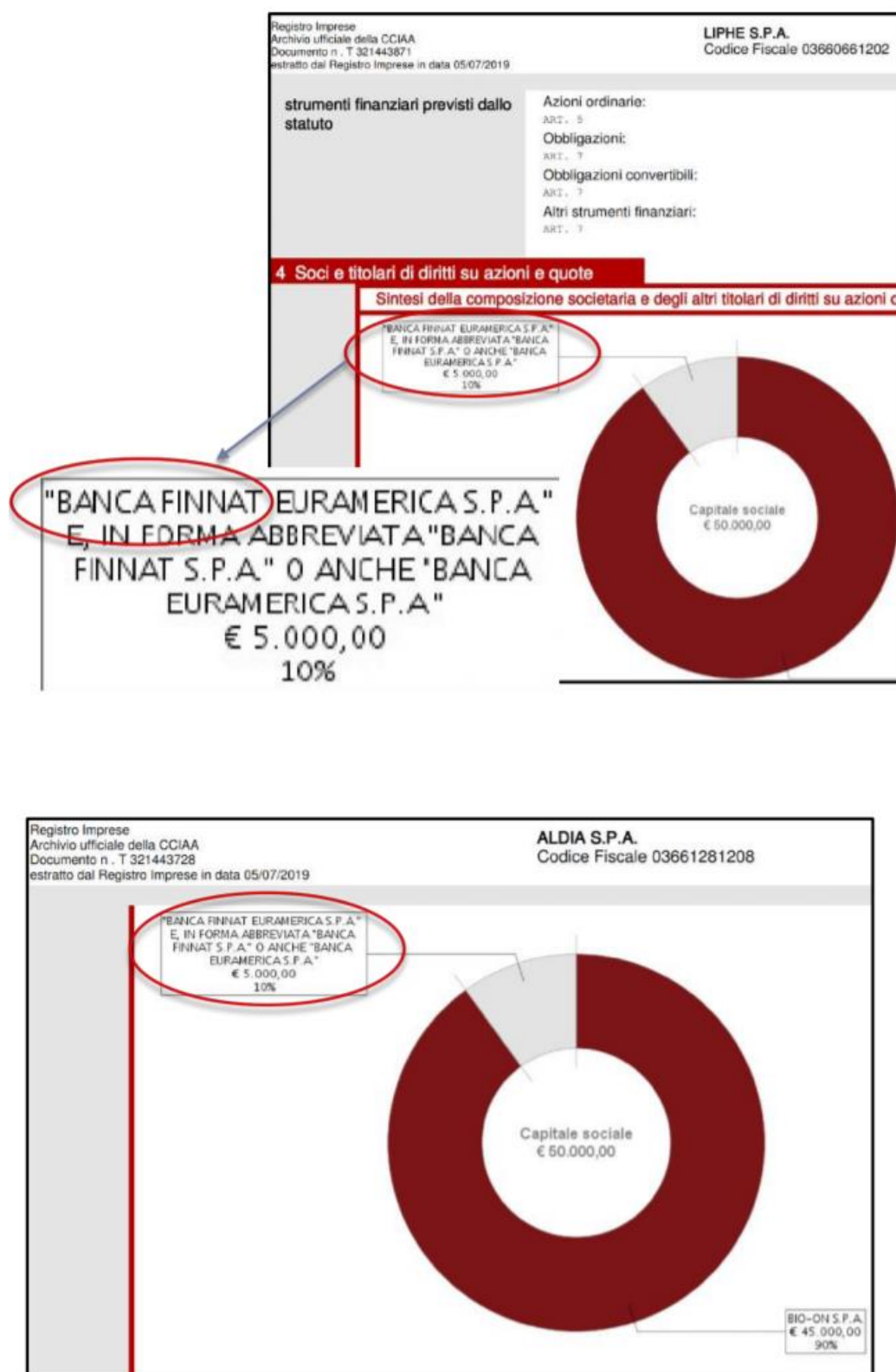


Figure 22: Ownership structure of Liphe S.p.A. and Aldia S.p.A. Source: QCM, *Quintessential Bio – On Presentation(english)*, 2019. Available on <https://www.qcmfunds.com/>.

and by the bank itself in its financial statements⁵¹:

3.1 Financial assets designated at fair value through other comprehensive income: breakdown by product

Items/Amounts	31.12.2018		
	Level 1	Level 2	Level 3
1. Debt Securities	288,482	-	-
1.1 Structured securities	-	-	-
1.2 Other debt securities	288,482	-	-
2. Equity	345	-	8,586
3. Loans	-	-	-
Total	288,827	-	8,586

Item 2.Equity includes the following strategic investments:

- Level 1: Net Insurance S.p.A. (345 thousand euros including the positive valuation reserve equal to 53 thousand euros);
- Level 3: Fideuram Investimenti SGR S.p.A. (1,075 thousand euros), SIA S.p.A. (4,600 thousand euros including the positive valuation reserve equal to 3,480 thousand euros), Calipso S.p.A. (44 thousand euros), CSE Consorzio Servizi Bancari S.r.l. (2,437 thousand euros including the negative valuation reserve equal to 67 thousand euros), SIT S.p.A. (15 thousand euros), Real Estate Roma Olgiata (410 thousand euros) and Liphe S.p.A. (5 thousand euros).

Figure 23. Source: Banca Finnat, *Financial Statement at 31 December 2018 – 89th Financial Year*. Available on <https://www.bancafinnat.it/>.

What stands out here is that Finnet bank is the financial institution in charge of valuating Bio – On shares. And in its equity report, Finnat also stated that the 10% of the companies' shares were owned by an "important financial partner", without disclosing that it was Finnat itself. This is to further confirm that the omission of the information was done purposefully by both parties.

It is also possible to see that, in the report, Finnat suggested a price per share that was higher than the one observable in the market (EUR 86 vs EUR 53,60).

⁵¹By looking at Finnat financial records, it was possible to find evidence only regarding the investment in Liphe S.p.A. However, given that the 10% shares owner has been stated to be the same for both companies, it is possible to conclude that Aldia shares are owned by Finnat Bank as well.

Evidences of the omissions committed by Finn timer are provided in the figure below:

 BANCA FINN timer	EQUITY COMPANY NOTE UPDATE	
RACCOMANDAZIONE Buy Target Price 86 €	BIO-ON Turn off pollution	
Prezzo al 12/12/2018 53,60 €	Settore: Biotecnologie Codice di negoziazione Bloomberg: ON IM	
Capitalizzazione di Borsa: Numero di azioni: Patrimonio netto al 30.06.2018:		1.009.034.794 € 18.825.276 44.467.390 €

- **Aldia S.p.A.:** 90% owned by Bio-On and 10% owned by a financial partner (fully consolidated). Together with Liphe, it is dedicated to Unilever and develops, produces and
- **Liphe S.p.A.:** 90% owned by the parent company and the remaining 10% owned by a financial partner (fully consolidated). Together with Aldia it develops, produces and sells

Figure 24. Source: Banca Finn timer, *Equity Company Note December 2018*. Available on <http://www.bio-on.it/>.

It is possible to conclude that Finn timer was giving price estimations based on his personal interests.

It is also clear that Bio – On decided to omit the information of the shares’ owner, since the company held an interest in being valued with a high price per share.

The identity of the “important financial partner” was later stated in Bio – On financial statements of 2019, which were prepared after the whole financial scandal broke out.

Le Società Aldia S.p.A. e Liphe S.p.A., il cui capitale sociale risulta detenuto per il 90% da Bio-on S.p.A. e per il 10% da Banca Finn timer Euroamerica S.p.A., sono controllate congiuntamente con l’azionista Banca Finn timer sulla base dei patti parasociali stipulati tra le parti. Nel corso del semestre

Figure 25. Source: Bio – On, *Relazione Semestrale Consolidata al 30 Giugno 2019 (FULL)*. Available on <http://www.bio-on.it>.

Another important issue concerns the fact that these two companies accounted for 36% of Bio – On’s revenues and 46% of its receivables⁵². Which can be perceived as suspicious, since the societies were young and had a low capitalization value (see table 4). What is more, by analysing their financial statements it was possible to see how their assets consisted almost entirely of the licences’ value that Bio – On sold them, meaning they didn’t own any other property. On the other hand, the entirety of the import was recorded by Bio – On as accounts receivable and revenues in its financial statements, which were equal to EUR 10 million for Aldia and to 6 million for Liphe (see figure 16 pp. 60). Thus, Bio – On considered those credits as being easily eligible. However, it is clear by looking at the financial statements of the two Joint Ventures that it was not the case. In fact, it is questionable how two companies with a production value of zero could afford to repay such huge amounts of debts.

STATO PATRIMONIALE	
Attivo	2018
Immobilizzazioni	10.011.790
Attivo circolante	40.041
Ratei e risconti	2.055
Totale attivo	10.053.886
Passivo	2018
Patrimonio netto	35.971
Fondi per rischi ed oneri	
Trattamento di fine rapporto	
Debiti	10.017.915
Ratei e risconti	
Totale passivo	10.053.886
CONTO ECONOMICO	
	2018
A) Valore della produzione	
B) Costi della produzione	14.030
Differenza tra valore e costi della produzione (A - B)	-14.030
C) Proventi ed oneri finanziari	1
D) Rettifiche di valore di attivita' e passivita' finanziarie	
risultato prima delle imposte (A-B+-C+-D)	-14.029
Imposte sul reddito dell'esercizio, correnti, differite e anticipate	
Utile (perdita) dell'esercizio	-14.029

Figure 26: Aldia financial statements. Source: Camera di Commercio Industria Artigianato e Agricoltura di BOLOGNA Registro Imprese - Archivio Ufficiale delle CCIAA.

⁵² To compute these figures, the data in figure 16 (pp.60) were used.

STATO PATRIMONIALE

Attivo	2018
Immobilizzazioni	6.009.034
Attivo circolante	39.989
Ratei e risconti	2.085
Totale attivo	6.051.108
Passivo	2018
Patrimonio netto	34.448
Fondi per rischi ed oneri	
Trattamento di fine rapporto	
Debiti	6.016.660
Ratei e risconti	
Totale passivo	6.051.108

CONTO ECONOMICO

	2018
A) Valore della produzione	
B) Costi della produzione	15.591
Differenza tra valore e costi della produzione (A - B)	-15.591
C) Proventi ed oneri finanziari	39
D) Rettifiche di valore di attivita' e passivita' finanziarie	
risultato prima delle imposte (A-B+-C+-D)	-15.552
Imposte sul reddito dell'esercizio, correnti, differite e anticipate	
Utile (perdita) dell'esercizio	-15.552

Figure 27: Liphe financial statements. Source: Camera di Commercio Industria Artigianato e Agricoltura di BOLOGNA Registro Imprese - Archivio Ufficiale delle CCIAA.

4.5 – THE AFTERMATH

Following the release of QCM's report on the 24th of July 2019, an investigation was held by the *Procura di Bologna*, which started checking the company's financial condition. As a result of a three-months investigation called "Plastic Bubbles", implemented by the *Guardia di Finanza* (GDF), the CEO of Bio – On, Marco Astorri, was placed under arrest on the 23rd of October. Co-founder Guido Cicognani and chief auditor Gianfranco Capodaglio were barred from exercising their profession. What is more, the GDF seized the company's assets for a total value of EUR 150 million, as stated by the local newspaper *Corriere di Bologna*.

As the *Procura di Bologna* was progressing with its investigations, also CONSOB⁵³ decided to check on Bio-On financial integrity after the release of QCM report. In particular, CONSOB decided to open an investigation for the crime of "market abuse" against Bio-On or QCM (in the beginning, also QCM was accused of market abuse, since as soon as the report was released, Bio-On accused the fund of spreading fake news to manipulate the market). However, as the investigation progressed, CONSOB questioned several times Bio-On results. In particular, after the half-year statement was released on the 1st of October, CONSOB decided to ask to the society some clarifications regarding the figures reported in the financial statements⁵⁴.

On the 7th of October, the newspaper *La Stampa* disclosed that the CONSOB was planning on investigating further on the financial situation of the company.

In particular, the two main issues that were brought up by CONSOB regarded:

- The relationship between Finnat and Bio-On, that generated an obvious interest conflict.
- The fictitious nature of the revenues.

Eventually, the society was declared on bankruptcy with a sentence of the *Tribunale di Bologna* on the 20th December of that same year.

⁵³ The Commissione Nazionale per le Società e la Borsa (CONSOB) is the public authority responsible for regulating the Italian financial markets. Source: <http://www.consob.it/>

⁵⁴ Bio-On, *Integrazione al comunicato stampa del 30 Settembre 2019*, Available on <http://www.bio-on.it/>

It is possible to make a reconstruction of the history of Bio-On share's price movements.

On the 25th of July, following the release of QCM report, the value per share dropped from a value of EUR 55.3 to EUR 15, marking a decrease of 72.88% in the span of two days. On that same day, Bio-On responded⁵⁵ to all the accusations moved by QCM, making the value of the shares increase to EUR 30. However, this situation was short lived, since on the 29th of that same month, QCM attacked again by questioning the validity of the technologies implemented by Bio-On. As a result, the shares' value dropped again. For some time, the shares' value stayed at a stable level (between EUR 16 and EUR 20), until the 1st of October, which is the day in which the half year statement was released. Since the investors were dissatisfied with the performance of the company that was depicted by the financial records, they sold the shares, making the company's shares lose value. In that day, the price per share reached a value of EUR 9. The price dropped even further on the 7th of October, after the news that CONSOB was furtherly investigating the society was released. Eventually, the shares' price dropped to EUR 5.80, which is basically the level of price that the share had when the company was first listed⁵⁶.

Comparing the price per share and the capitalization value that could be observed the 24th of July with the respective values observed the 21st of October, which is the last day in which the shares were available, it is possible to see that the capitalization value decreased by EUR 760 million, reaching a value of EUR 282 million, and the value per share was equal to EUR 10, signalling a total decrease of 82% in its value from the initial value of EUR 55.3⁵⁷.

⁵⁵ See press releases of 24th of July available on <http://www.bio-on.it/>.

⁵⁶ See paragraph "4.2 – BIO-ON BACKGROUND INFORMATION", pp. 54.

⁵⁷ See paragraph "4.2 – BIO-ON BACKGROUND INFORMATION", pp. 54.

It is possible to see the fluctuations of the share's price in the picture below.



Figure 28: graph of Bio-On value per share. Source: <https://www.teleborsa.it/>

4.6 – FINAL CONSIDERATIONS

It is now possible to make some considerations regarding the case that have been examined in this chapter in relation to what was explained in the previous chapters. Bio-On management implemented fraudulent schemes to deceive its investors by portraying a financial performance that was better than it actually is. The main purpose for this action was to increase the capitalization value of the company, so that the top managers could increase their profits. In particular, Marco Astorri and Guy Cicognani, respectively the president and vice president of Bio-On, were among the shareholders of Bio-On S.p.A., owning 6.60% of shares each. It was in their interest to increase the capitalization value, so that they could increase the value of their shares, thus earning a personal gain. In this situation, all the elements that characterize a fraud are noticeable:

- The top management is purposefully manipulating the financial statements
- The investors are being deceived by the actions undertaken by the managers
- The actions are generating an unlawful gain for the perpetrators and a damage for the investors

Following the definition given by the Italian legislation, it is possible to include the frauds implemented in Bio-On among the cases which Art. 2622 c.c. refers to, since the company is a listed one, hence is causing a damage to both its shareholders and debtholders.

It is possible to see which kind of financial statement fraud schemes have been implemented by the top management of Bio-ON.

First, the managers adopted the fictitious revenues scheme by creating Joint Ventures whose only purpose was to justify the sales value of Bio-On through transactions that did not generate any cash. This scheme is deeply connected with the improper asset valuation one. Specifically, in Bio-On case the value of receivables was fictitious, since no asset was actually sold to the Joint Ventures. What is more, the company also failed at writing-off some of the accounts receivable, even though it was very unlikely that they would have ever been collected given the non-existent production capacity of the affiliated societies. Lastly, the company did not comply with the accounting principles stated in the Italian Civil Code for the valuation of the licenses sold to the Joint Ventures.

Another financial statement fraud scheme that has been implemented within the company is the overstated expenses scheme. In particular, the production cost sustained for the development of the Castel San Pietro Terme's implant is unrealistically high, and no real justification was given for such estimates. Even though the society claimed that the cost was reasonable, it was very likely that the overstatement was made to cover and justify some others major losses that occurred during the year.

Finally, also the improper disclosure scheme was implemented. The company in fact didn't gave a proper justification for some of its figures, nor did it disclose some relevant information. We provided the example of Finnat Bank, which was not disclosed as being a financial partner of Bio-On until the scandal broke out.

Conclusions

The Bio-On case is only the last of a long series of financial statement frauds that took place in our country. For this reason, today it is necessary to learn to recognize when a fraud is occurring within a company, in order to intervene as fast as possible and limit the potential long-term damage for the company.

This thesis aimed to apply the theoretical notion of “fraud” to the empirical case study through the general description of this concept and, in particular, through the description of “financial statement fraud”, which is a specific kind of fraud. In this way, it was possible to recognize the fraudulent behaviour of the analysed company.

In the first three chapters, the necessary tools to identify the main features of a fraud were provided, such as a misleading behaviour that can cause damage to others and can result in an illicit source of profit for those who exercise the fraud. Secondly, several kinds of corporate frauds were introduced, such as asset misappropriation, corruption and financial statement fraud. These tools proved to be essential for an accurate and in-depth analysis of the case study.

From the investigation of the various cases of corporate frauds, it was possible to identify the types of fraud that Bio-On committed, for instance fictitious revenues, improper asset valuation, overstated expenses and, lastly, improper disclosure. Therefore, we proceeded to analyse the case by reporting examples of financial statement frauds that Bio-On committed for each one of the categories above mentioned.

To conclude, the frauds committed by Bio-On continued for several years, and this allowed the company’s share price to be highly valued in the market. However, once Bio-On’s castle of cards collapsed, the consequences were catastrophic, leading to a clamorous decrease in the share value and, subsequently, to the declaration of bankruptcy of the company.

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Summary

A fraud indicates a misleading behaviour whose purpose is to obtain the property of a certain item. In its definition it is possible to identify all the elements that characterize the fraud: the intentionality, the deception and the damage.

The first element, the intentionality, refers to the *modus operandi* of the perpetrator.

A behaviour can be considered as a fraud if the values in the accounting records have been willingly omitted or modified. Regarding the second element, the deception, it states that at the root of the entire process there is the intent to cause damage to someone for deceitful reasons. Lastly, the damage element indicates that the victim has to suffer some kind of damage.

In conclusion, it is possible to say that to classify a crime as a fraud:

- there have to be a perpetrator and a victim
- the crime has to be committed through deceitful actions
- there has to be an unlawful gain or a denial of rights of the victim

Before proceeding with our discussion, it is necessary to give a brief explanation as to why individuals commit frauds. It is possible to identify three variables that are at the roots of every crime:

- The pressure that can lead to committing crimes, generated by the perception that individuals have to satisfy a multitude of needs
- The mechanism of rationalization
- The opportunity to committing the fraud with the knowledge that there is the possibility of hiding the crime, so that it is possible to avoid any kind of sanction

In order to commit the fraud, the three drivers have to be simultaneously taken into account. An individual will commit the fraud if he is able to find a justification for his illicit behaviour, under the pressure exercised by the events and the circumstances of a company characterized by a lack of internal controls.

To better detect and prevent frauds, every organization should be aware of all the different types of frauds that can be committed by individuals.

One of the best and most complete frauds classifications available is the one provided by the ACFE. The ACFE model, also called the fraud tree, subdivides the three macro categories into other subcategories, which are then subdivided again, thus making the model look just like a tree.

The three main fraud schemes are identified as follows:

- Corruption
- Asset misappropriation
- Financial statement frauds

The first category that we are going to analyse is the one regarding the fraud scheme of corruption. This category includes crimes such as conflict of interests, bribery and economic extortion. It is ranked in second place in terms of both the frequency with which the crimes related to this scheme are committed and the financial damage that derives from these kinds of frauds. In particular, these schemes occur in 43% of the cases and generate a median loss of USD 200,000.

The second category indicated in the fraud scheme is the one related to the fraud scheme of asset misappropriation. The crimes related to this scheme are committed by employees that decide to steal or misuse resources owned by the employing organization. This is the category that occurs with the highest frequency, since these schemes represent the 86% of the total fraud schemes committed but it generates the lowest median loss among the three main schemes (USD 100,000).

The last category, financial statement fraud, involves those fraud schemes where the perpetrator intentionally manipulates the financial statements of the organization by misreporting or omitting values or information. These kinds of schemes are the ones with the lowest frequency, since out of the total frauds they occur only in the 10% of cases, but they generate the highest median loss among the categories, equal to USD 954,000. To reduce the costs linked to fraudulent behaviour, the fraud scheme has to be detected in the shortest amount of time possible. This is mainly due to the relationship between the length of the time period in which the fraud is committed and the loss that is associated to it.

In the corruption scheme, the employee uses his influence improperly during a transaction in order to obtain a personal gain. This gain is usually obtained by using the resources of the employing corporation. In the fraud tree scheme, corruption is divided into four subcategories:

- Conflict of interest
- Bribery
- Illegal Gratuities
- Economic Extortion

Typical consequences linked to the adoption of corruption schemes include financial losses, falsification of fair competition, damage suffered by the corporate culture implemented within the organization which consequently leads to the spreading of a climate of distrust among the employees, and the negative impact on the reputation of the organization, which can also result in a decrease in the number of sales of the products or services provided by the company.

In the asset misappropriation scheme, as we briefly mentioned before, the employee misuses assets that are owned by the employing organizations to obtain a personal benefit. In the fraud scheme tree, ACFE has identified two main subcategories of asset misappropriation:

- Cash
- Inventory and all other assets (also referred to as noncash)

Typical behaviours associated with this kind of crime are skimming, theft of cash and misuse of properties or funds, tampering of checks and payments and billing and payroll schemes.

Regarding the financial statement fraud schemes, it is possible to identify several reasons that push individuals into committing these types of frauds.

The main goal of this kind of fraudulent activity is to make the financial position of the company look better than it actually is. In this scenario, the organization's financial records may be manipulated to increase the financial performance of the business and to make it look healthier in the eyes of the investors.

Since the compensation of the managers is linked to the financial performance of the business, these may be more inclined than other individuals to commit a fraudulent activity. They may be motivated by the prospect of a personal gain: it is in their self-interest to increase the accounting values, since that would translate in a higher compensation value.

It is relatively easy to manipulate financial statements, since accounting principles usually give wide margins of discretion to the individuals in charge of writing the financial records.

In this scenario, the fraud is committed by an individual who is knowingly and wilfully changing the information reported within the organization's financial records in order to misrepresent its financial condition.

By looking at the fraud scheme tree picture, it is possible to identify two main subcategories of this fraud scheme:

- Net worth/ Net income overstatements
- Net worth/ Net income understatements

The most common financial statement fraud schemes concern revenues recognition, which can be altered by means of a report filled with fictitious revenues or understated revenues.

One of the main consequences associated with the detection of the financial statement fraud the decrease of the company's capitalization value.

Regarding the parties involved in this type of fraud scheme, it is possible to identify the perpetrators among the members of the top management. Those that are more damaged by the misconduct of the fraudster are the stakeholders, such as shareholders and other investors, that would suffer the most in the case of a decrease in the stocks' value.

It is possible to identify five main financial statement fraud schemes which can be used to overestimate or underestimate the value of assets and revenues:

- Timing differences
- Fictitious/Understated revenues
- Concealed/Overstated liabilities and expenses
- Improper Asset Valuation
- Improper Disclosures

We will now move on to describe each of these categories.

Regarding timing differences, the scheme refers to the type of fraud where items are recorded on the financial statements in a different period than the one where they should be reported in accordingly to the accrual principle. The financial statement fraud scheme can take two principal forms: the first one being the overstatement of the net income value, and the second one consisting in the understatement of net income value.

The fraud scheme of fictitious/understated revenues focus on revenues manipulation, which can consist in either an increase or a decrease in value depending on the goal of the fraudster.

In the first scenario, the perpetrator manipulates the financial records in order to show a higher revenues value that is not backed up by an actual transaction. The

counterpart of the transaction can be an actual client of the company or a fictitious entity created appositely for this kind of schemes. Since the transactions are either non-existent or lower than the recorded value, there is not an actual exchange of cash that can justify the amount of revenues reported.

In the second case, the fraudster can either underestimate the revenues value or misreport them in other accounting items.

The fraudulent schemes of concealed/overstated liabilities and expenses consist in a concealment or in an overestimation of liabilities and costs, depending on the final goal of the fraudster. Typical forms of this fraud scheme are:

- Manipulation of expenses and liabilities
- Capitalization of expenses
- Omission of expenses

The category of improper asset valuation includes all the fraud schemes consisting in an improper valuation of the company's assets, which can be either overstated or understated depending on the goal of the fraudster.

The overstatement of assets' value is usually committed in order to increase the attractiveness of the business and to attract potential buyers willing to acquire the company. In other cases, the organization has to have a certain amount of assets to be financed by financial institutions. The assets that are most likely to be improperly valued are fixed assets, inventory and accounts receivables.

One of the main methods employed to manipulate fixed assets is the booking of fictitious assets. In this case, the overstatement takes place in the financial records with the inclusion of the value of an asset that the company has never acquired.

Regarding the improper valuation of inventories, since they have to be valued at the lower between the acquisition cost and current market value, they should be reported at their current value in the financial records. An improper valuation of the inventories' value may result in an asset overstatement and a mismatch of COGS (cost of goods sold) and revenues.

The two main schemes involving accounts receivable manipulation are fictitious accounts receivable and the failure to write off accounts receivables as bad debts.

Fictitious accounts receivable usually arise from the implementation of the fictitious revenues' fraud scheme. Failure to write off accounts' receivable consists in failing to reduce the value of the accounts receivables by the amount that is not

expected to be collected anymore. The fraud takes place whenever the employee decides to not operate the reduction.

Lastly, the schemes associated with improper disclosure concern the ways data are reported, classified and illustrated in the accounting records and are linked to the quality of the financial information disclosed. It is possible to delineate two obligations that managers have to comply with:

- disclosing to the stakeholders every relevant information
- checking that the facts are reported in a comprehensible and non-deceitful manner

An improper disclosure fraudulent scheme will be implemented whenever one of these two obligations is not respected.

The financial statement fraud schemes are identified within the Italian law by the articles 2621 (*False comunicazioni sociali delle società non quotate, i.e. false corporate communications from unlisted companies*) and 2622 (*False comunicazioni sociali delle società quotate, i.e. false corporate communications from listed companies*) of the Italian Civil Code. The behaviours that are prosecuted by law are:

- the reporting of untruthful facts
- the omission of facts whose disclosure is mandatory

The main difference between the crimes that are identified by the two dispositions is linked to whether the victims suffer an actual damage: if this element is absent, the crime will be associated with article 2621. This distinction will lead to different ways in which the crime is punished; article 2622 states that the perpetrator can be imprisoned for a minimum of 3 years up to 8 years while article 2621 states that the imprisonment period can vary from a minimum of 1 year up to 5 years. The two cases also differ in the manner the crimes are prosecuted: in the first scenario, the crime is prosecuted as soon as the news regarding its manifestation surfaces. In the second scenario, the crime is prosecuted only after the victim files a formal complaint.

In the final part of the exposition, we will have the opportunity to observe how financial statements frauds occur by means of analysis of an empirical case. In this study, evidences of how the company Bio – On committed its frauds will be provided. The company was first exposed by the fund Quintessential Capital Management (QMC). In particular, QCM analysis on the accounting statements has

revealed that the financial records have been manipulated to depict a strong and healthy financial situation.

In Bio – On financial statements, it was reported a value of sales for 2018 equal to EUR 50 million. This value was considerably higher than the value registered in the previous year, equal to EUR 9.66 million. This may have induced the reader of the financial records into thinking that the company was a solid one, characterized by a high revenues growth rate. However, this was not the case. Bio – On revenues had almost entirely a fictitious nature, and were generated by transactions where the buyer consisted in societies affiliated or controlled by Bio – On.

The fraudulent scheme implemented by Bio – On was based on generating revenues by selling its technology as “licenses” to societies that were created specifically for that scope. These companies could also be considered as “empty boxes”, since they didn’t seem to serve any other purpose.

Those companies acquired the licences from Bio – On and capitalized them as assets in the balance sheet, while Bio – On recorded the sales in its balance sheet (in the form of accounts receivables) and in its income statement (in the form of revenues). However, no payment was ever received by Bio – On. No cash inflow occurred, and the outstanding credit remained open. Hence, Bio – On shows figures regarding the revenues that are mostly fictitious.

Following the classification operated by CapIQ the levered free cash flow resulted as being equal to EUR -21 million. This further confirms what was said earlier: revenues were not being paid; hence cash was not collected. The company was not profitable, as it had been burning cash in all the years in which its disclosure was made available to the public.

The value of sales and accounts receivable have increased considerably in 2018 as in that year new “boxes” were created to acquire the licences from Bio – On. After analysing the financial statements of all the “empty boxes” societies affiliated with Bio – On, QCM concluded that almost the entirety of Bio – On revenues and credits originated from transactions where the affiliate societies were involved. No trace of relevant sales to third parties was detected.

Lastly, QCM analysis has also shown that, regarding the recording of the transactions where licenses had been “sold”, some violation of the Italian Civil Code Articles occurred. In particular, it was found out that almost all of the affiliate

societies didn't comply with that was established in articles 2343 and 2343-bis concerning the estimate that has to be made by a professional when properties are transferred.

In 2018, Bio – On has claimed the completion of a production implant situated in the city of Castel San Pietro Terme. Initially, the production capacity and the cost of the implant were estimated as being equal, respectively, to 1000 tons and EUR 15 million. However, both these estimates have been proved to be wrong.

Regarding the cost of the implant, Bio – On stated that the final cost that was actually sustained to complete the implant was equal to EUR 51 million (EUR 44 million if we don't include the licenses' costs). This value can be perceived as being suspicious for several reasons.

First, the cost sustained by Bio - On implied a production cost that was several times higher than the production costs of the competitors.

Secondly, with a cost estimate that was so exorbitant, also the selling price of the final product had to be high in value. The price at which the propylene is sold is usually equal to USD 2 per kilo. If we take into account the development costs linked to the implant, as well as the fixed costs, the selling price that Bio – On should have used to break even is USD 12.5 per kilo, which is six times the price at which the propylene is sold. It is simple to conclude that, with such a high price, it was nearly impossible for the product to be sold in the market.

Bio – On has stated the beginning of several collaboration projects with other societies. However, none of these projects seem to have been successfully implemented.

In 2015 a collaboration project with the Brazilian fund Moore Capital was announced with a press release. The project consisted in selling licenses to Moore Capital for EUR 5.5 million and in the implementation of a production implant worth EUR 80 million. In 2019, the construction of the production implant was yet to be started, and out of the EUR 5.5 million that Moore Capital should have paid to get the technological licence, only EUR 200 thousands have been remunerated to Bio – On.

Other examples of failed projects can be provided looking at some of the Joint Ventures created by Bio – On.

First, we will proceed by analysing the transactions between Bio – On and its Joint Venture B – Plastic. The society was created as a result of the collaboration between Bio – On and the French Cooperative Cristal Union, and it was owned for a 50% by Bio – On (see table 4) and for the remaining 50% by the French society. In 2015, Bio – On recorded an increase in revenues and accounts receivable due to the sale of a licence (worth EUR 3.250 million) to B – Plastic. Now, several suspicious elements arise when looking into the transaction. Above all, even though Bio – On reported the operation in its financial statements, there is no trace of the transaction in B -Plastic financial records: in fact, no increase in liabilities nor assets was detected by the company.

Bio – On reported in its 2015 Consolidated Financial Statements a value of revenues equal to EUR 8.011 million. Among them, an amount of EUR 6.500 million could be attributed to the sale of two licenses, one of them being the licence that was sold to B-Plastic. Along with the increase in sales, an increase in the accounts receivable was recorded. Bio – On stated in its financial statements that, out of EUR 7.7076 million of accounts receivable, EUR 3.250 million surged in relation to the sale of the license. However, as of 2019, the company confirmed in its financial statements that the accounts receivable (whose value had decreased due to value losses) had yet to be paid. Thus, they were still accounted as credits. No money was collected by Bio – On, hence the revenues arising from this transaction could be considered as fictitious. Looking now at B-Plastic financial statements, no evidence can be found regarding the transaction. As of 2019, the balance sheet of B-Plastic had no intangible asset recorded, as well as and no debt nor payment that could be associated with Bio – On accounts receivables.

What is more, in the press release Bio – On stated the project would include the production of an implant worth EUR 70 million. However, the value of the assets owned by B – Plastic is less than EUR 1.5 million, implying that the construction of the implant never started. A similar scheme has been found in the analysis of the Joint Venture Sebiplast. This society was created in 2015 as a result of the collaboration between Bio – On, which owned 50% of the shares, and S.E.C.I. S.p.A., holding del Gruppo Maccaferri, which owned the other 50% of the shares. As in the case of B -Plastic, Bio – On announced with a press release that the project would include the construction of a production implant worth EUR 55 million. However, there is no trace of such an investment in the financial statements of

Sebiplast, since the value of the assets was recorded as equal to EUR 1.5 million. Those assets were likely to be the licenses “sold” by Bio – On, but no evidence of the payment was provided.

It is also interesting to notice that the company’s production value was negligible (EUR 5 thousand). Hence, it is possible to say that it would have been very unlikely for those licenses to get repaid.

The last case that we are going to analyse is the one concerning the two Joint Ventures Aldia and Liphe.

These two societies were first established at the end of 2017.

As of 2019, both of those companies’ shares were owned for 90% by Bio – On. The problem here arised with regards to the owner of the remaining 10%. It was stated in Bio – On financial statements that the owner of those shares was an “important financial partner”, and no further information regarding the matter was provided. Eventually, it was found out that the owner of those shares was Finnat bank, as stated in the corporate disclosure of the two Joint Ventures. What stands out here is that Finnet bank is the financial institution in charge of valuating Bio – On shares. And in its equity report, Finnat also stated that the 10% of the companies’ shares were owned by an “important financial partner”, without disclosing that it was Finnat itself. This is to further confirm that the omission of the information was done purposefully by both parties.

It is also possible to see that, in the report, Finnat suggested a price per share that was higher than the one observable in the market (EUR 86 vs EUR 53,60). We can conclude that Finnat was giving price estimations based on his personal interests.

It is also clear that Bio – On decided to omit the information of the shares’ owner, since the company held an interest in being valued with a high price per share.

What is more, by analysing their financial statements it was possible to see how their assets consisted almost entirely of the licences’ value that Bio – On sold them, meaning they didn’t own any other property. On the other hand, the entirety of the import was recorded by Bio – On as accounts receivable and revenues in its financial statements, which were equal to EUR 10 million for Aldia and to 6 million for Liphe. Thus, Bio – On considered those credits as being easily eligible. However, it is clear by looking at the financial statements of the two Joint Ventures

that it was not the case. In fact, it is questionable how two companies with a production value of zero could afford to repay such huge amounts of debts.

Following the release of QCM's report on the 24th of July 2019, an investigation was held by the *Procura di Bologna*, which started checking the company's financial condition. As a result of a three-months investigation called "Plastic Bubbles", implemented by the *Guardia di Finanza* (GDF), the CEO of Bio – On, Marco Astorri, was placed under arrest on the 23rd of October. Co-founder Guido Cicognani and chief auditor Gianfranco Capodaglio were barred from exercising their profession.

As the *Procura di Bologna* was progressing with its investigations, also CONSOB decided to check on Bio-On financial integrity after the release of QCM report. In particular, CONSOB decided to open an investigation for the crime of "market abuse". As the investigation progressed, CONSOB questioned several times Bio-On results. In particular, after the half-year statement was released on the 1st of October, CONSOB decided to ask to the society some clarifications regarding the figures reported in the financial statements.

On the 7th of October, the newspaper *La Stampa* disclosed that the CONSOB was planning on investigating further on the financial situation of the company.

In particular, the two main issues that were brought up by CONSOB regarded:

- The relationship between Finnat and Bio-On, that generated an obvious interest conflict.
- The fictitious nature of the revenues.

Eventually, the society was declared on bankruptcy with a sentence of the *Tribunale di Bologna* on the 20th December of that same year.

It is possible to make a reconstruction of the history of Bio-On share's price movements.

On the 25th of July, following the release of QCM report, the value per share dropped from a value of EUR 55.3 to EUR 15, marking a decrease of 72.88% in the span of two days. On that same day, Bio-On responded to all the accusations moved by QCM, making the value of the shares increase to EUR 30. However, this situation was short lived, since on the 29th of that same month, QCM attacked again by questioning the validity of the technologies implemented by Bio-On. As a result, the shares' value dropped again. For some time, the shares' value stayed at a stable

level (between EUR 16 and EUR 20), until the 1st of October, which is the day in which the half year statement was released. Since the investors were dissatisfied with the performance of the company that was depicted by the financial records, they sold the shares, making the company's shares lose value. In that day, the price per share reached a value of EUR 9. The price dropped even further on the 7th of October, after the news that CONSOB was furtherly investigating the society was released. Eventually, the shares' price dropped to EUR 5.80, which is basically the level of price that the share had when the company was first listed.

Comparing the price per share and the capitalization value that could be observed the 24th of July with the respective values observed the 21st of October, which is the last day in which the shares were available, it is possible to see that the capitalization value decreased by EUR 760 million, reaching a value of EUR 282 million, and the value per share was equal to EUR 10, signalling a total decrease of 82% in its value from the initial value of EUR 55.3.

It is now possible to make some considerations regarding the case. Bio-On management implemented fraudulent schemes to deceive its investors by portraying a financial performance that was better than it actually is. The main purpose for this action was to increase the capitalization value of the company, so that the top managers could increase their profits. In particular, Marco Astorri and Guy Cicognani, respectively the president and vice president of Bio-On, were among the shareholders of Bio-On S.p.A., owning 6.60% of shares each. It was in their interest to increase the capitalization value, so that they could increase the value of their shares, thus earning a personal gain. In this situation, all the elements that characterize a fraud are noticeable:

- The top management is purposefully manipulating the financial statements
- The investors are being deceived by the actions undertaken by the managers
- The actions are generating an unlawful gain for the perpetrators and a damage for the investors

Following the definition given by the Italian legislation, it is possible to include the frauds implemented in Bio-On among the cases which Art. 2622 c.c. refers to, since the company is a listed one, hence is causing a damage to both its shareholders and debtholders.

It is possible to see which kind of financial statement fraud schemes have been implemented by the top management of Bio-ON.

First, the managers adopted the fictitious revenues scheme by creating Joint Ventures whose only purpose was to justify the sales value of Bio-On through transactions that did not generate any cash. This scheme is deeply connected with the improper asset valuation one. Specifically, in Bio-On case the value of receivables was fictitious, since no asset was actually sold to the Joint Ventures. What is more, the company also failed at writing-off some of the accounts receivable, even though it was very unlikely that they would have ever been collected given the non-existent production capacity of the affiliated societies. Lastly, the company did not comply with the accounting principles stated in the Italian Civil Code for the valuation of the licenses sold to the Joint Ventures.

Another financial statement fraud scheme that has been implemented within the company is the overstated expenses scheme. In particular, the production cost sustained for the development of the Castel San Pietro Terme's implant is unrealistically high, and no real justification was given for such estimates. Even though the society claimed that the cost was reasonable, it was very likely that the overstatement was made to cover and justify some other major losses that occurred during the year.

Finally, also the improper disclosure scheme was implemented. The company in fact didn't give a proper justification for some of its figures, nor did it disclose some relevant information. We provided the example of Finnat Bank, which was not disclosed as being a financial partner of Bio-On until the scandal broke out.