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The Italian coffee market. Competitive strategies in a saturated market.

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Summary

The objective of this paper is to analyze the coffee market, in particular the Italian one, with a qualitative analysis to start and then move to a quantitative analysis through the use of statistical software. In short, the coffee market is a market where demand, especially in Italy, is saturated. For this reason companies use competitive strategies that allow them to overwhelm this saturated demand, below we will see how. The economies of scale of the sector are another interesting element to evaluate and to draw appropriate conclusions.

In the first chapter, a historical overview of the birth of coffee and its origins is given, followed by a process analysis from harvesting to coffee production. Finally, the physical properties of the material and any benefits are reported.

The second chapter analyzes the coffee market from a quantitative point of view, i.e. data are reported on the quantity of coffee produced in the world, the import and export values of Italy by country and region. The analysis follows with a look at the Italian roasting industries, with the relative concentration index by number and turnover.
In the second part, the demand and supply of coffee in Italy is analyzed, divided by distribution channel.

As for the third chapter, the competitive strategies of the leading companies in the market to cope with the stability of demand are analyzed. In particular, the first two leading companies in terms of turnover ranking in Italy, Luigi Lavazza SpA and Illycaffè Spa, are analyzed, with a brief historical outline of the companies in order to be able to frame them from the point of view of the strategies used, probably influenced by their historical past.

Finally, in the fifth chapter, a quantitative analysis is carried out with the STATA software, using data from the balance sheets downloaded from the portal of AIDA, Computer Analysis of Italian companies, in order to evaluate the economies of scale of the coffee market by means of items such as labor costs, material costs, costs of tangible assets and the added value of production.

Abstract

The objective of this paper is to examine the coffee market, in particular the Italian one, with an eye to the world market, and to provide an understanding of market conditions (also from a competitive-strategic point of view) through a qualitative and quantitative analysis, and to estimate the importance of economies of scale within this sector. As far as the quantitative analysis is concerned, the platforms AIDA, Orbis and finally the statistical software STATA have been used to carry out more in-depth analysis through the use of balance sheet items of the companies.

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1 The coffee

1.1 Definition and etymology

The term coffee derives from the Arabic word *qhawah*, used to define drinks of vegetable origin, literally translation of wine, liqueur, which originally identified, more generally, a drink whose exciting and stimulating effects made it suitable for use as a medicine (1); subsequently it was transformed by Turkish influence into *kahvé* (or also *kaweh*, *qahvè* and *quahvè*) which means “exciting”, in fact connecting to the properties of the drink. Apparently, the name could be somehow related to Kaffa, the southwestern region of Ethiopia where the plant spread spontaneously (between the thirteenth and fourteenth centuries), however historians exclude this possibility (2).

Today the scientific term to identify the genus to which the plant belongs is *Coffea*, there are about 60 species of coffee plants worldwide and only a small part, more than a third, is marketable for the fruits of the plant and, among these, in particular the *Arabica, Robusta, Liberica and Excelsa* varieties differ. There are various species precisely because in different countries the shrubs that make coffee berries, called drupes, have different characteristics based on the climate and temperature. But the difference is also given by the type of processing that follows the harvest of these fruits (3).

1.2 Origins: history and legends

Until the nineteenth century it was not certain what the place of origin of the coffee plant was and, in addition to Ethiopia, Persia and Yemen were hypothesized. In fact, there are many legends that attribute the origin of coffee, the most accredited, contained in "Le mille e una notte", a famous collection of oriental tales, tells of a shepherd who noticed the hyperactivity of his goats (according to other stories they were camels) after they tasted the berries produced by some spontaneous plants. Intrigued, he subjected those fruits to the study of an old sage, who, using them raw, made a decoction, noting that those who drank it were rather lively and active (2).

A second legend sees as the protagonist the prophet Mohammed who, feeling ill, he had one day the vision of the Archangel Gabriel offering him a black potion (such as the Sacred Stone of Mecca) created by Allah, which allowed him to recover and regain strength (3).

It is therefore ascertained that due to lack of sources it is not possible to attribute a historical date for the birth of coffee. However, it is known that, during the 1400s, the cultivation and use of coffee spread very rapidly throughout the Arab world, especially within the monasteries, as it invigorated the monks for nocturnal prayers. It was also recommended by doctors, who used it in grains as a remedy for some ailments, and it represented an excellent substitute for wine for those to whom religion forbade the use of alcohol (2) (such as the Islamic religion). A great contribution was also given by the expansion of the Ottoman Empire, which supplied coffee in large quantities as far as the gates of Vienna, avoiding any customs regulations. In the seventeenth century "the wine of Arabia" finally reached Europe, thanks to commercial traffic and the explorations carried out by navigators through the port of Venice, in 1570, and soon became a very good trading valuable. It was in fact sold by grocers as a medicine and had a price such as to be the exclusive prerogative of the wealthiest (2). In a short time, however, coffee became an easily available consumer good, loved first by nobles and intellectuals, then also by ordinary people.

In Istanbul, around 1554, the first cafes arose, which quickly multiplied throughout the city with the name of *qahveh* (or *khaveh*) (4). It was a shop where it was possible to spend time together, entertain cultural conversations, listen to music and participate in popular games, sipping a cup of coffee, strictly bitter (2).

In the seventeenth century, even in Europe there was a boom in coffee shops: already towards the end of the seventeenth century in the United Kingdom there were over three thousand, Paris and London at the beginning of the eighteenth century boasted at least 300, while Vienna only 10. Instead, it was a Venetian, Pietro Della Valle, the first to announce the opening of a coffee shop in Italy: it was 1615. A century later, in 1720, the famous *Caffè Florian* opened its doors in Piazza San Marco, which still today it boasts that ancestry and the title of "oldest coffee in the world" (4).

1.2.1 The birth of Coffee in Italy

All the historic cafes in Milan are linked to historical facts: *Caffè Demetrio*, a source of inspiration for Pietro Verri's magazine “Il Caffè”; the *Caffè delle Colonne* was central during the battles of the Cinque Giornate; *Caffè Mazza* linked to an anecdote about Marshal Radezsky; the *Carini*, once frequented by disreputable people; finally, *Campari, Biffi, Hagy*.

In Turin the best-known places are the *Caffè del Centro*, the *Caffè Florio* and the *Caffè Nazionale*, all linked to the writings and memories of historical figures. One of the best-known places in Florence was the *Caffè Castelnuovo*, protagonist during the riots of 1848, but also the *Michelangelo* was a worthy meeting place for artists and innovators. The *Caffè dei Nobili* in Rome has been furnished in the style of Venetian cafes; after this other arose but the one that most represents the Roman historical cafes is the *Greco*, frequented by many writers and artists from all over Europe, who have left a memory (autographs, verses, drafts, paintings, etc.).
The symbol of Naples is the old *Caffè d 'Europa*, opened in 1837 and known for its sumptuous surroundings, which was the seat of journalism, and which boasts a long series of writings in favor of him.
In Palermo we met in circles, more than in cafes, although these were not lacking (Pierotti Cei,1982).

1.3 Plant structure

The coffee plant (genus Coffea) is an evergreen shrub belonging to the Rubiaceous family, native to East Africa, more precisely from Ethiopia. Its ideal habitat is between the Tropic of Cancer and the Tropic of Capricorn, that is the tropical regions of Asia, Africa and America: these regions have in fact soils rich in humus, nitrogen and potassium, and ensure a temperature between 17° and 30° C and annual rainfall between 1,200 and 2,000 ml.
The leaves have a dark green, bright and intense color, with a slightly wavy edge and a shiny, fleshy surface; this plant can reach twelve meters in height in nature, while in the plantations these shrubs are wisely pruned and do not exceed three meters: greater heights would make harvesting operations difficult. Pruning is also essential to keep the plant clean and free from clutter, in order to have proper ventilation of the fruits and the entire body. The coffee plant blooms several times during the year, after each rain; the small white flowers give way in a few days to the fruits, which look similar to a cherry, taking on a color from green to red depending on the degree of ripeness. The transition from flower to fruit takes about 9 months, for this reason it is common to find fruits with a different degree of ripeness on the same plant, depending on the rainfall, and this alternation contributes to the beauty of the plant.

The Arabian species

Coffea arabica is 70% of the coffee produced in the world and grows in the tropical zone on the equatorial belt of Asia, Africa, Central America and South America. The main Arabian producing countries are: Brazil, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Peru, Venezuela. In Africa, Burundi, Cameroon, Kenya, Rwanda and Zaire produce arabica.

It is a species that has been cultivated and selected for several centuries and is a small masterpiece: it is characterized by 44 chromosomes and is self-pollinating, that is, capable of "self-pollination". The plant is rather delicate and needs more intense care than the Robusta quality, it cannot stand drought or continuous rains, frost or strong wind. From the white flowers the stone fruit is generated whose color from green then maturing changes to red *(Figure 1).* Each berry usually contains two seeds or beans of Arabica coffee with a greenish yellow color. Precisely because of their delicacy, Arabica coffee beans must be treated more delicately even during the roasting phase, with greater attention, with lower temperatures and precise times. Arabica plants thrive in soils endowed with minerals, especially those of volcanic origin. altitude. The ideal climate must be around an average temperature of 20° C with a little shade. The higher the plant grows, the better the organoleptic qualities of the beans will be. Arabica coffees are rich in aroma, very fragrant, sweet and slightly acidic, the level of caffeine is lower than that contained in the Robusta quality: in green coffee it is about 1.4%.

Figure 1 - Arabian drupe

The Robusta species

The Robusta is a different species from the Arabian (a bit like horse and donkey). There is little or nothing in common between the two plants and crosses of the two species generate sterile hybrids. The Robusta appears younger from an evolutionary point of view (but there are conflicting opinions), native to Central Africa, Congo. It is an allogamous plant (it takes two plants to pollinate and reproduce) and has 22 chromosomes, half of the Arabian. Today the production area is large and includes the tropical belt that goes from Africa to Indonesia; a major producer of this variety is Vietnam.

The Robusta is much more productive, it grows in the plains: it is much more tolerant of the composition of the soil, the climatic conditions and more resistant to diseases, hence the name. It is also a less expensive crop, which also affects the price of the final product. Robusta is resistant to fungi and microorganisms, aided in this by the caffeine content which varies from 2 to 4% and more. Since caffeine acts as a natural "insecticide" and protects the plant from disease, this is the reason why Arabica is more delicate than Robusta. The plant has had a lot of luck on the market, it is widely cultivated, because in addition to the abundance of production and the lower planting cost, it shows characteristics of strong resistance to diseases, vegetating even in difficult conditions. The flower of the Robusta, white in color with a brick-colored heart, smells of lemon and jasmine (6).

The Liberic species

Coming from the forests of Liberia and the Ivory Coast, it is a beautiful long-lived plant, robust, luxuriant in vegetation with fruits and seeds almost twice as large as those of Arabica, and also more resistant to parasites. It is a plant that requires high temperatures and abundant water. Due to these characteristics, Coffea Liberica is chosen as a graft holder and to obtain, by crossing, new varieties, present above all in the Ivory Coast and Madagascar. Its beans, although of lower quality, give a fragrant and pleasant coffee. With a taste that, until a few decades ago, was most liked in the Scandinavian countries (7).

1.4 Coffee production

1.4.1 The coffee harvest

The quality of the coffee depends not only on the variety, but also on the degree of homogeneity of the harvest: the grains still unripe risk, in fact, giving a flat and astringent final taste to the drink, while in the case of excessive ripening there is the risk of obtaining a coffee with a rancid and equally unpleasant taste (5). Fruit harvesting can be manual or mechanical, the latter taking place with machines that shake the plant and pick up the fallen berries. Manual harvesting takes place in two ways: picking or stripping (9).

Picking

Hand picking known as picking is the solution that allows you to select the fruits one by one, leaving those not yet ready on the plant. With this method, a high-quality product is certainly obtained, although the cost is higher as it requires more manpower. A skilled worker, depending on the characteristics of the plantation, can collect 120 kg of drupes per day.

Stripping

Manual stripping is instead a harvesting technique in which all the fruits are removed from the plant, regardless of their degree of ripeness: the drupes are in fact selected only at a later time, by hand or thanks to flotation, which consists in immersion. in a tub of water to remove dried or overripe cherries (5).

1.4.2 Drying of coffee beans

The drying process follows that of harvesting and can take place with the dry method or with the wet method.

Dry processing

The dry processing method requires that the drupes are placed in huge sunny threshing floors, and continuously stirred to avoid the formation of mold, until they are completely dried. At this point the dry shell is crushed and the two coffee beans inside are released.

The dry method is applied to coffees harvested with the stripping method, and therefore to coffees of lesser quality and selection (9).

Wet processing

In the wet treatment, the fruits after harvesting undergo pulping: they pass through pulping machines which, in a continuous flow of water, break the skin and pulp, releasing the seeds. These, still covered with pulp and parchment mucilage, are sent for fermentation: they are left in tanks with water for 1-3 days, so that the mucilage ferments and decomposes. Afterwards the beans are washed in small channels, then dried in the sun (or in dryers). Once the drying is complete, as for natural coffee, the pitted is carried out: the coffee is passed in special dehulling machines, which break the parchment without damaging the beans and sent to sieving, with sieving machines that select and divide them by size. The coffee thus obtained is called washed. The washed coffee is usually harvested with the picking method, so that all the fruits are ripe and with a tender pulp, to free the seeds from the pulp to process seeds of the same size and not to ruin them with machines during pulping. This method requires a lot of water and is longer and more expensive, but the product obtained has a better quality, and the batches are more homogeneous and constant (8).

To evaluate the size of the coffee bean, a sieve is used, a plate with holes of various diameters, through which the beans are passed, dividing them into batches of homogeneous dimensions. The size of the beans are international standard parameters used to formulate the coffee quality classification. Coffee with generously sized but not excessive beans are, in general, those with the greatest value because they have the best organoleptic characteristics (9).

1.4.3 Physical characteristics of beans and defects

When evaluating coffee in international markets, the external conditions of the grains are evaluated: there are tables that identify the particularities of each species and on the basis of these the defects of shape, color, size are evaluated, and the batch is classified. Usually, samples of a few hectograms are analyzed: the lower the number of defects, the better the overall evaluation.

For physiological reasons, the grains may have shape defects, such as swellings, off-center furrows, curled walls. When the cleaning process of the seeds does not take place

in the appropriate manner, they can remain totally or partially covered by the endocarp (called parchment grains). Some seeds, on the other hand, can break during decortication, often related to incorrect drying. If the harvest does not take place at the right time, color changes may occur: the green and immature grains, with pale yellow spots, may have a wrinkled surface; fruits harvested after ripening can cause black and shriveled grains, or excessively dry and dark grains. Finally, the worm-eaten grains have holes of about 1mm caused by an insect, Hypotenemus Hampey (*Figure 2)*.

It is equally essential to check that there are no foreign bodies inside the bags: the presence of stones, lumps or sticks can also depend on incorrect ventilation during collection (2).

The evaluation of the physical characteristics of the coffee of the defects present in it varies according to its origin or even according to the organism that codes it. In Brazil, for example, C.O.B. is used. (Brazilian Official Classification): it is however only recognized for the domestic market, as the official export classifications are based on the New York parameter (16).

On the basis of the total number of defects, a number is assigned to indicate their type: a scale from 2 to 7 (or 8) is used for a minimum of 6 total defects to a maximum of 240. To measure the size of the grains, use sieves, i.e. sieves of varying sizes with holes of different diameters (2).

Figure 2 - Defects in coffee beans: Malformed; Shell shape; Triangle shape (16)

1.5 Coffee processing

1.5.1 Roasting

Roasting is the final process reserved for coffee beans capable of transforming the raw bean, which tends to be tasteless, into the toasted bean. Roasting is a delicate and complex process, which never takes place in the country of origin because, once roasting has been performed, after a first positive phase of maturation of the roasted bean, a rapid process of loss of aromas begins and the coffee becomes particularly sensitive humidity and absorption of extraneous odors.

The roasting process consists in introducing the coffee beans into a machine (roaster) that brings the beans to a temperature between 200 and 250 ° Celsius, for a time between 10 and 20 minutes, depending on the type of coffee you want to transform and the result you want to achieve. During roasting the coffee bean undergoes a weight loss of 15-20%, due to the evaporation of water and some volatile substances, the increase in volume, the formation of a dark color due to the carbonization of the cellulose and the caramelization of sugars, the appearance on the surface of the beans of the so-called “caffeone”, a dark oil that determines the characteristic aroma, and a slight loss of caffeine due to heat.

Roasted coffee is delicate and must be stored carefully, away from oxygen and light and possibly at a low temperature (9).

1.5.2 Cryogenic cooling

Once the coffee has been roasted, it can be cooled down during the production process. In order not to alter and leave the specific organoleptic properties unchanged, the coffee is cooled exclusively with the air method. In this way, we are able to avoid any contact with water and we are sure of preserving the unique organoleptic properties of the coffee, so as not to alter the taste in the cup. To avoid any contamination from metals or paints, from the start of roasting until the end of their journey, the coffee beans will only come into contact with stainless steel.

1.5.3 Grinding

In order for coffee to be consumed as food, it is necessary to destroy the natural form of the seed and thus transform it into powder. There are several techniques used for grinding coffee beans. In the industrial field, friction grinding is carried out based on the passage of the beans, usually by gravity, through the empty space between moving tools called "millstones". The pairs of grinders used in the coffee industry usually have a cylindrical shape: it is a pair of ribbed cylinders with parallel axes that rotate in opposite directions. The beans are introduced into the machine with a programmed fall (10).

1.5.4 Degassing

Carbon dioxide, the main volatile non-aromatic compound present in freshly roasted coffee, is generated during the roasting phase (Hodge, 1953) and is the cause of various problems concerning, above all, packaging: one of the main problems caused by the release of volatile compounds in the coffee industry is the release of carbon dioxide in periods following packaging, which can affect the integrity of the package, especially if it is made of flexible material. Due to the high temperatures present in the roasting phase, coffee tends to release a certain amount of carbon dioxide which would make the packaging process inefficient, especially if vacuum-packed. The degassing process is the process during which the gases contained in roasted coffee beans are eliminated by dispersion.

This phase is carried out, industrially, inside special storage silos and is necessary to improve the quality of the coffee. This operation reduces, in fact, the risk of overpressure in the packaged product, thus favoring the conformity of the finished product. The degassing phase can be total if the coffee is then packaged in sealed packaging solutions that do not allow further gas leakage such as coffee in capsules. Degassing can be partial when packaging takes place in so-called soft packs equipped with a one-way valve (10).

1.5.5 Packaging

For roasted coffee, a container equipped with a one-way degassing valve is often used which allows the release of CO2 and at the same time prevents the entry of moisture and oxygen.

As far as ground coffee is concerned, vacuum packets or packets in a protective atmosphere are usually used consisting of multilayer films which, depending on the type

of product, have a more or less thick structure. In the last thirty years, the use of capsules has become increasingly popular (*Figure 3)*. The first used materials such as polypropylene which required an over-packing to ensure a certain *shelf life*. Over the years we have come to produce self-protected capsules in a modified atmosphere capable of preserving the quality of the product without the need for over-packaging (11).

The vacuum technique

Vacuum packing mainly concerns ground coffee. In this case, flexible packaging bags are used which, once filled with coffee, are deprived of the air present and hermetically sealed ("forced vacuum"). Due to the development of carbon dioxide, this method can be used only after a certain period of time from roasting. This is to allow degassing of the product which releases excess carbon dioxide. The ground coffee is previously placed in silos for about 24/48 hours, then it is packaged and remains stable for up to three years.

The technique with non-return valve, with or without the use of inert gas

This type of packaging essentially concerns coffee beans. Immediately after roasting, the coffee is placed in silos to rest for at least a week. Then it is placed in the package equipped with a special non-return valve (“aroma saving” valve). It allows the internal gases (carbon dioxide) to escape, simultaneously preventing the external air from entering. Compared to the previous method, this has the advantage of avoiding ensiling for degassing and keeps the coffee unharmed from rancidity for two years. The method is even more effective with the use of an inert gas (generally nitrogen), blown into the package during packaging. This process thus eliminates the air and oxygen present, while maintaining the aromatic qualities of the coffee.

Packaging in capsules and pods

For some time now, other types of single-portion packs have also spread pods and capsules. In the pods, the coffee is enclosed in a paper filter made of cellulose and generally biodegradable. The pods, not being self-protected, are packaged with a film in a protective atmosphere to maintain the aroma. In the capsules, on the other hand, the coffee is enclosed in a plastic or aluminum casing that allows the aromas to be preserved and retained. The packaging of the capsules, in fact, follows a mechanism similar to that

of coffee beans, with the addition of nitrogen to eliminate oxygen. The capsules are self-protected, in recyclable material and therefore differentiable (12).

Figure 3 - Vacuum Packaging - Non-return valve packaging - Capsule packaging

1.6 Nutritional properties

1.6.1 Chemical composition of coffee

The chemical composition of coffee comprises volatile and non-volatile compounds (*Table 1*). Coffee is a complex beverage containing carbohydrates, nitrogenous compounds, lipids, vitamins and minerals such as calcium, magnesium, potassium, niacin and vitamin E, organic acids, chlorogenic acids and other phenolic compounds and alkaloids: trigonelline and caffeine. The composition of these compounds depends on factors such as the amount of grounded coffee, the brewing method, roasting method, the quality of the water used, and other ingredients mixed in the coffee (15).

Table 1 - Amounts of some nutrients contained in green Arabica (15)

NUTRIENT	AMOUNT 100 G
Energy (kcal)	460
Water (g)	1,7
Protein (g)	5,29
Carbohydrate (g)	74
Fat (g)	15,87
Fiber (g)	1,9
Sugar (g)	58,2
Calcium	271

Magnesium (mg)	68
Phosphorus (mg)	251
Potassium (mg)	1033
Sodium (mg)	317
Niacin (mg)	2,2
Folic acid (µg)	9
Vitamin A (µg)	1
Vitamin K (µg)	1,5
Caffeine mg	360

Coffee is not only one of the most consumed beverages in the world thanks to its stimulating impact and desired bitter taste but also an important source of caffeine for many populations. Although there exist studies associating coffee and caffeine consumption with health problems, the studies conducted in the recent period report that coffee plays a important role in strengthening the immune system and protects the body against the risk of Type 2 diabetes, obesity, neurological diseases, pancreatic cancer and osteoporosis thanks to the compounds it contains such as caffeine, chlorogenic acids, kahweol, cafestol, and micronutrients (magnesium, potassium, niacin and vitamin E). Furthermore, in our day and time, coffee is acknowledged as a functional food due to its rich content reflecting antioxidant and other beneficial biological properties. It has also been stated that coffee consumption reduces the level of inflammatory markers while increasing that of anti-inflammatory ones (15).

1.6.2 Caffeine

Caffeine is probably the most frequently ingested pharmacologically active substance in the world. It is found in common beverages (coffee, tea, soft drinks), in products containing cocoa or chocolate, and in medications. Because of its wide consumption at different levels by most segments of the population, the public and the scientific community have expressed interest in the potential for caffeine to produce adverse effects on human health. The possibility that caffeine ingestion adversely affects human health was investigated based on reviews of (primarily) published human studies obtained through a comprehensive literature search. Based on the data reviewed, it is concluded that for the healthy adult population, moderate daily caffeine intake at a dose

level up to 400 mg day-1 is not associated with adverse effects such as general toxicity, cardiovascular effects, effects on bone status and calcium balance (with consumption of adequate calcium), changes in adult behavior, increased incidence of cancer and effects on male fertility.

Following ingestion, caffeine is rapidly and essentially completely absorbed from the gastrointestinal tract into the bloodstream. Maximum caffeine concentrations in blood are reached within 1–1.5h following ingestion. Absorbed caffeine is readily distributed throughout the entire body. It passes across the blood–brain barrier, through the placenta into amniotic fluid and the fetus, and into breast milk.

It is now widely believed that habitual daily use of caffeine > 500–600 mg (four to seven cups of coffee or seven to nine cups of tea) represents a significant health risk and may therefore be regarded as 'abuse'. Sustained abuse may in turn result in 'caffeinism', which refers to a syndrome characterized by a range of adverse reactions such as restlessness, anxiety, irritability, agitation, muscle tremor, insomnia, headache, diuresis, sensory disturbances (e.g., tinnitus), cardiovascular symptoms (e.g., tachycardia, arrhythmia) and gastrointestinal complaints (e.g., nausea, vomiting).

Death due to excessive caffeine ingestion is not common, and only a few cases have been reported in the literature. The acute lethal dose in adult humans has been estimated to be 10 g/person. Death has been reported after ingestion of 6.5 g caffeine, but survival of a patient who allegedly ingested 24 g caffeine was also reported (13).

1.6.3 Caffeine and sport

The use of caffeine in the world of sport has been known for several decades now. In endurance sports, this substance is used to reduce the sense of fatigue, to produce an improvement in performance and to delay the sense of muscular exhaustion. Precisely by virtue of these characteristics, caffeine would seem a substance suitable to be taken shortly before a prolonged effort, as was proved in a study in 1979, through the ingestion of 250 mg of caffeine 60 minutes before running, with a treatment an additional 250 mg at 15-minute intervals after the first 90 minutes of competition. The results showed a marked increase in performance (+ 7.4%) and an increase in maximum oxygen consumption (+ 7.3%) as well as increased lipid oxidation (14).

1.7 Certifications

Organic certificate

Organic certification corresponds in our language to "biologico" certification and is concerned with creating sustainable agriculture that seeks to produce food in harmony with nature, promoting biodiversity and the health of the soil. There was already talk of organic farming in the 19th century, but the first certifications of coffee, recognized all over the world, date back to 1967 and arise from the meeting between groups of coffee growers and certifiers. The main purpose is to ensure organic cultivation and processing of coffee while keeping the environment under control according to international standards. The checks by the certifiers are annual and to obtain the certification these products must be traceable from the producer to the consumer and guarantee the grower a "premium" on the selling price. The Organic certification is the most widespread certification with 40 producing countries involved and the production is mainly imported to the USA, Canada, Europe, Russia and Japan (*Figure 4)*.

Figure 4 - Organic certificate

Fair trade certificate

Fair Trade certification is about promoting better living conditions for farming families by developing fairer pricing policies, environmental policies and direct selling relationships. Founded in 1970 in Holland, it currently has its international headquarters in Germany and as many as 20 national chapters. Fair Trade promotes economic and environmental sustainability purposes for growers and their communities by ensuring guaranteed minimum prices and social bonuses to cover production costs. This model allows small farmers organized in democratic cooperatives to have more bargaining power to compete on the market. Annual inspections are carried out by independent certifiers and Fair-Trade members in charge of training and monitoring the plantations. The costs for

these inspections are borne by the growers but the importers will have to guarantee, in the event of a request from the cooperatives, up to 60% of the price set before the harvest. Fair Trade products are well advertised in the media with recognizable labels and logos and are traceable from plantation to roasting. All sales must be priced at or above the guaranteed minimum price. This certification is widespread in 24 producing countries and the main buyers are the USA, Canada, Europe, Japan, Australia and New Zealand (*Figure 5)*.

Figure 5 - Fair trade certificate

Rainforest alliance

This certification institute promotes itself to integrate the conservation of biodiversity, take care of community development, workers' rights and productive agricultural practices in order to guarantee complete sustainability of company management. Rainforest was founded in 1992 and the first certifications regarding coffee date back to 1996. The standards for this certification require compliance with various criteria that affect all company activity, by plantations or cooperatives of any size. Inspections and training are carried out annually by biologists, agronomists, sociologists and other specialists authorized by the Rainforest Alliance. Rainforest Alliance certified coffee is traceable from plantation to roasting and while there is no minimum price, producers can use the certification to negotiate a better price for their coffee - typically an additional 5 to 10 cents per pound. This certification is widespread in 17 growing countries including Brazil, Colombia and Costa Rica (17) *(Figure 6)*.

Figure 6 - Rainforest alliance

2 Coffee market

2.1 World coffee overview

The objective of this chapter is to analyze the coffee market in Italy from different points of view, from the concentration of coffee roasters in the territory to the quantity of imports and exports of the same, and then analyze the demand and the supply of the country. Therefore, before analyzing the situation of the Italian coffee roasting market, a quick overview is given of what is the current situation in the world with respect to the number of roasting companies and their major concentration, as well as the import and export situations of some countries, in order to better position Italy by having a better general picture. As can be seen from the graph below (*Figure 7*), the country with the highest concentration of roasters is the Far East and Central Asia, even though, according to what has been learnt about the origins of coffee, a higher value would be expected maybe in the Middle East, the place from which history identifies the discovery of coffee. In second position is North America, probably in these areas roasting plants are smaller and, because of the vastness of the territory, these values are so big, such as 17,281 (it is enough to think that only Italy, as we will see later on, records 633 roasting plants).

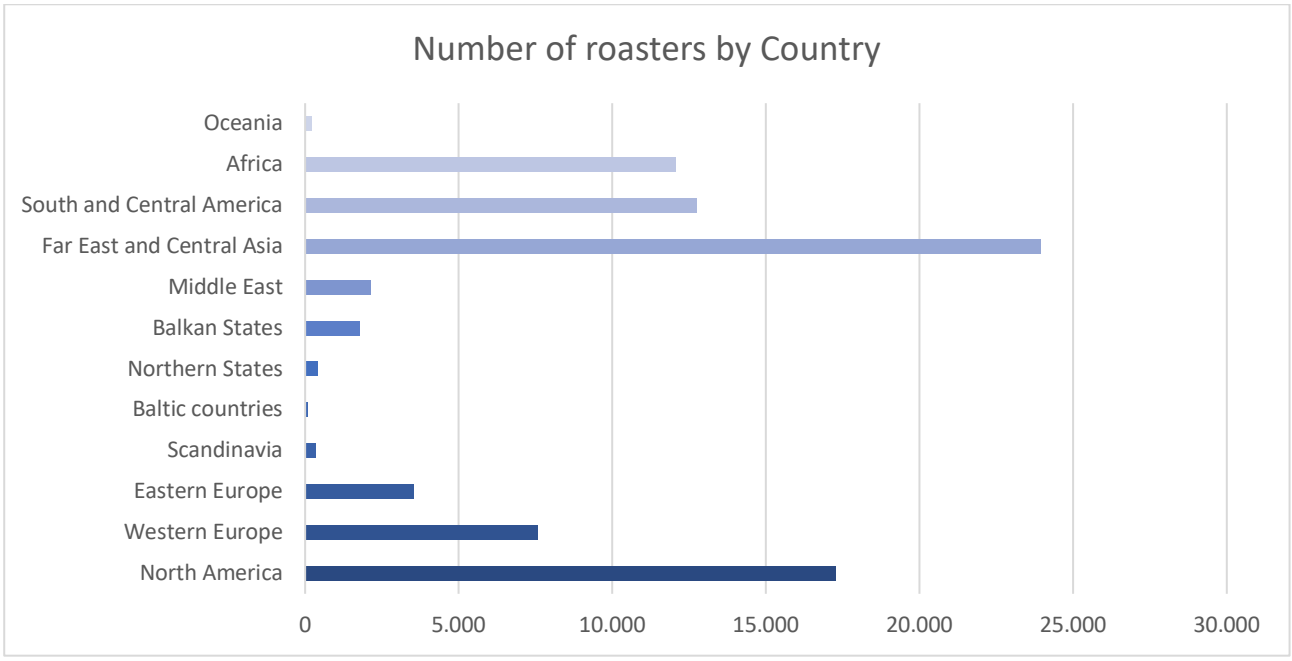


Figure 7 - Number of coffee roaster by country, source Orbis

If we look at the quantities of world coffee imports and exports, we see that during the 2020/21 period, global coffee imports amounted to a total of 133.03 million 60-kilogram bags. In the same period, around 142.37 million bags were exported worldwide (*Figure 8)*. For the 2021/22 coffee marketing year, both imports and exports are expected to decrease. Moreover, In January 2020, Brazil exported the highest volume of coffee worldwide. The country exported roughly 3.22 million 60-kilo bags that month. Vietnam and Colombia stood in second and third place, exporting approximately 2.3 and 1.07 million sacks, respectively. In terms of global coffee production, Brazil also led the list, producing over 61 million 60-kilo bags worth of coffee in 2018. Brazil produced over twice as much as Vietnam that year. Focusing on Brazil then, which is known as one of the top coffee exporting countries worldwide, produced the highest volume of green coffee in Latin America by far in 2019. The South American country produced over 63 million 60-kilogram sacks of green coffee that year. Colombia ranked second, producing just over 14 million green coffee bags.

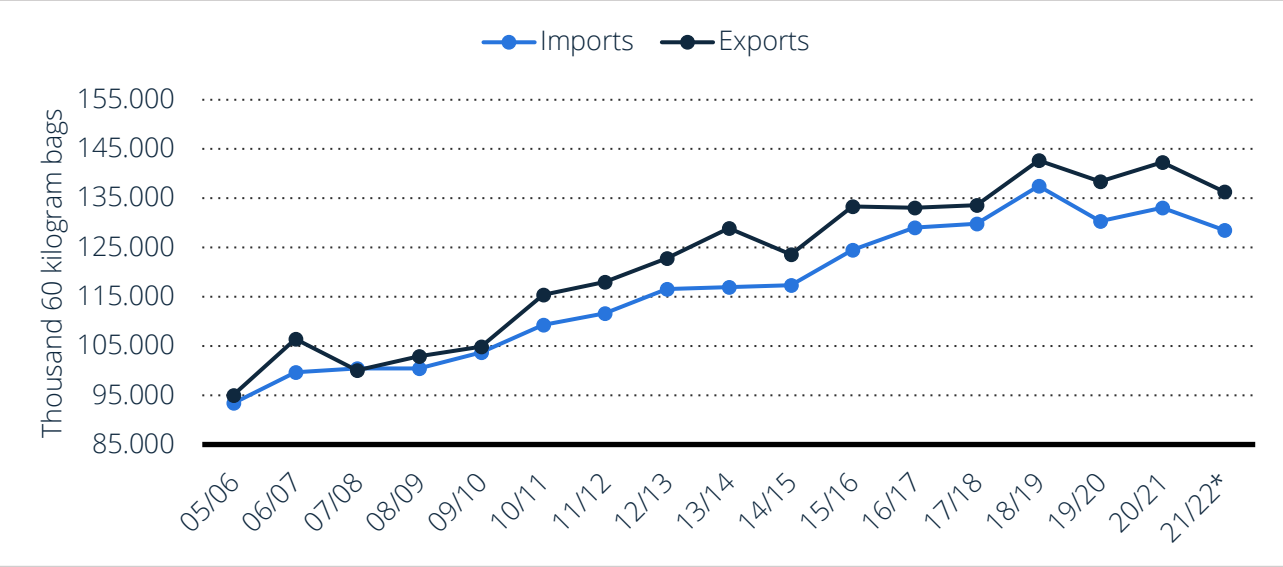


Figure 8 - Total coffee imports and exports worldwide from 2005/06 to 2021/22(in 1,000 60-kilogram bags), source Statista (36)

Finally, it is interesting to underline the highest values of coffee imports in the world per country, in order to place also in a clearer way the position of Italy. The United States imported around 5.84 billion U.S. dollars' worth of coffee in 2019, making it the leading importer of coffee worldwide that year. Germany followed in second place, importing around 3.1 billion U.S. dollars of coffee. Only in fourth place, following France, is Italy, which at a global level turns out to be a good position with around 1.62 billion U.S. dollars (37).

2.2 Green Coffee producers

Before focusing on Italy's coffee market, we want to show which are the biggest green coffee producing countries in the world. There are four macro regions for which the analysis can be divided: South America, Asia and Oceania, Mexico and Central America and Africa. The leading region is certainly South America, with 88.21 millions of 60kg bags, followed by Asia and Oceania (49.39 millions of bags) and then ending up almost on a par with Central America (19.5) and Africa (18.5). As this statistical chart shows (*Figure 9*), the state that dominates South America is therefore Brazil with a value of 69 millions of 60 kg bags, to be then followed by Vietnam, Colombia, Indonesia, Ethiopia, Honduras, India, Uganda, Mexico and Peru with the respective values mentioned below. Brazil, the top coffee producing country, accounted for 40% of the global coffee supply. Vietnam was the second largest coffee producer, accounting for roughly 20% of the world coffee production.

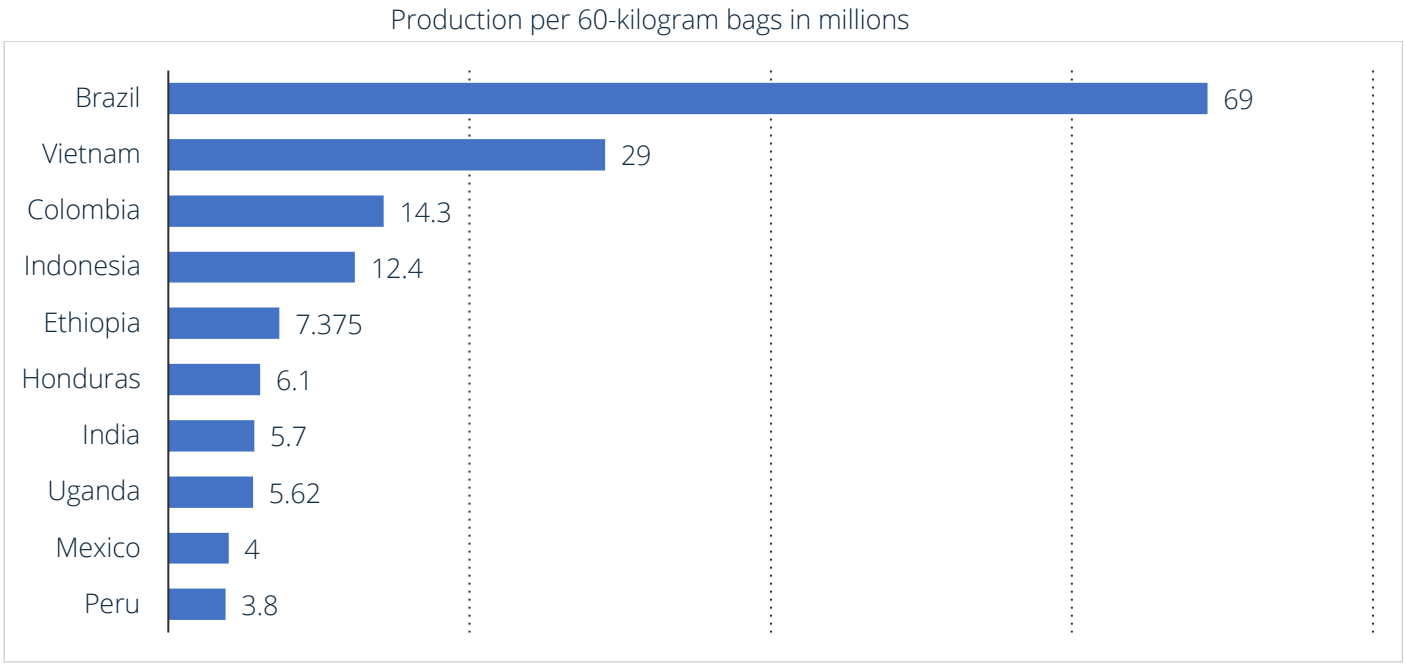


Figure 9 - Coffee production worldwide in 2020 by leading countries, source Statista

2.3 The Italian coffee market

The coffee market in Italy, prior to the pandemic, although a market in a mature and stable phase, appeared to be in a phase of slight slowdown, in fact, IRI data (Information Resources, Inc.) shows that in 2019 51% of coffee was sold under promotional conditions, particularly for ground coffee. The problem is that the coffee market is a saturated market: the level of demand has reached the market potential and there is no significant room for growth in consumption. The penetration rate of coffee has in fact reached 90% and the frequency of consumption cannot be increased, due to the organoleptic characteristics (presence of caffeine) of the product. However, it should be kept in mind that in Italy 80% of the population does not give up the pleasure of coffee, drinking an average of 1.5 cups of coffee per day: a very high percentage, as shown below (*table 2*) of consumption in kg per year, a good 6 kg per capita, whether coffee is in beans or powder (for 2018). According to the assessments of the Italian Coffee Committee, the "apparent consumption" of coffee can be estimated, for 2018, at around 359 million kg of green coffee equivalent, compared to 335 in the previous year, realizing an increase of 7% (18).

Coffee is a market that occupies a real slice of the Italian market, in fact, if we consider bars, restaurants and hotels, it touches 2 billion euros per year.

YEARS	2014	2015	2016	2017	2018
Import Million kg green coffee equivalent	562,0	560,6	614,3	602,1	639,6
Export Million kg green coffee equivalent	209,1	221,2	252,4	266,8	280,9
*Apparent Consumption** Million kg green coffee equivalent	352,9	339,4	361,9	335,3	358,7
Per capita Consumption Kg green coffee equivalent	5,9	5,7	6,0	5,6	5,9
Apparent Consumption Million kg roasted coffee**	282,3	271,5	289,5	268,2	287,0
Per capita Consumption Million kg roasted coffee	4,7	4,5	4,8	4,4	4,7

Table 2 - Import and Export in Italy, source Beverfood.com (18)

* "Apparent consumption" of coffee: import minus export. Apparent consumption does not take account of movements in stocks and should therefore be assessed on a multi-year basis, to absorb the effect of changes in stocks. In this sense, the basic fact that emerges is a substantial stagnation of internal consumption.
** As far as roasted coffee is concerned, it is necessary to specify that with respect to the equivalent green coffee it has a weight loss of 20% (according to what has been explained in the previous chapter) and therefore it is not possible to make a direct comparison between the two apparent consumption values

Finally, it should be specified that the internal consumption of coffee is made up for a small (but significant) part using coffee in the preparation of other products (pastry products, ice cream, supplements, ...) while most of it is represented by the sale of roasted coffee for the preparation of the homonymous hot drink and other hot drinks based on coffee.

2.3.1 Italy imports and exports

It is from Brazil (mainly for Arabica quality, with more than 432 million euros in one year) and Vietnam (for Robusta quality) that Italy has its highest number of kg of imports (*Figure 10*).

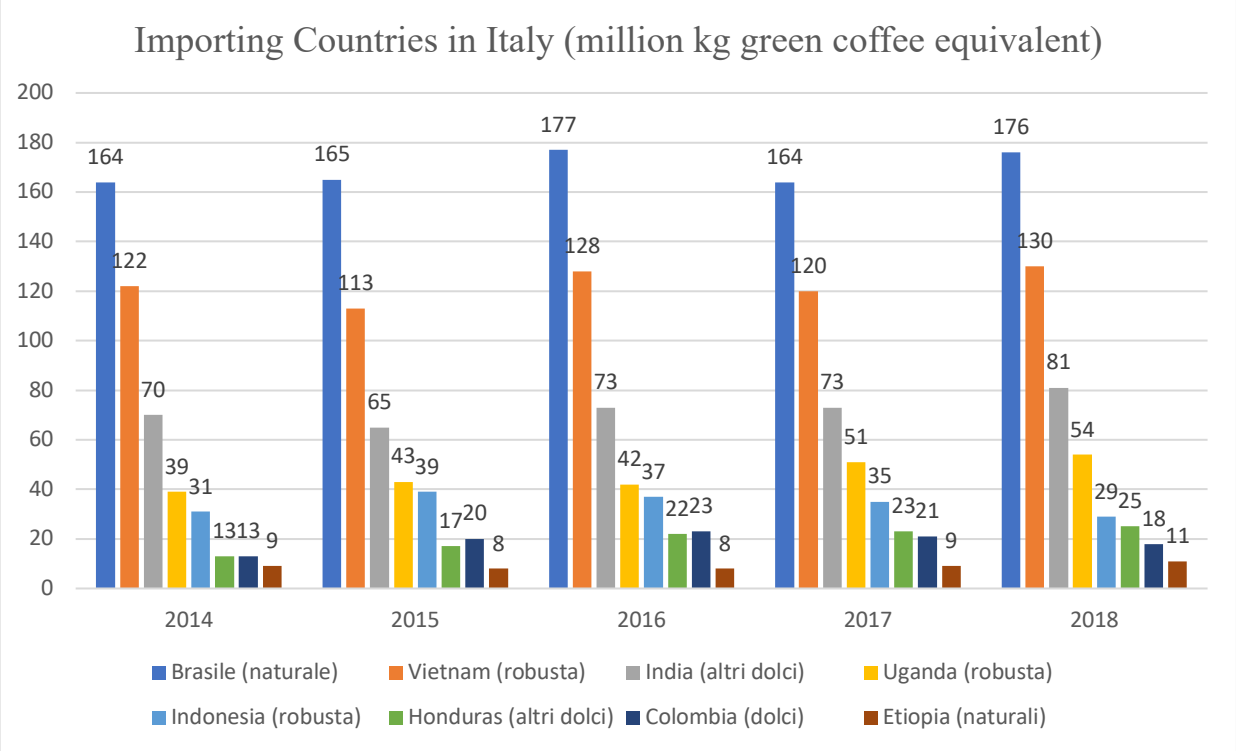


Figure 10 - Coffee Countries: Import Green coffee in Italy Million kg green coffee equivalent by year, source Coffitalia

From the tables below (*Table 3*), it is possible to see the import trend of Italy from the years 2011 to the year 2018 in terms of kg and in terms of monetary value (€). Over the considered period, the import volume of green coffee to Italy has increased from roughly 562 million kg in 2014 to 639.6 million kg in 2018, with a 6% increase over the year 2017 (*Figure 11*).

Table 3 - Import value of green coffee in Italy between 2011 and 2018 (in million euros), source Statista

YEARS	EUROS (in millions)	KG (in millions)
2011	1240.40	
2012	1.296	
2013	1064.30	
2014	1.089.600	562.000
2015	1.393.900	560.600
2016	1.284.200	614.300
2017	1.362.400	602.100
2018	1.266.900	639.600

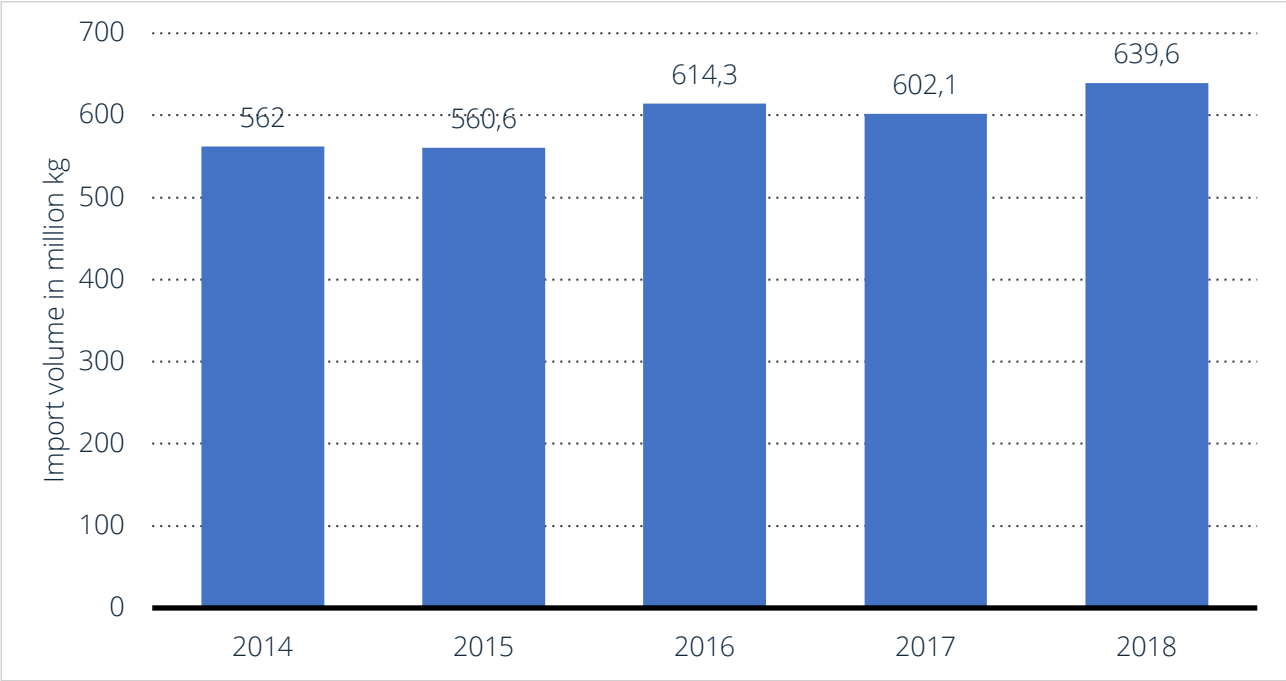


Figure 11 - Import value of green coffee to Italy between 2014 and 2018 (in million kg), source Statista

As for export values, as we have seen from the data in the table in subsection 2.1, they have increased progressively over the years. In 2018 coffee exports rose, according to data from the Italian Coffee Committee to 4,681,996 bags of green coffee equivalent, equal to 280 million kg with a 5% increase over 2017. As for 2019, total coffee exports amounted to 5.4 million bags (of 60 kg) of green coffee equivalent, of which 5.2 million bags of roasted coffee (up 16% compared to 2018) and 0.2 million bags of other types of coffee. The Federación Nacional de Cafeteros (FNC) reported that the country, which is recognized as the world's leading producer of coffee of the Arabica variety, registered a slowdown in 2020 in the volumes of production (-6%) and export of beans (-8%) compared to the previous year.

By analyzing the historical data of the Italian Coffee Committee, it is possible to discover that in the last 10 years exports of roasted coffee have more than doubled. Exports, in fact, represent the real growth driver of the Italian coffee industry since domestic consumption remains stagnant. In terms of value, Italian coffee exports can be estimated at around € 1.5 billion.

Our exports of roasted coffee are largely made up of ground coffee, destined above all to feed the growth in international demand for Italian-style espresso coffee. The most important outlets for Italian roasted coffee exports are European countries (which account for over 60%), such as France, Germany, Austria and Switzerland. Significant shares of non-EU countries include Great Britain, the USA, Australia, Russia and Canada.

2.3.2 Contractual dynamics

In order to understand the mechanisms for the supply of green coffee, that is the raw material, to coffee roasters, it is necessary to frame coffee not only at a cultural level but also at an economic one. Its production is a crucial point for the world economy, so much that it is the third raw material traded in the world after oil and metals. This causes its price fluctuations to be carefully studied and monitored in forex, giving it a prominent position in the market. Coffee is traded using as unit of measure the sack, corresponding to 60 kg of beans, and the two varieties that generate the most revenue are the main blends with which our espresso is created: Arabica and Robusta divide the market, with a strong predominance of the first one; therefore we have a differentiation between coffee quotation related to Arabica and Robusta variety coffee quotation. However coffee quotation, differently from those of oil and metals, has a peculiarity in its extreme instability: fluctuations, among which the downward peak of the last years, are commonplace. This instability is due to the failure of a control plan similar to the one activated for other raw materials: where the control organizations of oil and metals have been able to dictate rules to stabilize the price trend, for coffee this is practically impossible because of the original production in the hands of small farmers and producers who must then sell directly to large multinationals, facing the relative prices. This creates a gap between the production price and the marketing price, which in turn causes imbalances in the market price, and attempts to create stabilizing rules as for other materials have never worked. To this are added the normal market fluctuations, due to demand and surplus: if coffee is on the market with high prices, this incentivizes

farmers to extend production; when production is high, however, the price goes down because of a high quantity of coffee, which makes the raw material easily available.

This elucidation is necessary to fully understand the mechanisms of green coffee sourcing by roasting companies (42).
The supply of raw material is therefore made by buying green coffee on the stock exchange. Given the quantity necessary to satisfy the demand, big companies do not consider the idea of buying their own plantations, as they would have to buy as many as their production and this would bring disadvantageous costs.
In order to protect themselves from possible losses deriving from the high volatility of the price of coffee, starting from the 19th century the economic subjects operating on the market began to manage their exchanges through simple contracts, and then came to the stipulation of derivative contracts, instruments able to protect both seller and buyer. Therefore, there are two types of contracts: forward contract and futures contract.
The *forward* contract provides for a private agreement between buyer and seller having as its object the future delivery of a quantity of goods at a price fixed at the moment of the stipulation of the same contract. This type of contract provides a sort of guarantee for new investments as it guarantees a future return. However, it is not certain either that there is symmetry of information between the two parties, or that the agreement is carried out, being a private contract, with all the risks involved. In order to overcome the risks associated with the forward contract, the *futures* contract is born. These are standard forward contracts issued by the stock exchanges and circulating on the markets regulated by the same, having as their object the purchase and sale of an asset. In the coffee sector, futures are mainly used by Western importing companies to purchase raw materials before they are produced. Once the security has been acquired, *traders* are required to pay a deposit to a financial intermediary, arbitrarily chosen by the latter on the basis of the characteristics of the security and the reliability of the customer and calculated as a percentage of the value of the future (43).

2.3.3 Coffee supply chain

To better understand the dynamics that revolve around the coffee market, let's analyze how its supply chain is configured. The main players are: Coffee bean producers, traders, roasters, large retailers and final consumers. The chain is long and complex, as

the relationships between the operators differ, for example, according to the size of the producers. These relationships are not always collaborative due to two main reasons:

1) Vertical competition between traders and roasters

2) The exploitation of bargaining power by middlemen that helps trap small farmers in a spiral of poverty and debt.

The distribution of value along the chain is divided into a 70% shared between the multinational companies that control the coffee chain and the remaining 30% remains in the countries of origin. In particular, the fraction pertaining to roasters is 30%, as it serves to cover the high investments in branding and communication. Producers do not participate much in value distribution for the following reasons: low price of green coffee on the international market; high negotiating power of intermediaries; little control over the subsequent stages of coffee "beneficiation", first processing and marketing (38).

Has been carried out a study that questions the sustainability of the coffee supply chain, highlighting its malfunctions, the impact of alternatives such as fair trade and organic farming, but also the levers to be activated to ensure its sustainability over time. At a time when this beverage is experiencing renewed consumer interest and an explosion in its value worldwide, the international price is sinking below the level of one dollar per pound to the point that some Latin American producers are refusing to sell their production. The revenues of the industry and the brands do not stop growing while those of the producers stop or decrease. They are the ones who also have to suffer "hidden" production costs: climate change, pollution, poverty. In recent years, statements of alarm from producers have multiplied. Since the end of the 1980s and the closure of the last International Coffee Agreement that regulated world trade, producers have suffered price volatility determined by financial markets. They earn less and do not have the ability to negotiate the terms of sale of their coffee with buyers, large multinational brands and distributors who concentrate power in their hands. The situation is all the more serious because production costs have increased while the world price has decreased. As an example, Peruvian and Ethiopian producers in 2017 earned 20% less than in the previous 12 years and are far below the poverty line. Producers take no more than 10% of the average selling price of coffee to the end consumer. The distribution of wealth along the supply chain must necessarily go through:

- The revision of the remuneration policies of producers by the large groups that hold most of the market in their hands;

- The establishment of an observatory of costs and profit margins by the International Coffee Organization (ICO) and in which transparency becomes the sine qua non for access to a better distribution of wealth. Actors in the sector must commit to paying prices that guarantee income and decent wages (41).

Having framed the business system of the primary market, let's see how this is divided into the various markets derived from it, depending on the mode of consumption.

2.3.4 The supply side in Italy

A research carried out by the platform "Report Aziende", which is a portal that offers research services and information of companies, with registered office on the Italian territory, using the ATECO code 10.83.01 (Coffee processing), revealed 474 roasting companies active in Italy. Making an analysis by province, a graph was constructed to evaluate how many companies are present in each region (*Figure 12*).

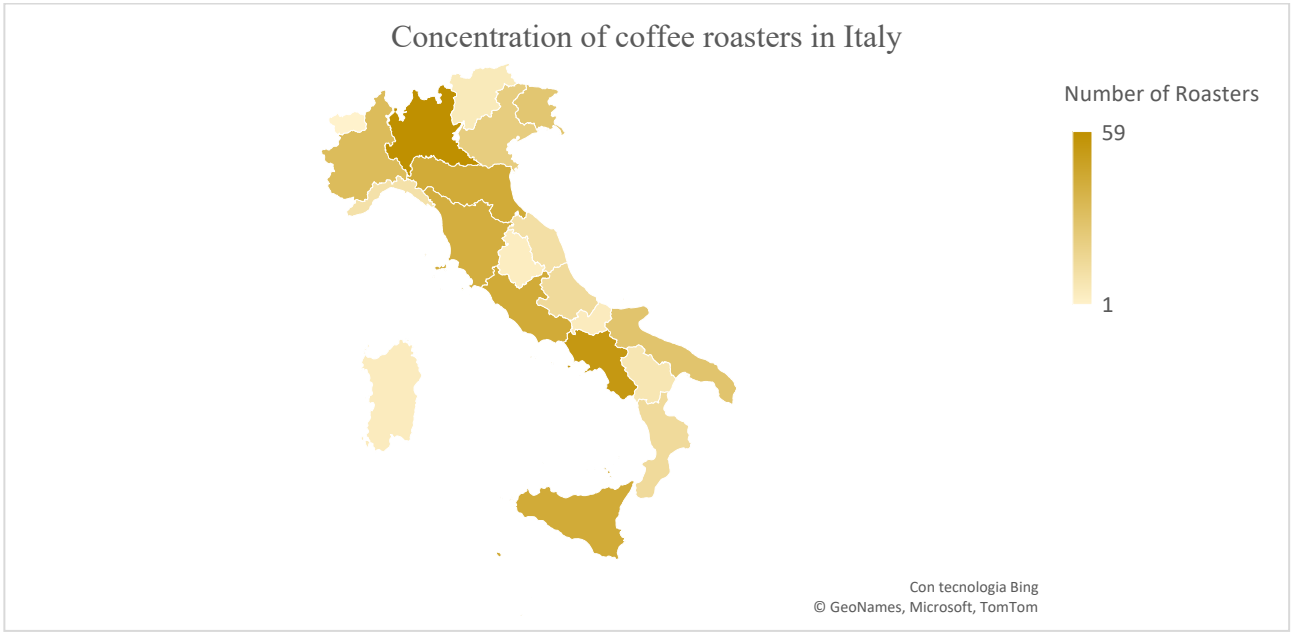


Figure 12 - Analysis of number of roasters by regions

The geographical areas with the highest number of roasting plants are, as shown in the picture, the region of Lombardy, with 59 roasting plants, followed by Campania with a value of 54 roasting plants, the second one probably also because of the important

culture of coffee in the areas of Naples and surroundings, born around 1800 and more and more affirmed in the last years with even the birth of the innovative "Caffè sospeso", which consists in paying for a second coffee, in fact suspended, instead of asking the barman to receive the rest back, offering in fact to the struggling patrons of the day a nice cup of Neapolitan coffee.

The same graph and calculation can be used to evaluate the concentration index in terms of turnover for each region, in this way the leading region is Piedmont with around 4 billion in turnover, a value due to the high turnover of the leading company in this sector in Italy Lavazza SPA with an annual turnover of around 1.5 billion euros; followed in second position by Friuli Venezia Giulia thanks to the company Illycaffè, with an annual turnover of about 500 thousand euros (*Figure 13*).

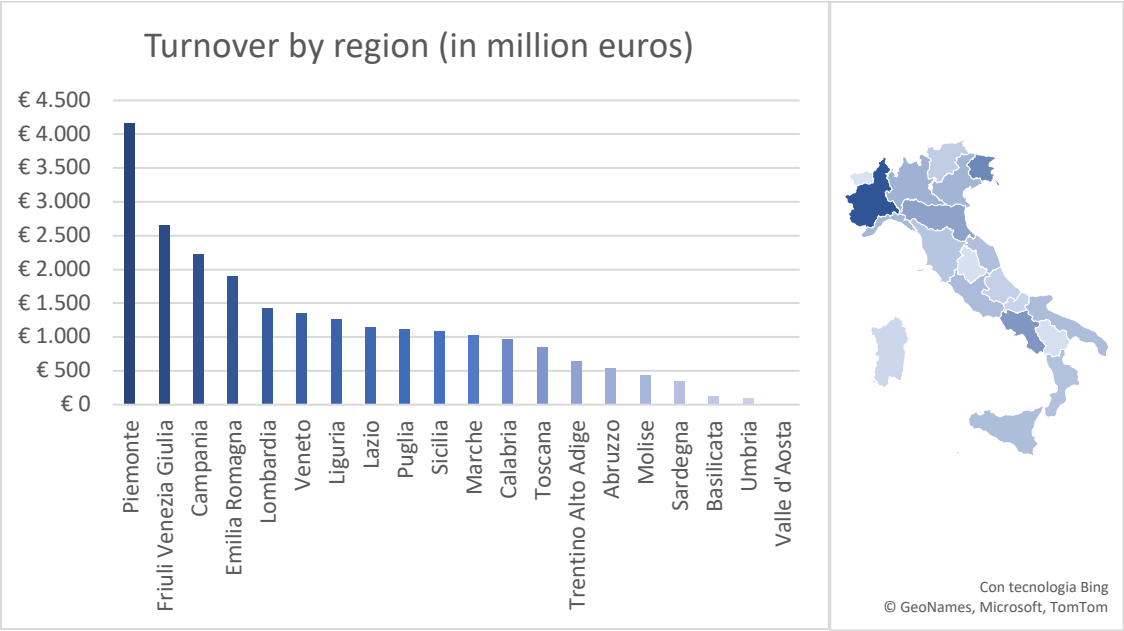


Figure 13 - Analysis by regions per coffee turnover

2.3.5 The demand side in Italy

If we want to deepen the analysis from a competitive point of view, it is necessary to consider the fact that not all roasting companies are in competition with each other, as there are different market spaces in which each of them can operate. It is appropriate to distinguish three market areas (*Figure 14*), according to the groups of customers the company addresses (which identify the different "marketing channels" of coffee):

Retail, i.e. retail distribution (large-scale retail and small-scale retail), which feeds domestic coffee consumption; Ho.re.ca, acronym that stands for Hotel, Restaurant and Catering, that is the channel of public establishments intended for the administration of food, beverages and the like, which feeds the consumption of coffee outside the home; Vending & Serving, that is, the channel made up of companies managing vending machines and systems for pods and capsules; finally observing the reality of the last few years, a further marketing channel should also be mentioned: the Internet. In fact, the electronic channel allows the roasting company to sell directly to the consumer (e-commerce), skipping the intermediation of distribution. Above all, with the advent of Covid-19, this channel has taken on more and more space among the various companies. Each coffee roaster can choose to operate in just one of these markets or, through multi-channel distribution policies, can choose to be present in several markets. On the Italian market, in all the channels analyzed, the intensity of competition is now very high, not only because of the number of roasting companies operating there, but also because of factors related to consumer demand, which is now saturated, for the reasons explained above (20).

The following analysis aims voluntarily to analyze the years before 2020, the year of the pandemic, because in the latter year the data would be staggered or even misleading regarding the amount of coffee in the various channels, due to government restrictions.

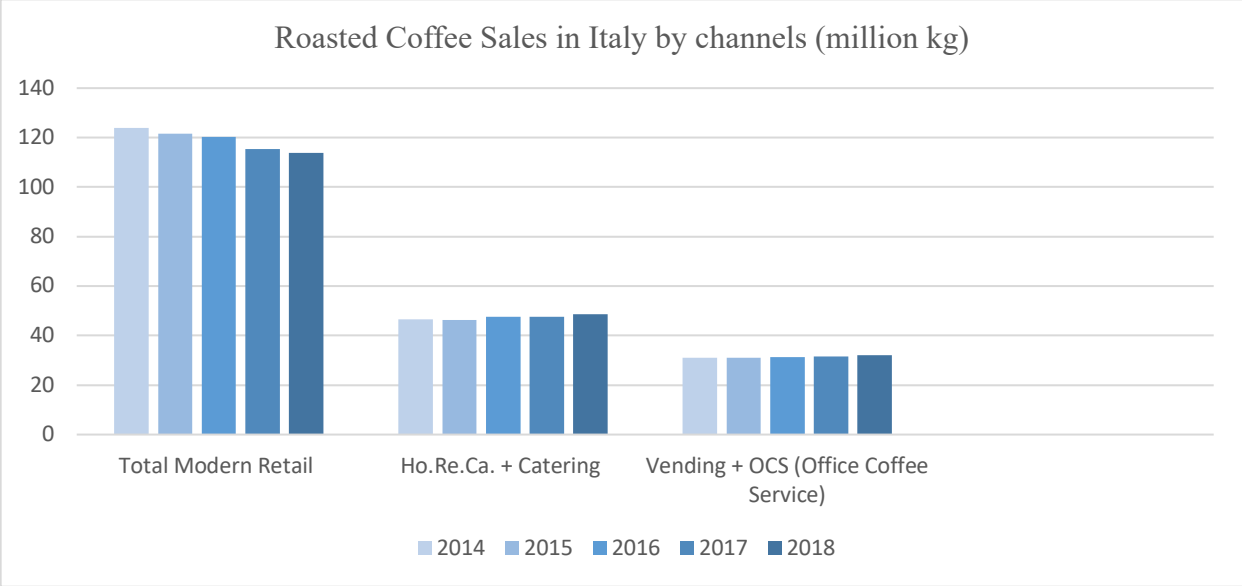


Figure 14 - Market segmentation in Italy, source IRI

2.3.5.1 Retail market

As far as sales on the Italian domestic market of roasted coffee are concerned, consumption has been stagnant for several years. However, the global turnover of the coffee industry is developing positively thanks to the continuous growth of exports, as we have seen above, with an always positive trend. Moreover, on the domestic market, the channel that expresses the highest volumes (45% of total domestic sales) is that of modern distribution (meaning: hyper + super + superettes + discount stores), which, however, overall is struggling to maintain volumes. The opposite situation, however, occurred during the lockdown period, where, according to IRI, a reversal of the trend was observed, with growth in both volumes and values. In the last 5 years, sales of roasted coffee in modern distribution have undergone a slow but continuous erosion of volumes, which have now reached 111 million kg with a value of 1,261 million euros and an average price of 11.3 euros per kilo. It is probable that modern distribution outlets are suffering from competition from the online sales of the various roasters (most roasters have activated online stores), but also from the numerous retail outlets specializing in the sale of coffee (especially portioned) and which are now widely spread throughout the peninsula (19) (*Table 4*).

Coffee sales Modern Distribution	2015	2016	2017	2018	2019
Sales volumes (Million kg)	121,5	120,1	114,9	113,9	111,9
Sales values (Million €)	1.290	1.281	1.276	1.264	1.261
Selling price	10,6	10,7	11,1	11,1	11,3

Table 4 - Coffee sales in modern distribution, source Beverfood

The modern distribution channel that sees the primacy is the supermarket, which comprises 60% of total sales of this distribution, with a sale of 65.8 million kg sold per year. However, the channel that performed best in 2019 was the discount store, which contained the loss of volumes and managed to increase values by more than 2%. If we want to take a look at the territorial level, we can see that coffee sales in modern distribution are equally distributed among the various geographical areas, in fact, the south has the largest share in quantity (28.1%), but in value the North West prevails

with a share of 36% precisely because in this area the sales of portioned coffee have more weight, which in fact have a higher selling price than other types (packets), as we also saw in the graph with geographical map above.

The influence of Covid-19 in the sales trend

IRI data relating to the first quarter of 2020 show a reversal of the trend. The growth in the value of the coffee category sees a +10.7% in the first quarter of 2020 compared to the same period of the previous year; growth that reaches +18.7% if we consider only the month of March 2020. Consumption rewards all segments of the market and, although Capsules and Pods continue to be preferred (+24.6% and +16.7% in value over the year to March), the Moka segment (which has always performed negatively in recent years) grew by +3.4% in the first quarter of 2020 and +10.9% in March. The lockdown, forcing consumers to stay indoors more, has absorbed some out-of-home consumption occasions (especially breakfast) and this has resulted in a greater coffee supply at modern retail outlets. For coffee, as for most product categories, hypermarkets remain penalized to the advantage not only of supermarkets but above all small proximity stores, this factor too due to the general lockdown in the months relating to the pandemic.

2.3.5.2 HO.RE.CA market

In the Ho.re.ca. channel, the offer is more fragmented, with the top three coffee roasters (Illycaffè, Segafredo and Lavazza) concentrating just 15% of sales in quantity, leaving ample market space even for smaller companies. The clientele served is also mainly made up of small-sized public businesses. This channel recorded a growth of 0.7% in value in 2018, reaching 861.0 million euros. For the year 2019, the Ho.re.ca coffee market in Italy consolidated values at 866 million Euros with a slight increase of 0.6% compared to 2018. Among the most important trends, we note a noticeable growth in the role of single-serving coffee for the purposes of business results. Leading companies gained market share in 2019 as well, although they moved in a less than favorable market environment, which deteriorated in the second half of the year, where stagnation in the market was compounded by a further negative balance in new bar openings. This was reflected in the overall sales performance, where stability or

downturns in revenues dominated. Competition is becoming more and more sophisticated, where digital transformation comes heavily into play; it is no coincidence that the first two companies, Illy and Lavazza, are also declining on the Ho.re.ca channel the initiatives and digital activities born for retail, involving and promoting the visibility of the associated bars, also through the use of apps, and integrating the strategies in an omnichannel perspective. We can consider this, a new competitive lever to raise the barriers to entry to competitors.

2.3.5.3 The different competitive structure of retail and Ho.re.ca.

The Retail and Ho.re.ca channels have two different competition structures, this can be explained by considering the barriers to entry represented by the high marketing investments (advertising and promotions above all), which are necessary to enter the assortments of large-scale retailers, which in fact preclude smaller roasters from entering. In fact, large coffee roasters try, through a pull-type communication strategy, to reinforce brand loyalty among consumers and, by doing so, "force" retailers to deal with their products.

The situation is very different in the Ho.re.ca channel, where customers are made up of public establishments spread throughout the territory, often of small size, which require not only coffee, but also a series of services (technical and commercial assistance, financial facilities, etc.) and complementary goods (accessories, cups, coffee machines, etc.). Satisfying this demand requires a proximity to the customer that smaller local roasters manage to ensure more effectively than large companies.

Moreover, coffee preferences vary significantly according to the geographic area and small local roasters are often able to satisfy local demand better than others, acquiring a market position of "quasi-monopoly" in a limited territorial area. The Ho.re.ca market is a market with geographical and logistic barriers, which protect small local roasters from external competition from large players. The small size, which in the Retail channel is an unfavorable condition for company competitiveness, in the Ho.re.ca. channel, on the other hand, represents an element of strength. In the Ho.re.ca. channel, moreover, loyalty to the point of sale, bar or restaurant, is a more important factor than brand loyalty in consumer choices. This inevitably influences competitive relations and the investment decisions of companies (20) (*Table 5*).

	RETAIL	HORECA
Supply concentration	High	Low
Demand concentration	High concentration (of modern retail)	Low concentration (high density of places per number of inhabitants)
Key success factors	Advertising investments in product branding, promotions	Level of service offered, quality and variety of blends
Profit margins for the roaster	Low	High
Consumer Brand Loyalty	Medium-high	Low, higher point of sale loyalty

Table 5 - Distinctive Elements between Retail and Ho.re.ca

2.3.5.4 Foreign demand and the influence of Ho.re.ca chains

In more mature markets, there is an increase in quality expectations and consumer demand for variety in espresso-based beverages: demand is shifting from a low-value product to a high-value product, giving rise to market niches that can be extremely profitable for companies. This is the case for "*specialty coffees*", "*certified coffees*" and "*organic coffee*". In line with this trend, there is an increasing demand for high quality coffee, with a defined history and origin (*Specialty Coffee*). At the same time, the ability of the foreign consumer to evaluate the goodness of the product has also improved significantly. In other words, we are witnessing an evolution of the "coffee" product from a *commodity drink* to an *experiential drink*, with a strong sensory and cultural value. Coffee has now taken on a dual connotation: it can be considered a *hedonic good*, when its consumption is linked to the multisensory experience it can offer, and a *utilitarian good*, when its consumption is linked to the utility it can bring such as stimulation/excitement.

Abroad, espresso, and espresso-based beverages, are considered a "luxury good," albeit "affordable," so much so that they are sold at significantly higher prices than in Italy. Especially in the emerging markets of Asia, for example, coffee is one of the symbols of the West and consuming coffee in a coffee shop constitutes a status on a par with owning a luxury or sports car or frequenting certain social classes. It is evident that the large Ho.re.ca. chains and coffee shops in particular have played (and are playing) a decisive role in the spread of coffee abroad, according to a consumption model that is profoundly different from that prevailing in Italy. Already widely present in North America, they are also spreading in Europe at a high rate, despite the difficult

economic situation. The success achieved by Starbucks has, in fact, triggered an imitative process, which has resulted in the multiplication of the chains and their points of sale throughout the world (think of Costa Coffee, McCafé, Caffè Nero, etc.). In addition to influencing consumption models, the spread of chains also substantially modifies the structure of international demand for Italian companies, which are used to dealing with an extremely fragmented Ho.re.ca, which operates with completely different logics. The expectations and purchasing behavior of the typical Italian bar-customer are profoundly different from those of a chain of establishments, from the point of view of both purchasing procedures and the products and services requested. Chains represent a market segment with a high degree of attractiveness, as each of them can guarantee high purchase volumes. Moreover, the presence of one's own product in the premises of a chain, whose brand enjoys a high level of notoriety, also contributes to reinforcing one's own brand, which is often associated with the image and reputation of the premises. It is also true, however, that if the roasting company does not care about the fate of the product and its brand, it becomes particularly vulnerable, linking its international performance to the decisions of the chain.

Finally, it should be noted that the purchasing process of an Ho.re.ca chain can be very long, complex and bureaucratic. Decisions relating to procurement are generally taken by head office, in order to prioritize standardization of the service offered to the consumer among the various points of sale, and thus guarantee a uniform image. The margins for negotiation with the chain are rather limited, as it operates with well-defined rules (for example, regarding payment terms). It is clear, therefore, that to relate effectively with this economic entity, the industrial supplier needs specific skills, especially in terms of marketing and sales, and advanced organizational models (21).

2.3.6 Consumer preferences in Italy

Ground coffee takes the lion's share with 91.4% in quantity and 89.7% in value, while coffee beans account for 5.6% in quantity and 4.5% in value. Soluble coffee has always remained a residual segment in Italy, contrary to what happens in many other countries; today it accounts for only 2.9% in terms of quantity but 5.7% in terms of value.

The shift in volumes and values from ground coffee in bags to portioned ground coffee in pods and capsules continued. Portioned coffee now accounts for 11.6% of total volumes of ground coffee in modern retail but has already reached 36.9% of total value

(*Table 6*). Within the portioned ground coffee, the capsule segment has now taken over, which is now worth as much as 331 Mn/euro on its own and shows stronger growth than pods. Sales are still strongly driven by intense promotional activity, which is close to and sometimes exceeds half of the volumes developed. Capsules and, to a lesser extent, pods are the value segments that support the category. In particular, the former, with an above-average price positioning, show interesting levels of growth and innovation, increasing the assortment by about 9 average shelf references in December 2019 compared to the previous year (19). With the advent of Covid, in the first quarter of 2020, capsules made a further leap forward, doubling their trend (+24% both in value and volume) and in the two-month period April/May they even reached over 30% growth, with peaks of +38.6% in value. But the real surprise is that in the same months there was also the revenge of blends for mocha, which, although in decline for some time (-4.5% in quantity and -5.1% in value in 2019), still continue to generate half of the total turnover of coffee in Gdo and 55% of the volumes sold (27).

Coffee Market	Sales	Var. Change %	Values	Var. Change %
Italy Iper+Super+LSP (100-399 mq.)	**2019 (Million kg)**	Δ 2018	**2019 (Million €)**	Δ 2018
Ground - Moka	62,7	-4,5	457	-6,8
Ground - Moka 100% Arabica	5,8	+0,1	87	-1,0
Ground - Espresso	8,8	-3,2	79	-5,5
Ground - Espresso 100% Arabica	0,7	+0,3	16	+1,1
Ground - gift pack	0,3	+9,9	5	+0,8
Tot. *Ground-Not Portioned*	78,3	-3,8	644	-5,6
Ground - capsules	7,9	+16,0	331	+9,6
Ground - pods	2,4	+4,7	46	+3,7
Tot. *Ground - Portioned*	10,3	+13,2	377	+8,6
TOT. GROUND	**88,6**	-2,3	**1.021**	-0,9
COFFEE BEANS	**5,5**	+1,3	**51**	+0,3
INSTANT COFFEE	**2,8**	-21	**65**	-2,4
TOT. COFFEE IPER+SUPER+LSP	96,9	-2,0	1.137	-0.9

Table 6 - Coffitalia 2020, source Beverfood

2.3.7 Pro capita consumption

As mentioned at the beginning of the previous chapter, the average Italian expects to consume about 4.8 kg per year per person; bearing in mind that a cup of coffee contains about 7 grams of coffee, translated into comprehensible numbers would be 686 cups of coffee per year per capita, that is 2 cups per day.

Moreover, coffee consumption habits in Italy are significantly affected by the age group considered (*Figure 15*). From a statistical survey, from Statista, in 2019, 14% of Millennials between 18 and 34 years asserted that they never have coffee during the day. By contrast, only 6% of the respondents over 34 years old declared that they do not consume coffee daily. Despite the age group, the majority of the interviewees said that they consume coffee two to three times a day. These values are congruent to what explained in the previous chapter (1.6.1), according to which two or three cups of coffee a day, with respect to the quantity of caffeine they contain, are to be considered beneficial and with relatively few counter indications (restlessness, anxiety, irritability, agitation, muscle tremor, insomnia, headache, diuresis, sensory disturbances, cardiovascular symptoms and gastrointestinal complaints).

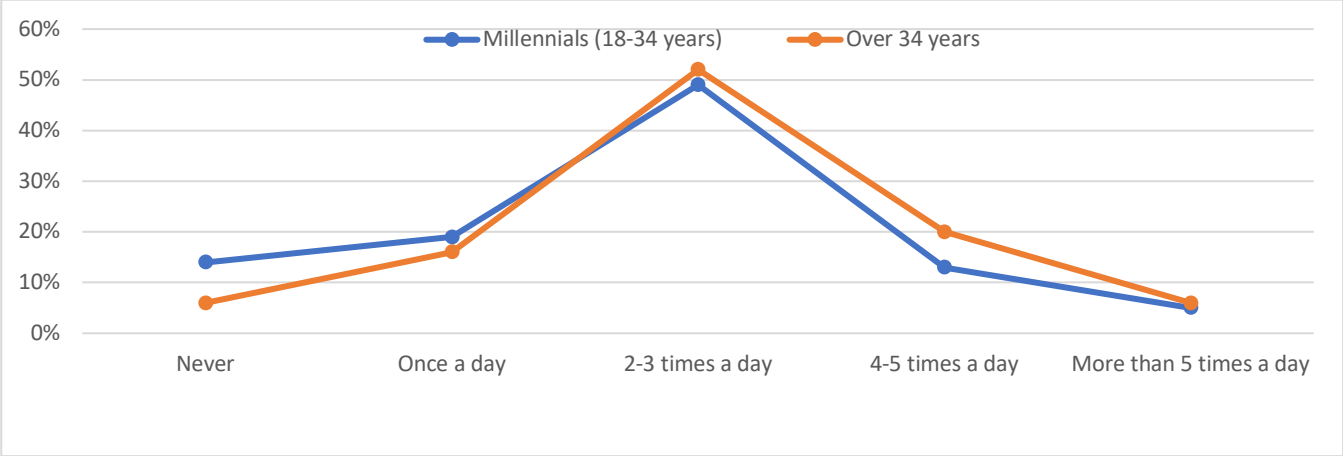


Figure 15 - Coffee consumption habits in Italy in 2019, by age group and frequency, source Statista (22)

The same analysis was carried out by focusing the surveys on the difference in consumption with respect to the sex of the person: man or woman (*Figure 16*). In 2019, coffee consumption habits in Italy did not vary significantly by gender. In fact, it was found that most Italian men and women tend to consume coffee two to three times a day, (48% of males and 53% of females' coffee consumers). On the other hand, only

5% of men and 6% of women take coffee more than five times a day, in concordance with the above.

Thus, from this there is no particular difference between men and women in daily coffee consumption.

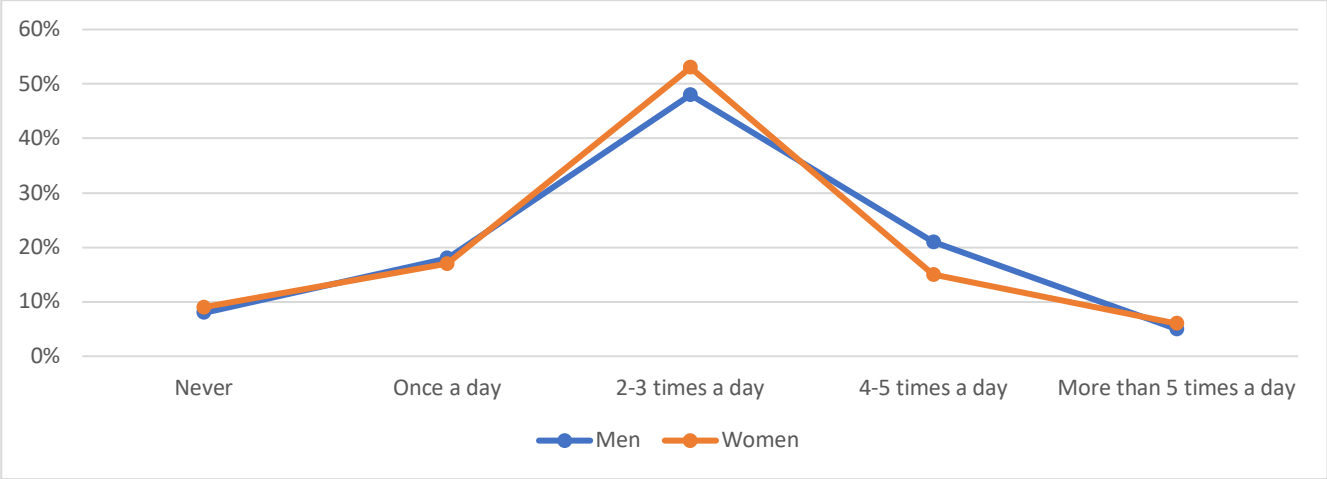


Figure 16 - Coffee consumption habits in Italy in 2019, by gender and frequency, source Statista (23)

It is also interesting to know at what time of day Italians tend to consume more coffee, the statistics show that in the period of breakfast coffee for about 70% of people cannot miss, a good 60% does not give up coffee in the period following lunch, while the percentage drops dramatically in the hours from late afternoon onwards, touching less than 10% of people (*Figure 17*).

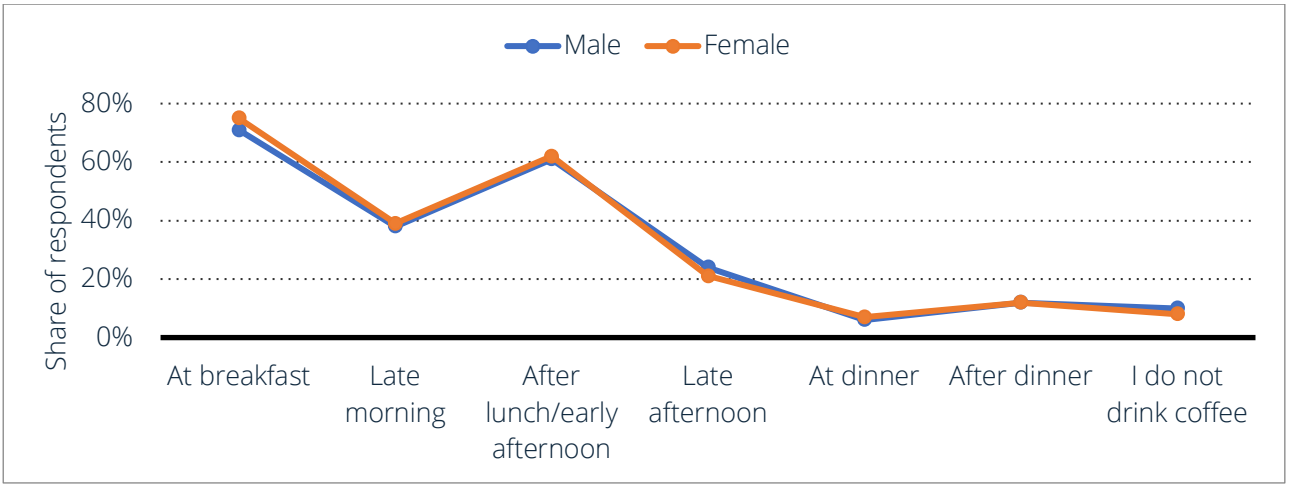


Figure 17 - Coffee consumption habits in Italy in 2019, by gender and time in a day, source Statista (24)

2.3.8 Coffee consumption abroad

The following figure (*Figure 18*) shows which are the main countries with the highest consumption of coffee per person in the world: in this regard, Northern European countries excel, first of all the Netherlands, with 8.3 kg consumed per person in a year, while Italy occupies, contrary to what one would expect, given the culture and quality of espresso coffee, the eleventh place as regards the 15 countries in the world with a value of more than 3 kg per capita consumption of coffee, recording 4.7 kg.

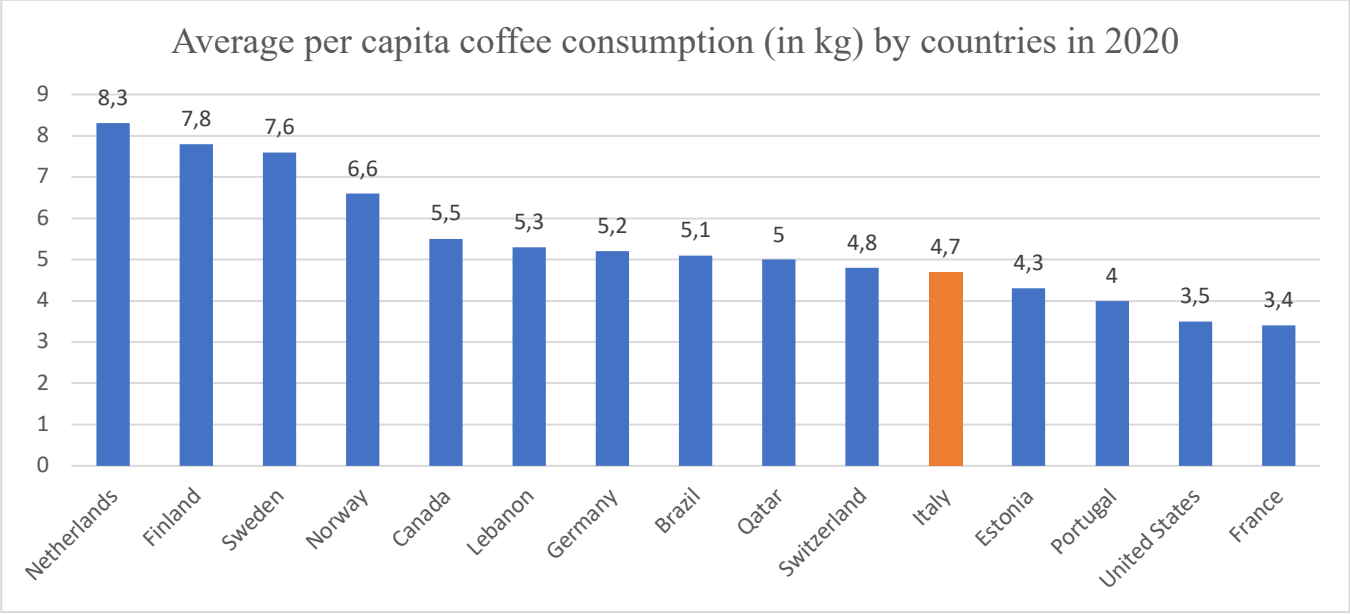


Figure 18 - The countries most addicted to coffee, source Statista (25)

Nordic countries Finland, Sweden and Norway are grouped together behind the Netherlands.

It may be quite a surprise that Finland, whose culture isn't recognized for its coffee worldwide, consumes so much coffee. Coffee is deeply rooted in the Finnish culture, and there is a coffee type called Finnish coffee. This trend most likely originated because of the extreme cold in Finland, with temperatures getting very low in its Northern part. So, a hot, tasty and flavorful cup of joe would be very much irresistible. Finns, unlike most nationalities, prefer very light roast coffee, a bit lighter than the standard light roast available elsewhere. Interestingly, almost 80% of the coffee consumed in Finland is very light roasted, and only in the past ten years did Finns start to get a little accustomed to a darker roast (26).

2.3.9 Coffee varieties by country in the world

Coffee is a beloved beverage, not only in Italy, but in many countries of the world. Besides our espresso, however, there are many different ways to prepare and serve coffee. From the türk kahvesi to the yuanyang of Hong Kong, passing through the Brazilian cafezinho and the Mexican cafe de olla, here is a journey around the world to tell how to drink coffee. It is well known that Italy is the homeland of coffee: but it is not the only one. This precious and ancient energizing beverage, in fact, is enjoyed all over the world in ways very different from ours. Some countries use aromas and spices such as cardamom or cinnamon, others use more water and more. From the Korean Dalgona coffee to the Turkish Türk Kahvesi, with the immediate grinding in brass grinders as in Turkey, to infusion with spices such as cinnamon in India or cardamom in Arab countries, standing at the bar counter as in Italy or sitting at the table next to a delicious slice of cake (Austria), below are listed some types of coffee by country.

France: café au lait

In France, coffee is most commonly consumed with milk, which is exactly what the term "café au lait" means. However, it is more than just a cup of cold coffee and milk: to achieve the distinctive taste of cafe au lait, they brew the coffee and whip the milk with steam, a bit like our cappuccino. In specific cases, it is served without foam on top.

Germany: pharisäer

Germans like their coffee very sweet and in a somewhat creative version. The pharisäer is not your typical coffee blend; it's made with rum and whipped cream, then mixed with sugar to taste and served with whipped cream on top.

Greece: frappè

It sounds very similar to a “frappuccino”, but it is not the same thing. In fact, in Greece, frappé is considered a refreshing summer drink: it contains instant coffee, water, sugar and milk, depending on customers' preferences and requests. After preparation, it is shaken vigorously to create a frothy top, then served with ice.

Mexico: cafe de olla

This is a very old traditional Mexican drink and, therefore, considered an integral part of the local gastronomic culture which in itself is very rich. It is a unique blend of three spices (cloves, anise and cinnamon) and a lightly processed sugar called piloncillo. Traditionally, cafe de olla is made in an earthenware pot, called "olla", and served in similar clay cups.

South Korea: dalgona coffee

This beautiful coffee is one of the ways South Koreans enjoy their beverage: it's a mix of instant coffee, or espresso powder, sugar and hot water. The mixture is stirred until it turns beige and achieves a thick, frothy consistency. It is served with a glass of hot or cold milk.

Australia: flat white

Australian Flat White is a mixture of espresso coffee, a small quantity of milk steamed with foam. The taste of coffee is intense but delicate at the same time thanks to the addition of milk: it is drunk in the morning as well as after meals.

Brazil: cafezinho

The term cafezinho means "small coffee" and is a warm invitation to sit down and enjoy the cup in serenity and calm. This Brazilian coffee, in fact, is very strong; it is served black, but also with a large amount of sugar, according to taste.

Turkey: türk kahvesi

In Turkey, they enjoy the sweet türk kahvesi, a coffee that is more than famous. It's made from finely ground coffee beans and mixed with sugar just before the water comes to a boil to make it especially silky and, of course, delicious. When properly brewed, it creates a frothy foam on top.

Hong Kong: yuanyang

Hong Kong yuanyang is a homemade milk tea infusion that is mixed with freshly brewed coffee. Milk tea is black tea mixed with condensed milk, which makes it creamy and sweet, the perfect accompaniment to coffee (34).

Therefore, every country has its own way of preparing coffee, it is enough to think that already in Italy we can have consumers of different types of coffee: in fact in Italy we do not talk about coffee, but about cup of coffee. The most popular is normal coffee, followed by cappuccino and coffee macchiato, ristretto coffee and latte or latte macchiato, long coffee, ginseng coffee, Moroccan coffee (prepared with milk foam and chocolate or Nutella), decaffeinated coffee, barley coffee, coffee with added alcohol and double coffee (35).

3 Market Competition in Italy

In the following chapter we want to highlight the competitive strategies of the leader Italian company in the coffee sector, Luigi Lavazza Spa. It shares the Italian market with the three companies, after Lavazza, by turnover, Illycaffè, Caffè Borbone, Kimbo Caffè Spa and all the others smaller roasters (*Figure 19*). In fact, during their years of history, each leading company has undertaken different competitive strategy policies to assert their brand. The coffee market in Italy, although it has more than 400 roasters, can be defined as an oligopoly, in fact, the companies that hold power at the national level are just four and no more. The other companies only satisfy local demand.

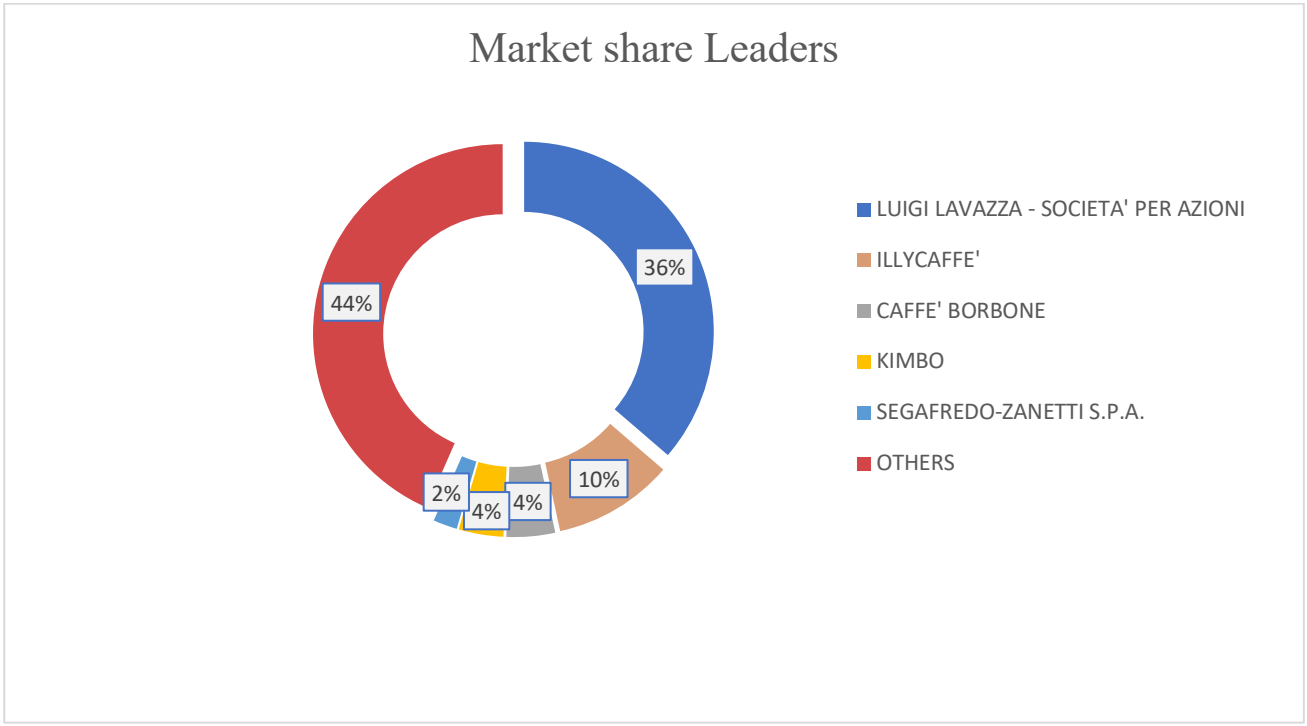


Figure 19 - Market shares leading companies in Italy per turnover

By analyzing qualitatively the coffee market using Porter's five forces, it is possible to evaluate its main characteristics in terms of: competition, suppliers' bargaining power, customers' bargaining power, new entrants and substitute products. Regarding bargaining power towards customers, the coffee market is one in which there are no signs of price declines, so high bargaining power towards customers can be defined. This power is also high in relation to large-scale distribution (as well as Ho.re.ca) when the level of brand awareness is high. Lower, if not null, for small

roasters which operate only locally as sub-suppliers of large-scale retail trade. Barriers to entry seem to be present and are constituted by the affirmation and notoriety of the brands, in fact, as we have said, the largest slice of the market is shared by four large companies (mentioned above). Threats from new entrants are very low, except from roasters without brands and with little investment in infrastructure, which, however, are limited to operating only locally. The threat from producers of substitute products is almost null as the coffee beverage brings with it a culture unparalleled in many countries and unparalleled benefits. The bargaining power towards suppliers is high since there is an international coffee exchange for most of the blend types, otherwise - if this agricultural raw material is not purchased as a commodity - it is sourced from farmers located in undeveloped countries with limited bargaining power. Competition is based on advertising, distribution, and diversified competitive strategies related to each company; there is therefore a low rivalry because each brand has its own market share and is geographically located in a respective area of Italy.

3.1 Lavazza case

3.1.1 Company history

Lavazza, owned by the family of the same name for four generations, is one of the world's leading coffee roasters, as well as being the undisputed market leader with a value share of over 40% in retail.

The company was founded in 1895 when Luigi Lavazza, a young 26-year-old from humble farming origins who had just moved from Murisengo to Turin, took over Paissa & Oliviero, a small grocery store in the heart of Piedmont's capital city. At that time, the competitors only sold one variety of coffee, while Luigi, endowed with initiative and enthusiasm, after a trip to Brazil, specialized in the art of blending: he discovered the different origins and characteristics of different types of coffee and began to offer the first blends on the market. This will be the distinctive sign of the company until today. In 1910 the grocery moved to larger premises. With many difficulties, Luigi, his wife Emilia and their three children overcome the Great War and, in November 1927, establish the Luigi Lavazza company, paying in capital of 1,500,000 lire. In 1946, when the war is over, as is the ban on coffee imports, the company switches from selling coffee in bulk to packaged coffee. The first Lavazza

logo, designed by Aerostudio Borghi of Milan, dates to 1947. The central letter "A", larger than the other letters, still characterizes us today.

In 1950, Lavazza patented the first cylindrical container with a press-on lid, and the first vacuum-packed coffee was put on sale, just as we buy it today; the vacuum-packed tin ensured a longer shelf life and therefore many more distribution possibilities.

In 1955 Emilio Lavazza, Luigi's grandson, officially enters the company, bringing with him various innovative ideas: the historic Lavazza Blend is born, as well as the slogan that is still famous today "Lavazza, paradise in a cup".

In the meantime, the company continued to grow, expanding and consolidating its leadership in Italy and achieving a 43% market share, combining high-quality products with new-generation marketing.

In 1971, vacuum-packed “Lavazza Qualità Rossa” hit the shelves, in 1977 Nino Manfredi became the historic face of the brand, and in 1992 the first excellent collaboration with Gualtiero Marchesi and the blend dedicated to him began. Over the years, the brand has expanded its production and today not only sells the highest quality blends, but also coffee machines that best preserve the aroma and flavor.

In 1982, Lavazza opens its first office abroad: in Vincennes, Paris. And that's not all. After the birth of the first foreign subsidiary, Lavazza Coffees Ltd is founded in London in 1990, to promote Italian coffee in the UK. Emilio Lavazza chairs the European Federation of Roasted Coffee Associations (EUCA). The company begins to consider the entire European market as domestic (28).

From the 2000s onwards, Lavazza begins to implement corporate social responsibility and sustainability activities, as more informed consumers begin to pay attention to the social messages conveyed by the company. In recent years, the Lavazza Group has embarked on a process of international development aimed at strengthening its independence and competitiveness at a global level, and currently has 11 subsidiaries (Denmark, USA, Brazil, Argentina, France, England, Germany, Switzerland, Austria, India and Australia). In addition, there are more than 140 countries around the world where Lavazza is present, with a total of more than 4000 employees. Revenues in 2019 were around €2.2 billion, with a slight decline (-5%) in 2020 probably due to the pandemic; 70% of the Group's revenues are generated abroad (29).

3.1.2 Competitive marketing strategies

To maintain competitiveness within the Italian market, and to achieve the extraordinary results obtained so far, the Lavazza company has implemented various strategies throughout its life. We can group these strategies into four macro areas: sustainability, internationalizations, customer experience, sponsorships and partnerships.

Sustainability

In second place only after “product quality”, a company's sustainability is understood as a true corporate reputation. In fact, sustainability is now perceived as a component of the quality of products and services and is a criterion for evaluating the "good" behavior of companies and brands by guiding consumer consumption. In this way, the focus on sustainability is used by companies as a competitive strategy.

This is also the case of Lavazza’s corporate vision, which, since 1935, has paid great attention to the economic, human, environmental and cultural heritage of the countries in which they operate. Over the years, this commitment has been translated into concrete actions, such as the establishment of the Giuseppe and Pericle Lavazza Onlus Foundation, which since 2004 has been implementing and promoting economic, social and environmental sustainability projects alongside the coffee-producing communities. Lavazza's path and commitment to sustainability involves all internal and external stakeholders and, since 2014, has been reported annually in a transparent manner through the Sustainability Report. Starting in 2015 created the Sustainability Manifesto, with which the Lavazza Group declares its commitment to contributing to the achievement of the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda.

The Manifesto reflects the profound sense of responsibility that the Group has always shown towards the communities with which it works, particularly coffee producers, its employees and consumers (*Figure 20*).

Figure 20 - Goals of Lavazza's sustainability manifesto (33)

Internationalization

Internationalization can be considered a real business accelerator and therefore a long-term competitive advantage. Again, Lavazza has many alliances and even acquisitions that have enabled it to achieve a high level of internationalization. In addition to the establishment of subsidiaries in the countries mentioned above, 2015 saw the start of Lavazza's global growth strategy, aimed at strengthening the Group's presence in key markets through the acquisition of leading brands in their markets. This includes the company Merrild, leader in Denmark and the Baltic countries in the retail channel. Similarly, the acquisition of Carte Noire, leader in France in the retail coffee market, and integration of the Lavérune production plant takes place in 2016. France becomes the second most important market for the Lavazza Group, after Italy. Of relative importance, finally, mention must be made of the acquisition of Mars Drinks in 2018 with a relevant market position in the OCS (office coffee service) i.e. the coffee dispensing service in the offices through portioned coffee machines (capsule and / or pods), and vending sector in the United States, Europe and Japan. With the acquisition, the plants in Basingstoke in the United Kingdom and West Chester in the United States are also integrated into the Group's production system.

Customer experience

The customer experience is the overall experience that customers have throughout their relationship with the company: not just shopping, therefore, but an interaction/relationship that includes customer care and support and the entire interaction with the brand (direct and indirect). Never before has the experience been so strategic and differentiating for a company, so much so that today the Customer Experience has become a determining factor within Marketing strategies, including Digital Marketing.

- Personalization: the company and its media center have dedicated Lavazza's advertising to the canons of maximum personalization, designing dynamic creativity for the site, online advertising and, more generally, for all communications sent to the customer (e-mail, SMS, etc.). Thanks to digital technology, it is now possible to generate a wide range of different creations,

to create increasingly individualized messages and opportunities for interaction, with clear effects on sales activation.

- Branded entertainment and branded content: the company believes that purely advertising content is becoming less and less relevant for the target audience, especially the younger ones. For this reason, in recent months it has begun experimenting with the production of new valuable content, which includes the Lavazza brand or a specific product, in a way that is completely consistent with the messages being promoted, going beyond the traditional logic of product placement. This is the direction taken by the documentary Coffee Defenders, distributed on Amazon Prime Video, which highlights the Lavazza Foundation's commitment to sustainable development issues. The partnership with Amazon, in fact, has made it possible to close the circle and measure the impact that this activity has had downstream, on the sale of our products on the Amazon site.

- Online business: in the last 3 years in Italy there has been sustained growth in online business, with double and triple digit increases for Lavazza e-commerce (a trend that accelerated during the lockdown months). The strategy adopted for this particular period was to invest not only in the product but also in the service, guaranteeing, for example, free coffee delivery to all customers. Currently, 50% of the site's customers are people who started buying online for the first time during the lockdown.

- KPIs and results optimization: Lavazza began measuring NPS, the Net Promoter Score, which is the initial metric for evaluating the Customer Experience overall. This is a sort of compass that allows us to understand the consumer's perception of the relationship with the Lavazza brand, across all touchpoints. Another important aspect is that of "precision marketing", for which for some time now we have been thinking in terms of audience planning, no longer media planning. This means that the company's objective is always to reach the consumer with the right message, on the right touchpoint, with the most suitable content and at the ideal moment, i.e. when they are most likely to convert (30).

Sponsorships and partnerships

Sponsorship is a widespread marketing practice, especially in the cultural, sports and non-profit sectors. The objectives of sponsorship, in addition to guaranteeing the brand the greatest possible coverage and maximum visibility, are many: to demonstrate that the company is not only active on the economic front but also in support of sports, recreational or charitable activities; to show how much the company cares about the health of those around it. In the field of sport, Lavazza has two important sponsorships:

- Tennis: Lavazza has the unique distinction of being the only food & beverage brand in the world to partner all Grand Slam tournaments - Wimbledon, Roland Garros, US Open and Australian Open - where an average of over 1 million coffees are served. Over the last ten years, this marketing strategy has seen Lavazza increase its turnover in the UK fivefold, and the UK is now one of the Group's key markets.

- Football: in the world of football, it is present in the Premier League through a multi-year agreement as "Official Coffee" of Arsenal F.C. and Liverpool F.C., two of the most prestigious football clubs in the UK. In 2020 it signed a new agreement with Juventus. The agreement includes a series of marketing and communication activities, such as the visibility of the Lavazza brand on the pitch during Serie A and Coppa Italia matches and at the Juventus Training Center, activities on digital and social channels, and the use of the logo for atl, btl* and web communication. The agreement also includes the exclusive consumption of Lavazza coffee at all the bars and hospitality rooms at the Allianz Stadium in Turin, which are also equipped with Coffee Stations; the use of Lavazza machines at all the stadium's "Sky boxes", as well as the right to provide coffee at the Juventus Hotel. Considering that there are more than 40 million football fans in Italy, this marketing strategy can be considered one of the most relevant in terms of visibility and impact (31).

* atl: above the line, includes TV, radio, newspaper, cinema, outdoor billboard;
* btl: below the line, includes sponsorships, printing and distribution of brochures, point-of-sale promotions, public relations/speaking.

- On the other hand, from an operational point of view, Lavazza has invested a lot of effort in a project that started in 2017 and that has been taking shape since November of this year: the project in question is the development of a management software, exploiting the power of the cloud, Artificial Intelligence and Machine Learning, that will revolutionize the company's network by optimizing production and distribution processes in real time. it is the world's leading supply chain platform. This solution, which provides an abandonment of the use of Excel, obsolete and risky of errors, will have an important impact on the final customer. In fact, with this means it will get a greater speed in responding to demand, implying satisfaction and loyalty from customers. Finally, it will allow a greater adherence and precision to the demand, which in recent years has seen an ever-increasing trend for Lavazza, which has been accompanied by a large increase in the company's product portfolio.

  In the field of coffee roasters Lavazza is the only company with a management software of such value, to evaluate its size and importance it is enough to think that the same software has been chosen by companies such as DHL, BIC and Coca Cola.

It is also worth mentioning other relevant partnerships for Lavazza: partnership with the Solomon R. Guggenheim Museum promoting the new exhibition dedicated to Giacometti; partnerships with the Polytechnic of Turin to address the sustainable packaging initiative, which aims to make the entire packaging portfolio reusable, recyclable and/or compostable (32); partnerships with Amazon from which the first smart espresso machine was born: Voicy.

3.2 Illy case

3.2.1 Company history

It was founded in Trieste in 1933 by Francesco Illy born in 1892 in Temesvár, Austria-Hungary (today Timisoara, Romania). The history of the company is linked to the life of the family of its founder, who started an entrepreneurial activity in the

field of cocoa and coffee and then decided to devote himself exclusively to "black", as espresso coffee is called in Trieste. In 1934 he invented and patented the "pressurization with inert gas" packaging system, for the preservation of coffee aromas inside the jar. In 1935, he filed an engineering patent for Illetta, illy's professional espresso machine. In 1947, Ernesto, Francesco's son, joined the company and immediately put his degree in chemistry to good use by setting up the company's first chemical laboratory, also creating scientific synergies with international institutions. In 1965, the company's current administrative and production headquarters were built.

In 1974 came the third international patent: the single-serving paper pods of espresso coffee, prelude to the ESE coffee pods. In the 1980s, the third generation of entrepreneurs in the Illy family, saw Riccardo Illy, Ernesto's son, bring the value of marketing to the company, with an innovative approach to organized distribution and the opening up of new international markets. In the same period, Ernesto is modifying a machine for the automatic chromatic selection of diamonds, so that he can choose only the perfect coffee beans; in 1988, Illy patents the system for the digital selection of coffee beans.

In 1992, Francesco Illy, Ernesto's eldest son, commissions Matteo Thun to design the new and current illy cup: the illy collection is born, making the illy cup the protagonist of the relationship with art. In 1994, Andrea Illy, Ernesto's fourth son, becomes CEO of Illycaffè. His innovative and cultural impulse also leads to the renewal of the historic brand; in 1996, Francesco Illy has James Rosenquist create the new illy brand, consolidating the union between the illy brand and contemporary art. A few years later, Andrea Illy created the University of Coffee, which since 1999 has been promoting the culture of coffee to growers, professionals and students. The internationalization of the brand allows to think and create the chain of coffee bars in franchising "Espressamente illy", able to promote and spread in Italy and in the world the culture of quality coffee. In 2007, Illy created a new generation of espresso coffee capsules, the Iperespresso method (covered by five international patents) capable of creating a thicker and more persistent cream for espresso coffee. The following year, thanks to a 50-50 joint venture between Illycaffè and The Coca-Cola Company, Illyissimo, a coffee-flavored beverage in a can, was born. In 2013 illy collaborates with Kimbo and Indesit in the creation of the UNO capsule system.

Illycaffè is among the official partners of Expo 2015 in Milan, on the occasion of which it collaborates with Alessi in the project for a "moka of 2000": Pulcina is born. In 2016, for the first time in the company's history, a managing director from outside the family, Massimiliano Pogliani, is appointed, while Andrea Illy maintains the role of president (39).

3.2.1 Competitive marketing strategies

The company is part of the Illycaffè Group, which controls branches in North America, France, Germany, Spain and Benelux. The company employs over 500 people, 350 of whom work at the headquarters in Trieste and the remainder at the foreign commercial branches or as sales agents.

The company's choices are based on a clear entrepreneurial philosophy consistently sustained over time and centered on the concept of quality. The strategic choice of the Trieste-based company is expressed in two separate moments: the focus on a particular type of coffee, espresso coffee, and differentiation based precisely on quality. The domestic espresso segment is the one chosen by Illycaffè, among all the product segments in which the coffee sector is divided, to define its market niche.

The concept of quality is also found in institutional communication. In particular, the labels of its products contain a series of information, not required by law, which communicate the peculiarities of the blend contained in the can: 100% Arabica, electronic and individual selection of unwashed coffee beans, traditional roasting, air cooling, caffeine content, dry residue and shelf life are highlighted. The information disclosed is certified by a specialized French company, Qualitè France. The differentiation on quality is communicated to the internal staff through a campaign of awareness and 'acculturation' through the Total Quality projects that Andrea Illy, managing director of the company, has personally carried out to obtain the certification in accordance with European dictates. Price, too, takes on a communication value and Illycaffè's strategy, with reference to the competitive variable of price, is unique in the sector. The company has chosen to position itself at a level that is almost double that of its competitors, which tend to be uniform. The price is an immediately perceivable symbol that can be interpreted by the final consumer, who uses it as a criterion to define the quality of the product.

- From a strategic point of view, it is possible to identify an initial path of single-sector development in which the company's focus was, for a long time, on coffee, and a second moment of strategic change, determined by a broadening of its competitive commitment in new sectors. In the 1930s, when the company was founded, Illy was still a medium-sized coffee roaster aiming for a premium position in the coffee market, determined to compete according to "quality leadership". Focusing essentially on its core business, the company made product quality and consumer service a competitive priority on which it would base all its growth. The company's development plan and vision also included the goal of becoming international, taking its coffee and the experience derived from it all over the world. The company's competitive strategy essentially revolved around three aspects: giving the brand a global identity, focusing on a premium segment of the market and differentiating the offer by means of qualitative elements, in order to offer an excellent consumer experience. The source of its advantage, in particular, is due to the quality of its blend, which is the only one in the world to contain nine different qualities of Arabica coffee, selected from the origin. In order to obtain such a result, the company pays great attention to the whole production process, taking care of both the phase of the choice of the raw material and the sale to the final consumer. The production process is, for these reasons, the most delicate phase because it is the object of differentiation on the part of the company, which composes its very secret blend choosing from over secret blend by choosing from over 4,000 types of Arabica coffee from different parts of the world.

- The second and most important phase, for the purposes of this discussion, is the one that began in the 2000s, when the development and growth of the company took on a new strategic imprint. Illy starts looking beyond its core business in order to diversify its offer, by introducing new products in its portfolio: with the establishment of a Holding Company, the company added to the production of coffee the production of tea, chocolate, wine and preserved fruit. This decision was clearly determined by the Group's desire to broaden the range of customers served, always addressing the original target of demanding consumers who are attentive to quality. The entry in the

market of tea, wine, haute patisserie and chocolate, in this case, represented for the management an opportunity to continue to expand when this was no longer possible in the original market (40).

3.3 The coffee machine business

As a final strategy, it's interesting to mention how the largest coffee companies have added the coffee machine market to their business. In the set of small household appliances or those present in offices and devices that allow to prepare hot drinks, coffee machines stand out. A segment that concerns OCS, small establishments, hotels or b&b, but above all the home environment. Their performance in the first half of 2019 for the Italian market makes a +6% in sales and has increased dramatically after the pandemic.

What companies have decided to do is to source coffee machines from external suppliers (such as SMEG for Lavazza, for example, but also anonymous suppliers), to create capsules tailored to that type of machine. The business that is used then is the so-called "razor blade model", is a business model in which one item is sold at a low price (or given away for free) in order to increase sales of a complementary good, such as consumable supplies, in fact, companies do not make margin from the sale of coffee machines, or rather it is not the primary source of profit, but what allows a large margin are the single-serving capsules customized for that type of machine. In fact, among the various companies what stands out is the so-called "Commodate use": companies that supply coffee machines on a commodate use basis derive their profit from the fact that the contract foresees that the comodatary, i.e. the person to whom the machine is delivered, purchases a quantity of coffee, established in the contractual phase. Obviously, it is necessary to evaluate according to the situation whether it is convenient the loan or the purchase. Among the best brands of commodate use we have Lavazza Firma, Lavazza Espresso Point, Borbone, Nespresso and Caffitaly. This solution can be very advantageous especially for companies, rather than consumers, as in recent years the market for compatible capsules has been established

In 2019, the growth rate of single-serving coffee undergoes an abrupt slowdown in value, as a consequence of a trend that began as early as 5 years ago, then continued in increasing progression, until reaching completion in 2019, the year in which the

original capsule systems, as a whole, record the first decline in sales, to the benefit of the growth of compatible capsules, and those players who have now completed the range with all the main systems. The reflection on market share trends is telling: the aggregate value market share of the main original systems went from 62.4% in 2018 to 58.3% in 2019. In the same time frame, major roasters focused on compatible capsules increased from 18.7% in 2018 to 21.6% in 2019. If we look at volumes, the distances narrow further, with the former going from 48.8% in 2018 to 45.5% in 2019, and the latter from 25.1% to 27.9%. The market has rewarded, and is rewarding, those companies that are present on the shelf, physical and digital, with all the main systems of compatible capsules, exploiting both traditional sales channels, but especially the more innovative ones linked to e-commerce, which is so important precisely in 2020, in times of the Covid-19 emergency. This situation has forced the leading coffee roasters, owners of the most cloned systems, to break the deadlock and have to compete for the first time also on the price lever front, without, however, ceasing to differentiate themselves from the competition, continuing to invest in their systems through the launch of new exclusive blends or single origins, more attractive packaging, the acceptance of the instances of sustainability, whether they concern the coffee raw material or the compostability, biodegradability, recyclability of the packaging. As a result of the above, it is becoming increasingly common for coffee roasters to invest in the purchase of equipment for one or two types of compatible capsules, while completing the range with other types by outsourcing them to competitors, until the market response is satisfactory enough to bring them back in-house (46).

4 Empirical analysis

After having analyzed in a mainly qualitative way the coffee market in the world and in Italy, we now want to move to a more quantitative analysis. The analysis foresees an initial phase where the profitability of some companies is calculated by means of statistical indexes in order to have a general picture of the market and to demonstrate the level of competition among the leaders; the second phase instead foresees a statistical analysis by means of the STATA software, where some items extrapolated from the balance sheets collected by the AIDA portal (Analisi Informatizzata delle Aziende Italiane) will be the protagonists in order to highlight how dependent variables depend on independent variables within a company.

The analysis considers the years from 2011 to 2020, years made available by the same portal. It should be kept in mind that along this phase, especially the second, the reality is simplified by means of a more "simplistic" model, so it will not be a one hundred percent accurate analysis, but it will still be accurate enough to be able to draw appropriate considerations.

4.1 Market profitability

As shown in the previous chapter, in Italy there are currently 633 coffee roasters, data provided by the AIDA portal. The analysis, however, for simplicity and better clarification, will stop at the first hundred companies, in order of ranking by size of turnover. Moreover, they have been grouped in other three groups according to the value of turnover, in order to have a cleaner and more aggregate vision. The first group includes companies that have more than € 100 million in revenues per year; the second group includes companies with revenues from € 10 million to € 100 million and finally the last group, the largest, the remaining companies with revenues of less than € 10 million. In this way, 5 belong to the first group, that we will call “leaders”, which are worth mentioning: Luigi Lavazza S.P.A., Illycaffe' S.P.A., Caffè Borbone S.R.L., Kimbo S.P.A., Caffitaly System S.P.A. In the second group, called “medium”, there are 38 and finally the remaining 58, which group is called “small”.

As a first step, we analyze the revenue values of the leading companies in the market, from the years 2010 to the last year available to us. Medium-sized and small companies are not analyzed because they are not comparable.

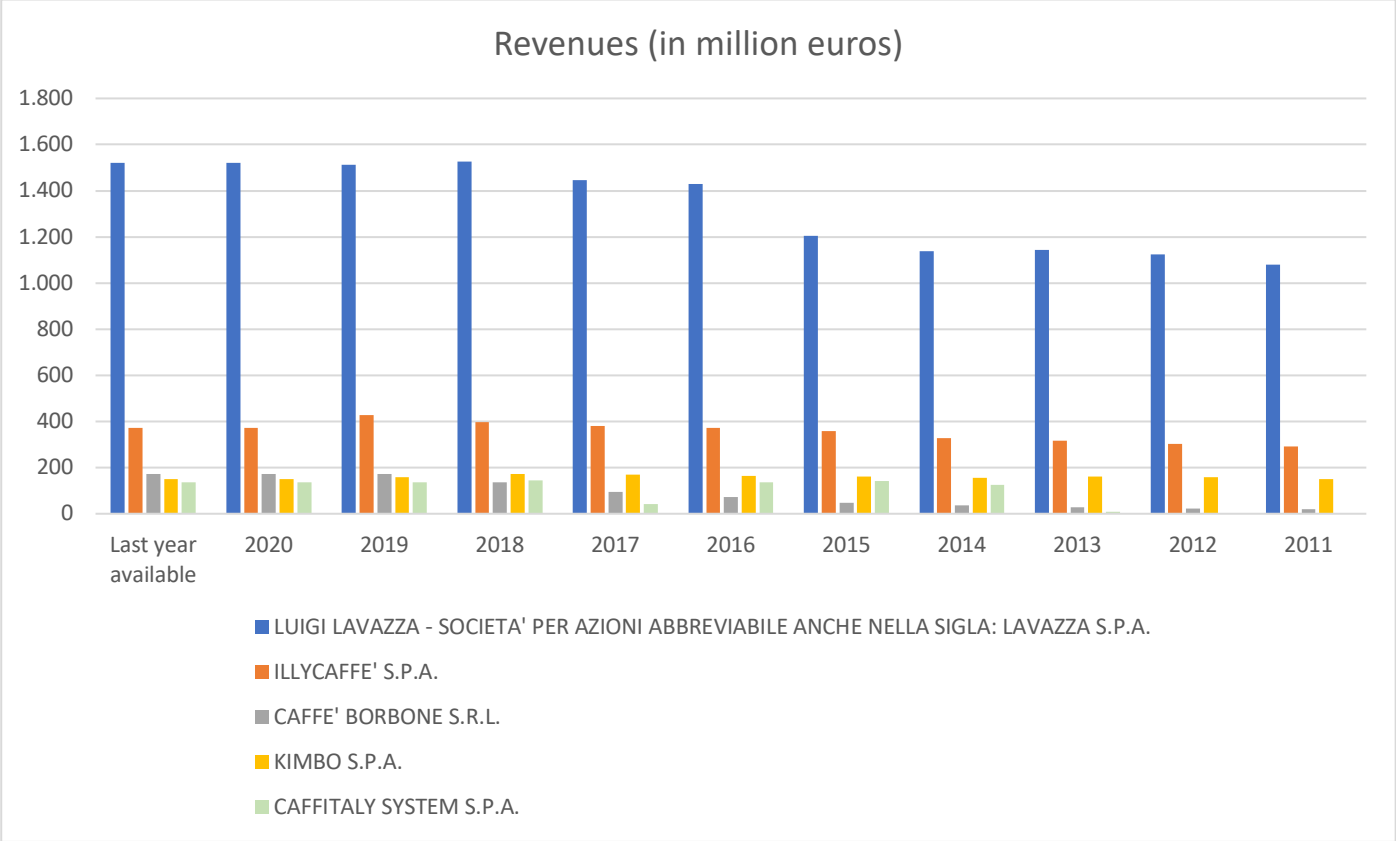


Figure 21 - Revenues of leader roasters in Italy, source AIDA

From the graph (*Figure 21*) it can be seen that for all five companies there has been an increase in revenues over the years, despite the fact that, as explained above, this is a fairly saturated market, the policies of differentiation of the product portfolio and the various competitive strategies manage to bring growth to the companies. What can be seen is that Caffè Borbone has recorded significant growth over the years, in fact it started in 2011 at almost zero and by 2020 it will have overtaken leading companies such as Kimbo. Although the strategies of Caffè Borbone have not been listed in the previous chapter, it is clear that the marketing strategy is what probably made this growth possible; it should also be remembered that the company's top testimonial is Jerry Scotty, in fact, Caffè Borbone has acquired the exclusive advertising of the presenter in the reference segment. Moreover, the turnover of the brand in 2018 was

around 140 million euros, but what is most striking is the growth rate of 40 percent. However, the advertising budget, in turn, increased from 9 to 13 million euros.

4.1.1 Profitability Indicators

Profitability ratios measure the ability of a business to generate value and produce income. They are part of the broader category of balance sheet ratios. Their function is to provide synthetic indicators that facilitate an easier comparison between financial statements of different years or even of different companies. In order to calculate them, it is almost always necessary to compare data from the income statement and the balance sheet. For the purposes of analysis, it is not essential to evaluate a large number of ratios. It is also important to observe the variations of the ratios over time, through the calculation and analysis of the same indicator carried out on the financial statements of different years (in our case 10 years) in order to study the evolution and variations from one period to another, and then to trace back the factors which have determined them (44).

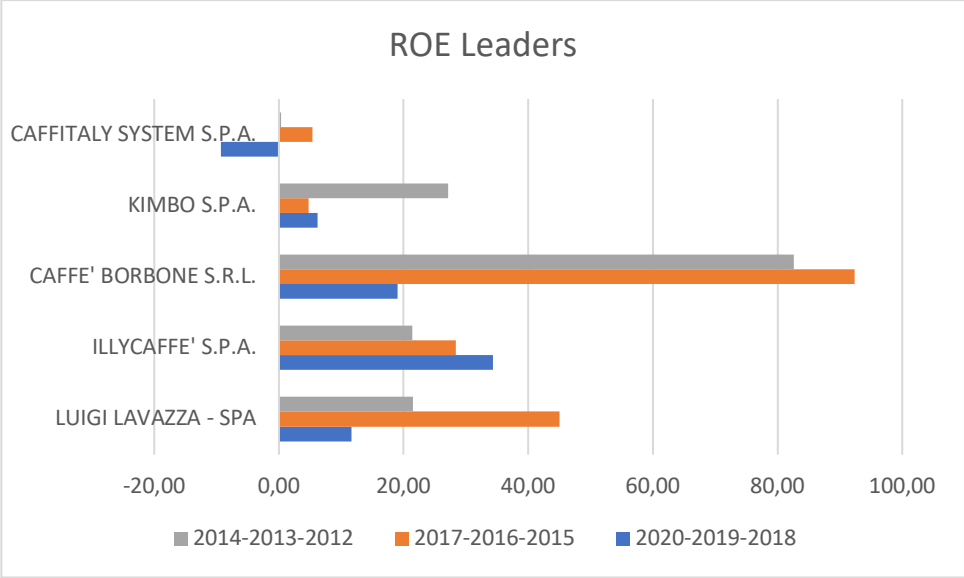
- ROE: return on equity. It stands for return on equity. It is calculated by comparing operating result (net income) and net assets. ROE becomes important when acquiring a business. In fact, it can help you understand the extent to which investing in that company is profitable.

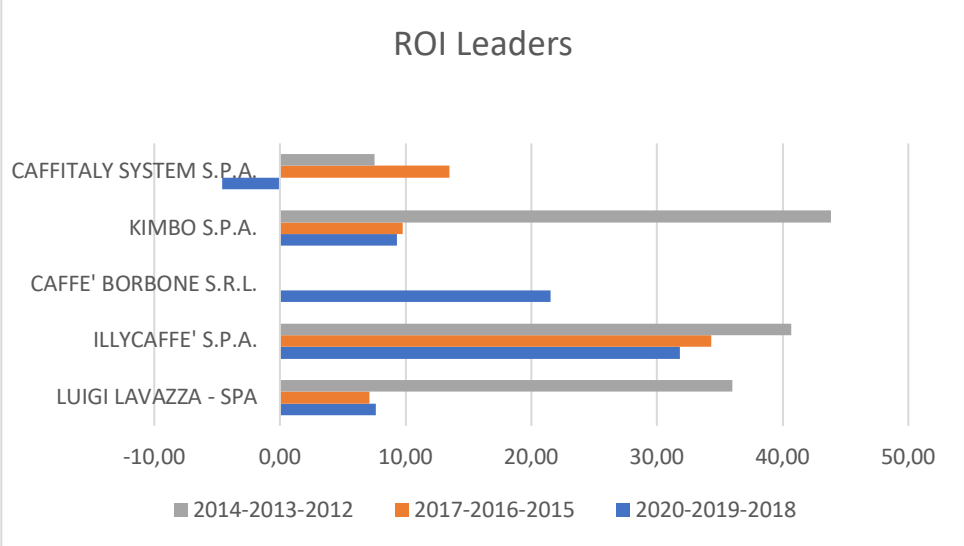
- ROI: return on investment. It is a very important index of profitability because it analyzes how much the investments made are able to generate income. It is calculated by comparing these two values: operating income and total assets in the balance sheet.

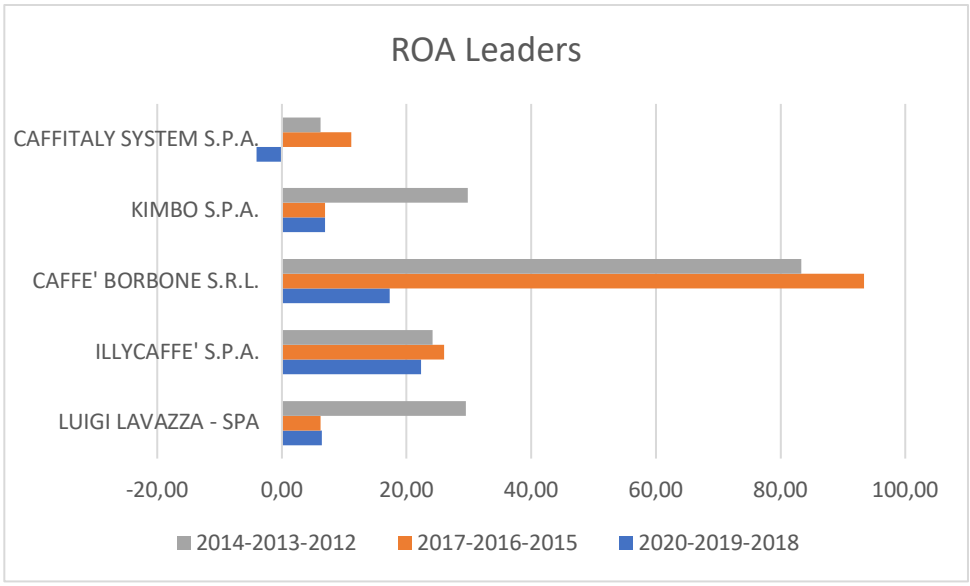
- ROS: return on sales. is one of the most important profitability indexes, which allows to calculate how much the company earns directly from sales. In some way it represents an average of the margins on sales. The ROS is obtained by comparing the following balance sheet values: operating income and revenues from sales and services. The minimum operating income must be able to repay at least the interest expense. Since ROS is closely linked to the company's

production and business cycle, it should be monitored at least once every quarter (44).

- ROA: return on assets, is a financial statement ratio that measures profitability and indicates the overall profitability of an asset. It is calculated as the ratio of profit for the year to total assets on the balance sheet. It is very useful for comparing competing companies that are part of the same market sector.







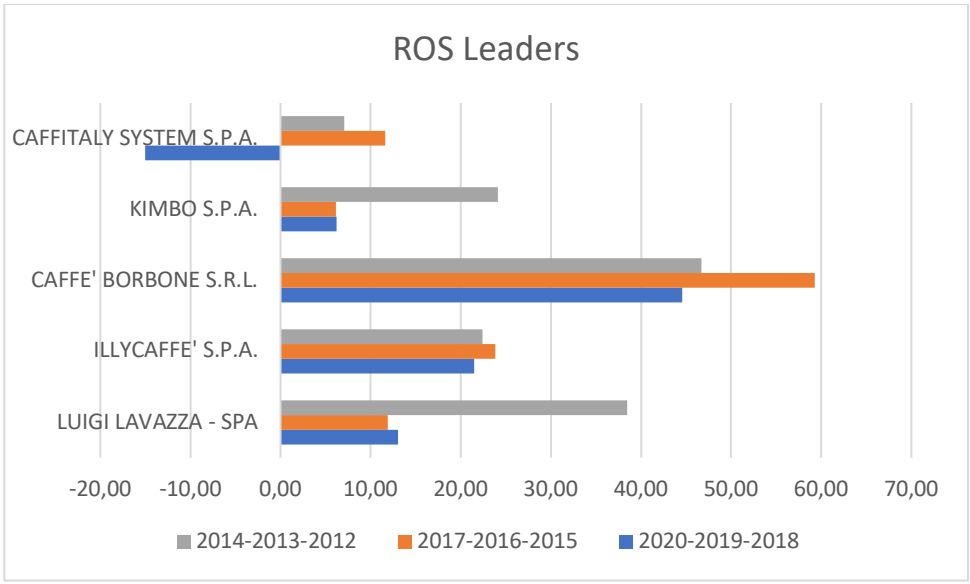


Figure 22 - Profitability indexes, source AIDA

What can be seen from these graphs (*Figure 22*) is that the leaders in the Italian coffee market almost all present positive values for what concerns financial indexes, from 2012 to 2020, therefore a positive profitability. The only case that is worth highlighting is the case of the company Caffitaly that in the last years from 2018 to 2020 has gone through a negative trend for all indices. In fact, for this company it is necessary to specify that from the close of December 31 2018 the effects of the acquisition process have had full impact, in which Caffitaly System SpA has incorporated through a reverse merger operation, the company Coffeeblend SpA which, at the date of the merger act, was 100% controlling Caffitaly (45).

The following compares the above indices for macro companies, leading companies, in the years 2011 to 2020, in aggregate (*Table 7*).

ROA											
	Total Mean	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Mean	8,44	3,60	3,36	4,23	8,54	10,64	9,57	13,46	12,02	11,40	6,26
Median	6,72	2,90	2,07	6,74	1,39	5,71	5,86	9,73	11,41	7,52	2,75
Standard deviation	9,61	1,45	6,27	4,43	13,63	13,36	10,19	11,16	9,51	8,64	11,00
n° observations	47	3	5	5	5	5	5	5	5	4	5

ROI											
	Total Mean	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Mean	6,77	4,89	4,34	5,86	2,83	4,91	5,19	9,71	9,87	7,53	1,61
Median	7,30	4,20	2,46	8,48	1,54	5,68	5,46	11,84	13,67	10,04	2,55
standard deviation	6,27	2,15	8,66	5,98	5,45	3,82	3,83	3,88	9,27	0,04	6,58
n° observations	43	3	5	5	5	5	5	4	4	3	4

ROS											
	Total Mean	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**
Mean	7,54	4,70	5,69	5,55	5,25	8,68	8,62	12,00	8,75	8,75	6,19
Median	7,29	5,36	4,25	6,31	2,60	7,41	8,40	10,74	11,47	8,43	5,41
standard deviation	7,32	1,52	12,24	10,18	9,94	7,39	5,57	5,43	7,47	3,14	4,68
n° observations	46	3	5	5	5	5	5	5	5	4	4

ROE											
	Total Mean	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Mean	8,91	4,75	4,52	5,02	8,03	11,04	16,12	12,82	9,24	10,71	5,51
Median	6,47	4,01	4,86	6,62	2,08	4,17	8,59	8,65	6,11	6,72	1,79
standard deviation	10,96	1,49	9,09	6,89	13,31	13,24	16,30	12,65	10,48	8,22	12,10
n° observations	47	3	5	5	5	5	5	5	5	4	5

Table 7 - Indices by year of the leading companies in the market, source AIDA

The following tables compare leading and mid-sized companies in the years 2018-2019-2020 in order to understand what factors may affect the performance of financial ratios. What immediately jumps out is that medium and small businesses have low financial ratios in the 2020s, the year of the Covid-19, due to the permanent closure of bars and restaurants. In fact, large companies, present with their products in the large-scale retail trade, suffered less from this crisis in the period of the pandemic, despite the fact that bars and restaurants were closed. The same is not true for medium-sized coffee roasters that make bars their main source of income, since they are not present in large-scale distribution (*Table 8*).

Table 8 - ROI leader and medium firms in comparison, source AIDA

ROI			
	2020	2019	2018
Mean leaders firms	4,89	4,34	5,86
n° observations	**3**	**5**	**5**
Mean medium firms	0,30	9,27	7,55
n° observations	**20**	**34**	**32**
Median leaders firms	4,20	2,46	8,48
Median medium firms	**0,42**	**6,88**	**6,81**

To further investigate the profitability of the company, productivity indicators can be used, in the form of quotients that can be extrapolated from the financial statements. Business profitability depends on the two factors of production: capital and labor. The better the productivity of these factors of production, the higher the profitability.

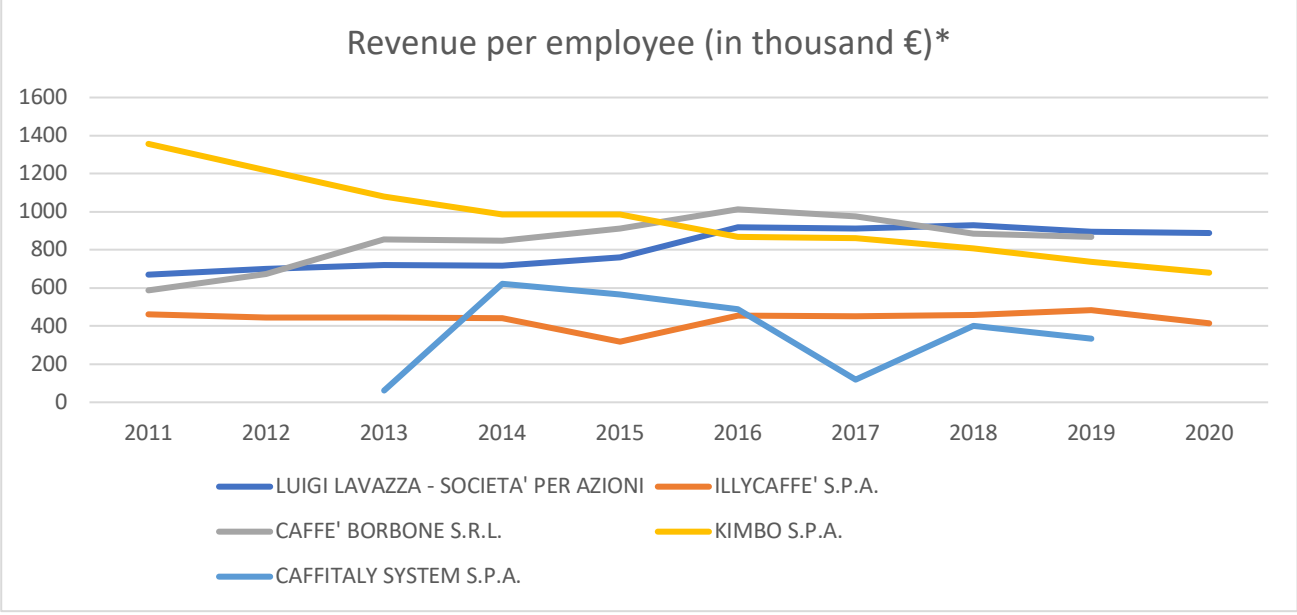
1) Partial Labor productivity indicators

- Turnover per employee

Calculation formula: salary revenues/number of employees. It indicates the turnover produced on average by each employee and depends on several factors, including the value of sales prices, the number of employees, the level of automation and technology used by the company. The trend of this indicator should be evaluated rather than the individual value for the year.

- Added value per employee

Calculation formula: added value/number of employees. The "added value" in economic terms represents the wealth created by the company and is often a benchmark for comparison between different companies. Referred to the number of employees, it represents the average wealth generated by each employee (47).



* It should be noted that this data has not been deflated for the annual price, however, a previous analysis shows that the average annual price over the ten years has only increased by around 7%.

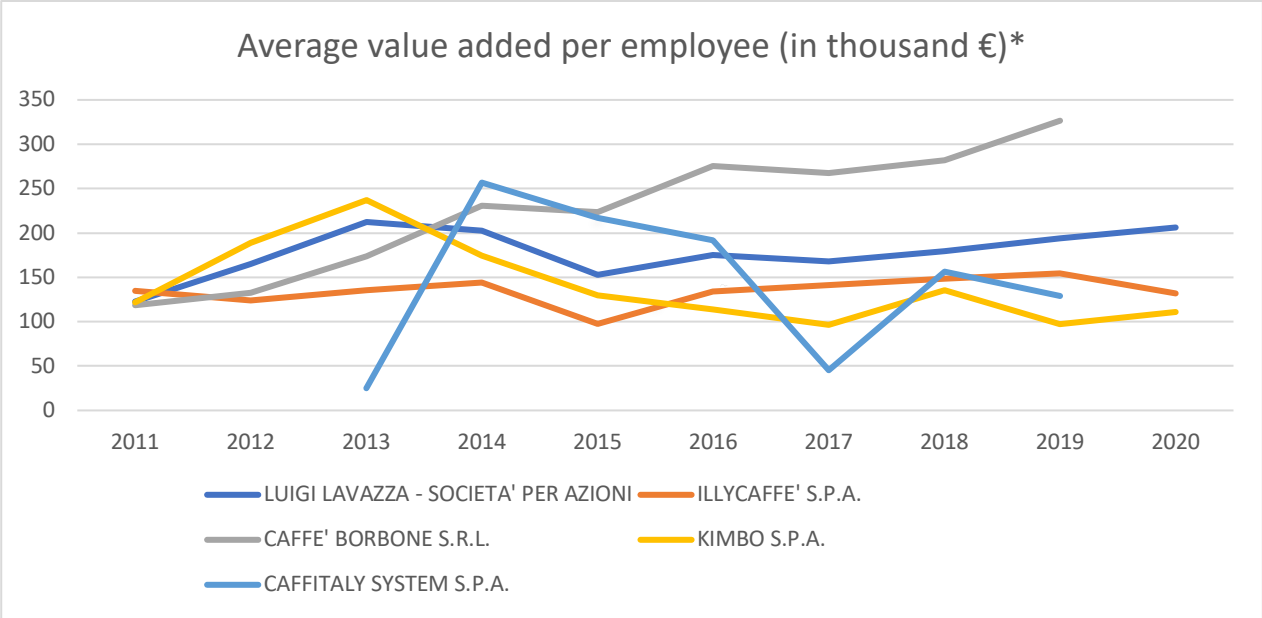


Figure 23 - Average value added and revenue per employee, source AIDA

What this graph shows is an almost constant trend for the companies Lavazza Spa and Illycaffè Spa, which, with an increase in annual revenues, have had an almost proportional increase in employees (*Figure 23*). The same is not true for the company Caffitaly which sees a fluctuating trend over the years examined, this is due in particular to a loss of revenues almost halved in 2017 and a number of employees which however remained constant over the year. The increase in productivity depends a lot on the improvement of the labor resource and the management of personnel. By improving work organization, it will be possible, in fact, to entrust each resource with the task that is most congenial on the basis of its own characteristics. The importance of productivity analysis can therefore be evaluated by saying that in this way you will try to stimulate your employees to give more and the best for the company in which they work. In addition, a good working organization, will allow to live in a serene business environment and, consequently, increase production. All this will lead to a benefit to the company in terms of cost reduction, as the inputs are decreased to arrive at a fixed output value (48).

2) Partial Capital productivity indicators

- Productivity of invested capital

Calculation formula: added value/total investments. The closer this index is to 1, the greater the productivity of the capital employed and, consequently, the better the company's efficiency.

- Rotation of fixed assets

Calculation formula: sales revenues/fixed assets. The denominator can be the value of net fixed assets or gross fixed assets, i.e., their historical cost. This indicates the productivity of the units making up the fixed assets and it is important to assess their trend over the years (47).

4.2 Economies of scale estimation

Below, an econometric analysis was performed using the statistical software STATA, with the aim of quantitatively and, approximately, simplistically assessing the economies of scale of the coffee industry. What we want to obtain is a production function, given some inputs that will be explained below we want to obtain an output (the quantity produced). The production function in economics expresses the link between the quantities of individual inputs used and the quantity of product obtained. In other words, the "production function" is the relationship between the maximum amount of output obtainable and the amount of input required to obtain it.

The amount of product obtainable with a given quantitative combination of factors is:

$$q = f(x_i)$$

q is the quantity of the product;

i = 1...n are the production factors;

xi is the contribution of the i-th factor to production;

f is the technology, i.e., the production function (49).

The contributions we used to estimate the quantities of product are (input):

- Labor costs

- Cost of tangible fixed assets
- Cost of material

Input values were downloaded through the AIDA portal, where all company financial statements were downloaded. For simplicity, only the top one hundred companies in order of ranking by annual revenue were used in the analysis.

Going into detail, in order to proceed with the output analysis, we used a Cobb-Douglas function. In fact, as described earlier, in economics, a production function is an equation that describes the relationship between inputs and outputs, or what it takes to make a given product. A Cobb-Douglas production function is a specific standard equation that is applied to describe how much output two or more inputs in a production process make, with capital and labor as the typical inputs described. The equation for the Cobb-Douglas production formula, in which K represents capital, L represents labor input, and a, b, and c represent nonnegative constants, is as follows:

$$f(K, L) = b\, K^a\, L^c$$

Here, capital indicates the real value of all machinery, parts, equipment, structures, and buildings while labor represents the total number of hours worked over a period of time by employees. Fundamentally, this theory thus postulates that the value of machinery and the number of person-hours worked are directly related to the gross output of production.

We proceeded to deflate the variables necessary for this analysis: to deflate the value added, i.e., the value was divided by the respective annual index, we divided the production price index taken from the ISTAT portal; the cost of labor (L2) we deflated it by dividing it by the index of wages also taken from the same portal and finally the value of capital (K) using the production price index, for capital goods. As far as the cost of labor is concerned, a subsequent analysis was carried out using the number of employees as input (L1), but this is subject to error since it is not an item expressly present in the financial statements.

The first step was cleaning the data used in the function:

- observations with a value of less than ten thousand have been eliminated from the added value

val_agg_def				
Percentiles	Smallest			
1% 484.1606	86.654			
5% 731.6711	335.2321			
10% 927.4206	378.6404		Obs	822
25% 1371.788	405.6682		Sum of Wgt.	822
50% 2453.183			Mean	9452.432
	Largest		Std. Dev.	34441.45
75% 4664.403	323333.8			
90% 14031.76	336378.7		Variance	1.19e+09
95% 23416.37	349504.8		Skewness	7.513507
99% 242252	352766.6		Kurtosis	63.97465

Table 9 - Output value added deflated, STATA

- observations with a value of less than two hundred thousand have been eliminated from the total labor costs

tot_co_lav_def				
Percentiles	Smallest			
1% 245.6896	204.583			
5% 342.4054	208.5123			
10% 414.0529	213.7944		Obs	822
25% 643.1735	222.5558		Sum of Wgt.	822
50% 1338.595			Mean	4248.412
	Largest		Std. Dev.	15000.73
75% 2319.964	126285.4			
90% 5626.942	133481.1		Variance	2.25e+08
95% 11085	150444.2		Skewness	7.161948
99% 105032.4	153794.6		Kurtosis	57.83803

Table 10 - Output total costs of labor deflated, STATA

- observations with a value of less than one hundred thousand have been eliminated from the total tangible fixed assets

tot_imm_mat_def				
Percentiles		Smallest		
1%	237.64	112.5213		
5%	486.5672	119.2457		
10%	749.5886	121.0334	Obs	822
25%	1419.549	142.3464	Sum of Wgt.	822
50%	2897.163		Mean	10234.08
		Largest	Std. Dev.	32035.76
75%	6727.571	277018.9		
90%	17712.56	282587.3	Variance	1.03e+09
95%	36488.49	306187.7	Skewness	7.361836
99%	243913	364624.9	Kurtosis	63.23982

Table 11 - Output total immobilization material costs deflated, STATA

The second step was to generate the logarithms of the function and proceed with the regression analysis:

log y = log (val_agg_def)

log k =log (tot_imm_mat_def)

log L1 = log (dipendenti_)

log L2 = log(tot_costi_lav_)

Output regression analysis using the number of employees (L1):

Source	SS	df	MS	Number of obs	=	822
Model	933.633914	2	466.816957	F(2, 819)	=	2799.52
Residual	136.567267	819	.1667488	Prob > F	=	0.0000
Total	1070.20118	821	1.30353372	R-squared	=	0.8724
				Adj R-squared	=	0.8721
				Root MSE	=	.40835

logy	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
logk	.273956	.0187621	14.60	0.000	.2371286	.3107834
logL1	.789771	.0253493	31.16	0.000	.7400138	.8395282
_cons	3.076103	.0970631	31.69	0.000	2.885581	3.266624

Table 12 - Output regression analysis K and L1, STATA

The index of the economy of scale (ES) was calculated:

$$ES = \frac{\partial \log(y)}{\partial \log(L1)} + \frac{\partial \log(y)}{\partial \log(K)} \text{ or } ES = \frac{\partial \log(y)}{\partial \log(L2)} + \frac{\partial \log(y)}{\partial \log(K)}$$

Where:

ES > 1: Economies of scale

ES < 1: Diseconomies of scale

By performing the test of the summation of logarithms equal to 1, it is possible to see if there are economies of scale within this market.

```
( 1)  logk + logL1 = 1

      F(  1,    819) =   18.16
           Prob > F =    0.0000
```

Table 13 - Output test economies of scale, STATA

The same analysis was conducted using as input the value of labor costs (L2) and the result is interesting as we see from the output and the test for economies of scale in this case there seem to be even diseconomies of scale ($\sum ß_i(\log_i) < 1$).

```
      Source |       SS           df       MS      Number of obs   =       822
-------------+----------------------------------   F(2, 819)       =   3921.22
       Model |  969.006256         2  484.503128   Prob > F        =    0.0000
    Residual |  101.194924       819  .123559126   R-squared       =    0.9054
-------------+----------------------------------   Adj R-squared   =    0.9052
       Total |  1070.20118       821  1.30353372   Root MSE        =    .35151

------------------------------------------------------------------------------
        logy |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        logk |   .1779731   .0171131    10.40   0.000     .1443825    .2115637
       logL2 |   .7925877    .019838    39.95   0.000     .7536484     .831527
       _cons |   .8102853   .0827758     9.79   0.000     .6478075     .972763
------------------------------------------------------------------------------

. test logk+logL2=1

 ( 1)  logk + logL2 = 1

       F(  1,   819) =    7.19
            Prob > F =    0.0075
```

Table 14 - Output regression analysis K and L2, STATA

What was interesting to discover from this analysis is that, eliminating the first element from the analysis, i.e., the company Lavazza SpA, which is the one with the highest annual turnover, the economies of scale appear to be stable. This could be caused, for example, by the fact that the technology used is always the same, with or without Lavazza; moreover, it should be kept in mind that a company such as Lavazza has several production plants in Italy and abroad, and this would cause a "disintegration" of the great colossus, which among all the plants cannot implement economies of scale policies, in the same way as if it were one and only one plant.

```
. reg logy logk logL1 if ranking!=1

      Source |       SS           df       MS      Number of obs   =       812
-------------+----------------------------------   F(2, 809)       =   2160.26
       Model |  724.547202         2  362.273601   Prob > F        =    0.0000
    Residual |  135.668831       809   .16769942   R-squared       =    0.8423
-------------+----------------------------------   Adj R-squared   =    0.8419
       Total |  860.216032       811  1.06068561   Root MSE        =    .40951

------------------------------------------------------------------------------
        logy |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        logk |    .273386   .0188193    14.53   0.000     .2364456    .3103264
       logL1 |   .7750733   .0264568    29.30   0.000     .7231411    .8270054
       _cons |   3.127777   .1006939    31.06   0.000     2.930124    3.325429
------------------------------------------------------------------------------

. test logk+logL1=1

 ( 1)  logk + logL1 = 1

       F(  1,   809) =    8.30
            Prob > F =    0.0041
```

```
. reg logy logk logL2 if ranking!=1

      Source |       SS           df       MS      Number of obs   =       812
-------------+----------------------------------   F(2, 809)       =   3068.42
       Model |  760.024513         2  380.012256   Prob > F        =    0.0000
    Residual |   100.19152       809  .123846131   R-squared       =    0.8835
-------------+----------------------------------   Adj R-squared   =    0.8832
       Total |  860.216032       811  1.06068561   Root MSE        =    .35192

------------------------------------------------------------------------------
        logy |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        logk |   .1770139   .0171392    10.33   0.000     .1433713    .2106564
       logL2 |   .7803433   .0205027    38.06   0.000     .7400985     .820588
       _cons |    .903368   .0912268     9.90   0.000     .7242988    1.082437
------------------------------------------------------------------------------

. test logk+logL2=1

 ( 1)  logk + logL2 = 1

       F(  1,   809) =   12.11
            Prob > F =    0.0005
```

Table 15 - Output regression analysis K and L1 and L2 without Lavazza, STATA

Economies of scale can be included as a competitive strategy, in fact, those who benefit from economies of scale allow a decrease in costs with an increasing volume growth of production. This strategy can be used above all by medium-large companies, which can afford to range along different types of finished products, mixtures, formats, etc.

Conclusions

The purpose of this paper was to study a saturated and oligopolistic market, in fact mostly in the hands of giant companies such as Lavazza and Illy, but it is also necessary to mention the Nestlé company, with its Nespresso capsules, even though it belongs to the Swiss market, because it can be considered another giant competitor of small and medium-sized companies. The latter are in fact belonging to a more local type of market, where bars or restaurants in the vicinity are served, focusing mainly on quality and proximity to the customer. On the contrary, the leading companies in the sector aim at a direct market with other distribution channels as a primary source of turnover, such as large-scale distribution, Ho.Re.Ca. and Vending & Serving, which is why during the Covid-19 pandemic large companies were found to have higher profitability ratios than small and medium-sized companies. For the type of final purpose that they have, each of these companies uses its own defense and competitive strategy, from product differentiation to customer satisfaction. What distinguishes large and medium-small companies are therefore economies of scale, from which the former benefit and the latter do not.

The economies of scale can therefore be defined certainly a competitive strategy, but that for many companies is not trivial to pursue, in fact to achieve an economy of scale, a company must invest large sums of money in the production plant and machinery, with the main aim of reducing the average cost, then to increase the volume of production until you have all the machines working at full capacity.

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