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Analysis of the relationship
between competition and countries'
institutional quality

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INTRODUCTION

“By defining the rules of the game, the national institutional context prohibits certain kinds of exchanges of inputs and outputs with other actors and thus shapes the competitive intensity faced by firms... the national institutional context has a significant direct influence on competitive intensity and will therefore influence firm performance” (Chacar and Vissa 2005, *Strategic Management Journal*).

In recent years, academics and researchers started to focus more and more on the impact of institutional context on competitive dynamics between firms. The attention to institutions has grown during the second part of the twenty century thanks to economists and sociologists (Peng et al. 2009). Since then, the study of how institutional quality affects firms has increased with growing interest: particularly the emerging countries’ context and the influence of environment on firms’ activities has been studied more and more. Researchers found out that those firms that pay attention to different institutional contexts are more likely to better choose the best countries to invest in; moreover others noticed that good governance and a stable institutional environment is an advantage to attract the investments of MNEs and to favour and promote the entry of new players, both foreign players and domestic players (White et al., 2019).

One of the main differences between the emerging countries and developed countries is the institutional quality. In the developed countries, institutions tend to be given for granted: they support the market, they work well and are almost unseen; while, in emerging markets, where the institutional structure is often bad and inefficient, the lack of a good and efficient institutional structure is more evident. Indeed, companies, which believe that they will find the same network of institutions all around the world, are going to fail: in many countries and areas around the world, these institutions do not exist (Khanna and Palepu, 1997; Nguyen et al., 2018).

Nowadays, strategic management researchers have realized that institutions are not only background conditions but represent an important force which influences and shapes competitive dynamics between firms, just like industry characteristics and firms’ resources. This is particularly relevant when companies decide to compete internationally (Kingsley and Graham, 2017).

Peng et al. (2009) suggested that one of the areas of study in literature should be the role played by institutional framework in influencing competition. However, in literature there is

not a consensus regarding the effect that the absence of institutions has on the intensity of competition.

In light of this, the objective of this thesis is to explore how institutional quality influences the competitive intensity among firms. In order to achieve this purpose, an empirical analysis has been run. Particularly, this analysis covers a span of time of ten years, from the beginning of 2010 to the end of 2019 and considers 196 countries.

In order to achieve this goal, the thesis is divided into three chapters: the first one offers a literature review of the concept of competitive intensity, the main measures used to capture the level of competitive intensity and the main drivers of competitive intensity. The second chapter focuses more specifically on the influence that the institutional context has on firms and the competitive dynamics. This chapter offers a literature review about institutional perspective, institutional setting of emerging countries, institutional voids, and different authors' perspectives on the relationship between institutional quality and competition. Finally, the third and last chapter presents an empirical analysis aimed at gaining insights on the influence of institutional quality on competitive intensity among firms. The empirical results obtained from the analysis are then discussed.

Even though in the last years the interest about institutional quality and how it influences competitive dynamics between firms has grown, few studies empirically analysed the relationship between competitive intensity and institutional quality. The main contribution of this study is that it specifically focuses on the impact of institutional quality on the intensity of competition by using specific competition indexes; second it considers information coming from 196 countries, a bigger sample compared to previous studies: as far as we know, this research is the one with the higher number of countries considered in this stream of research; finally it covers a more recent span of time compared to similar studies. Moreover, it deals with a market never considered before: the mobile phone market, a high-tech sector where continuous technological innovation, high projected growth and profitability attract a lot of entries and where there is room for start-ups. It is also a sector where competition is increasingly global and increasingly populated by players coming from emerging countries.

1. CONCENTRATION AND COMPETITION

1.1. Introduction

This chapter deals with the concept of competitive intensity. First of all, the concept of competitive intensity and the main methods used to measure the level of competitive intensity is deepened. In literature there are two main approach to measure the level of competition: the first implies the usage of questionnaire while the second the usage of indexes. One of the main indexes to compute competitive intensity is the Herfindahl-Hirschman Index, which considers both firms' market shares and all the existing firms in a market. A deepening is dedicated to this index and to the parameters used to describe a market. Then, there is a literature review of the main drivers of competitive intensity identified by academics and researchers. The last part of this chapter regards an overview of empirical studies dealing with the main drivers of competition. Particularly, this part deals with empirical researches where the dependent variable is the level of competitive intensity and the independent variables are the drivers of competition.

1.2. Competitive intensity

Competitive intensity can be defined as the degree to which a firm has to face competition in its market. Competitive intensity describes the influence that one firm has on the survivance of other firms (Ju & Zhao, 2009) and it refers to the degree of competition that a firm has to face (Jermias, 2008). Competition is the result of firms' interactions emerging from other actions of competing firms. The intensity of these interactions can vary across industries, shaping different climates of competition. Thus, competitive intensity depends on how many interactions there are among competitors: moves and countermoves define the competition within an industry. When firms' actions are not followed by other firms' actions, the competition in the industry is not very strong. This happens for example when firms tacitly agree and collude. There are also industries, however, where there is more hostility and moves and countermoves between competitors are more frequently, such as promotion war or price war (Bengtsson & Solvell, 2004).

The spectrum of different competition climates goes from the perfect competition to the monopoly. Perfect competition refers to a highly fragmented market, where there are a lot of similar size firms which do not have any market power to increase their price to justify product differentiation and where the level of competition is very high. This kind of competition is typical in commodities industries, such as agricultural products. Monopoly refers to a market

where there is only one company which satisfies the whole demand and has great market power to increase price. It is typical in public utilities. Majority of industries, however, fall between these two opposite market structures. Monopolistic competition is common in markets like the banking sector. This kind of market is similar to the perfect competition market because there are a lot of competitors, which, however, offer differentiated products. Thus, firms in this kind of market have the power to impose a premium price. However, this power is reduced by the existence of many substitutes, which lower profits in the long term. Then, another kind of market is the oligopoly: the pure and the differentiated one. The pure oligopoly is a market where the demand is covered by few firms, which offer homogeneous products. It is a highly concentrated market where companies often collude in order to maintain their profits, which would decrease with fierce competition. The steel market is an example. The differentiated oligopoly is similar because it is characterized by few firms which offer, on the contrary, differentiated products. The mobile phone industry is an example (Giachetti, 2013).

Another widely studied theme in competitive dynamic literature is competitive aggressiveness. Competitive aggressiveness can be defined as the degree to which firms directly challenge competitors through different actions such as changing prices or products line (Nadkarni et al., 2016). Many authors have developed empirical studies to understand the drivers and determinants of competitive aggressiveness, which helps to understand what influence competition within markets. It has been measured by using different methods: one of the first methods is Covina and Covin's one. They developed a questionnaire designed for managers, who are asked to express opinions about competitive actions of their firms and the market concerned (Giachetti, 2013). Recently, authors have used other index to capture the level of competitive aggressiveness, such as the one of Yu et al. (2009): they considered competitive activity, which represents the total number of actions carried on by a company against competitors, and competitive complexity, the degree to which actions are broad or narrow. Nadkarni et al. (2016), by analysing the news headlines about competitive moves of firms, have considered, in addition to the number of moves, "actions speed", the length of time which elapses between a firm's attack and the response of the latter.

1.3. Measures of competitive intensity

As Kwieciński (2017) reported, there are two different approach to measure competitive intensity: the first one is based on experts' opinions and implies the usage of questionnaires (primary sources), while the second one is based on "structural variables used with a variety of

indexes (secondary sources)". According to Kwieciński (2017), the paths used by authors in measuring competition can be divided into four main groups:

- Questionnaire inspired to Jaworski and Kohli's approach;
- Other measures based on questionnaire;
- Herfindahl-Hirschman Index;
- Other indexes based on market shares or on how many rivals there are.

Jaworski and Kohli's approach is described in the article "Market orientation: Antecedents and Consequences" (1993). In this article they measure competitive intensity by asking respondents to assess each statement and give a score from 1, which means "strongly disagree" to 5, which means "strongly agree". The six statements proposed are listed below:

- Competition in our industry is cutthroat
- There are many "promotion wars" in our industry.
- Anything that one competitor can offer, others can match readily.
- Price competition is a hallmark of our industry.
- One hears of a new competitive move almost every day.
- Our competitors are relatively weak.

The aim of this questionnaire is understanding the point of view of respondents, who can be managers or CEOs, about competitive dynamics in their market. Later, this approach has been used by many other authors: some of them used all the six statements, others used only a few of them. The answers to the questionnaire are used to develop a picture of the current level of competition in the market.

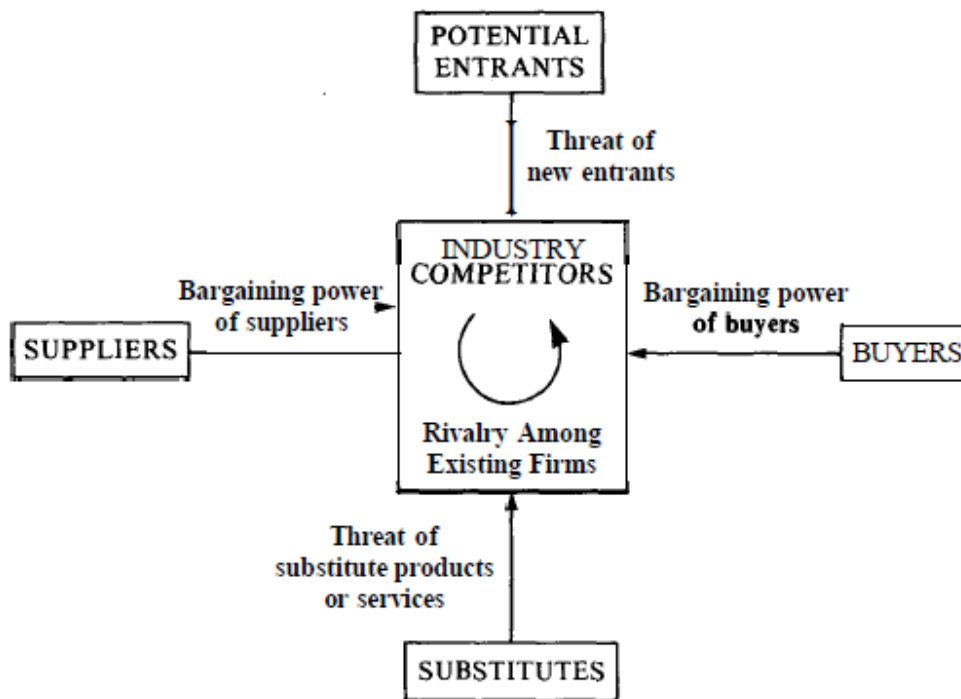
Another approach used in literature is the one of Lusch and Laczniak. They proposed a questionnaire to some executives and ask them to give a score from 1 (strongly disagree) to 5 (strongly agree). They argue that even though competitive intensity can be measured by counting the number of rivals or calculating the market share, thus by using indexes, it would be better to evaluate also other factors, such as cooperation between suppliers. For this reason, in their article titled "The evolving marketing concept, competitive intensity and organizational performance", they focused on executive perceptions about the future to evaluate some topics, such as organizational performance, marketing concepts, stakeholder concepts and, finally, competitive intensity. The statements to assess competitive intensity are listed below:

- Firms will be spending more of each sales dollar on marketing due to increased competition;
- Firms in our industry will be aggressively fighting to hold onto their share of the market;
- Competition will be more intense.

Other authors, relying on Lusch and Laczniak approach, have used managers' points of view about competitive intensity in the domestic and global market. Others have considered the hostility between firms in the same market as a good way to explain competitive intensity or have asked managers to assess how many competitors there are in their market and how the relationship between competitors are. According to Kwieciński (2017), questionnaires based on Five Forces Model by Porter is a proper way to have insights on the competition in a market.

According to Porter (1980), the competitive intensity depends on the intensity of five forces. The higher the strength of these forces, the higher the competition. Influence of these forces among firms vary across industries. In sectors like paper, steel and tires these forces are very intense and the profitability is very low. In other industries like apparel or cosmetic, these competitive forces are less fierce and potential profits are higher. The five competitive forces, which are bargaining power of suppliers, bargaining power of buyers, threat of new entrants and threat of substitutes products or services and rivalry among existing firms, imply that competition is not affected only by existing firms that compete in the market. It goes beyond the existing firms. Bargaining power of buyers is evident when they can ask to lower the prices or to have higher quality, reducing the industry profitability. Their bargaining power can be high for many reasons, for example because the majority of sold item is purchased by a single buyer. Bargaining power of suppliers is critical when they have the power to lower profitability within an industry by rising prices of their goods. Threat of entry refers to those companies that enter the industry bringing new resource with the desire of acquiring power. Threat of substitutes products is represented by those products which can perform the same function of the product in the industry. Rivalry between existing competitors does not depend only on the number of competitors but also by other factors, such as slow industry growth: in a saturated market, firms try to gain market share through expansion; a factor could be also high fixed or storage costs: when capacity is not completed used, firms may decide to shade prices in order to sell; another aspect is the lack of differentiation: commodities products will lead to higher competition and high exit barriers due to fixed costs of exit or highly specialized assets (Porter, 1980).

Figure 1: Porter's Five Forces Model



Source: "Competitive strategy techniques for analysing industries and competitors", Porter (1980)

The other way of measuring competitive intensity is by using indexes and measurements based on market share and number of firms. Some authors, like Porter, have adopted the number of competitors in a market to explain the level of competition: when in a market there are a lot of companies competing between each other, it is likely that there is a high level of competition. However, as Porter himself and other authors said, in order to have a deeper analysis of the level of competition within a market, it is necessary to consider also other factors. Namely, it may be argued that the number of rivals does not necessarily reflect the competitive interactions between companies. There are markets with few firms which are engaged in fiercer competition than other market with more firms. Instead of using the number of competitors, market share is a better parameter to assess competitive intensity (Kwieciński, 2017). The firm concentration ratio is one of the most frequently used in the economic and management literature. The underlying assumption of this index is that when the market shares of the bigger companies in a market rise, it is highly likely that the concentration will increase with the consequent decline of competition. This should happen because, when concentration increase, the firms with the higher market shares, tend to collude in order to not start a war and to maintain their profits.

Thus, firms which collude cooperate between each other and the result is less competition. The formula of this index is presented below:

$$(1) CR = \sum_{i=1}^m S_i$$

This formula represents the sum of market shares, where S_i is the market share of company I , of the m biggest companies in a market with n companies, with $n > m$. The range of the index result is from 0 to 1. M , which is the number of firms considered can be decided by the researcher. Namely, it can be considered the sum of the four bigger firms, CR_4 or the sum of the eight bigger firms, CR_8 . If the ratio gives $CR_4 = 0.2$, we can assume that the industry is highly fragmented with high level of competition. This index has been widely used in literature and some statistical analysis: as explained in the paragraph “1.5. *Empirical studies of the determinants of competition*”, there are researches which aim at identifying the determinants of concentration and have used this concentration ratio. However, it has limits because it does not consider the following factors:

- the distribution of m firms' market shares;
- the distribution of all firms' market shares;
- the total number of n firms within the market.

The index which considers both market shares and number of firms is the Herfindahl-Hirschman Index (HHI). The formula is presented below:

$$(2) H = \sum_{i=1}^n S_i^2$$

It represents the sum of squares of market shares of all n firms in the industry. The result of this index goes from $1/n$ to 1. The advantages of using this index is that it considers all the firms in a market, and it assigns a higher weight to firms with higher market shares (Giachetti, 2013). The maximum value of HHI is 1, which reflects monopoly market and the minimum value is $1/n$, which occurs when all companies have the same market share. There are different approaches to classify the result of HHI. Brezina et al. (2016) report two different legal approaches: the American and European one.

The U.S Federal Trade Commission uses the following market classification:

- Unconcentrated market when $HHI < 0.15$
- Moderately concentrated when $0.15 < HHI < 0.25$
- Highly concentrated when $HHI > 0.25$

In 2004 the European Commission exposed the following market classification in the Guidelines to assess horizontal mergers:

- Unconcentrated when $HHI < 0.1$
- Moderately concentrated when $0.1 < HHI < 0.2$
- Highly concentrated when $HHI > 0.2$

In economic and management literature HHI is used to gain insights on market structure and price competition. Djolow (2013) in the paper titled “The Herfindahl-Hirschman Index as a decision guide to business concentration: A statistical exploration” reports Ertl and McCarrel’s classification, which relates HHI to market structure and price competition and recognizes the possibility of rivalry even when there is high level of market concentration:

- Perfect competition when $0.00 < HHI < 0.20$: price competition is fierce
- Monopolistic competition when $0.20 < HHI < 0.40$: price competition can be fierce or not, depending on the level of product differentiation.
- Oligopoly when $0.40 < HHI < 0.70$: price competition can be fierce or not, depending on how much rivalry there is between firms.
- Monopoly when $0.70 < HHI < 1.00$: price competition is light, unless there is the possibility of new entrants in the market.

1.4. Drivers of concentration and competition

Among the drivers which contribute to increase concentration and reduce competition there are the barriers to entry. Scholars gave many explanations of what barriers to entry are. Bain (1956) defined entry barriers as an advantage of incumbents over new entrant; Stigler (1968) defined them as a cost that must be sustained by new entrant, but not by incumbents firms; according to Ferguson (1974) they are factors that obstacle entry of new firms and allow existing firms to maintain high profits; according to Fisher (1979) they are all those factors that block; according to Gilbert (1989) barriers to entry are a “rents that is derived from incumbency” (McAfee et al., 2004).

Many other definitions have been proposed by scholars, however, what really matters is understanding how entry barriers affect industry concentration and competition. The main idea is that higher the barriers to entry, higher the market concentration. This happens because the number of companies that can face these obstacles decrease and the market becomes more concentrated. Indeed, even if the market is very profitable not all the firms are able to enter the market and only few are able to face these barriers. Some practical examples of barriers to entry are economies of scale, which refers to the advantages in terms of costs that a firm obtains when it increases its level of production. In many industries economies of scale represent an essential goal to reach in order to be competitive. Those firms that are not able to reach a certain level of output are not able to be competitive and will be forced to exit the market. Catherine J. Morrison Paul, in an article titled “Cost Economies: A Driving Force for Consolidation and Concentration”, stated that economies of scale explain high-power concentration in many markets. In particular, her study deals with beef packing market (Morrison, 2003). However, there are markets where economies of scale are not or are not anymore, a critical aspect. Advances in technological innovation and manufacturing technologies have made smaller productions economical, reducing the importance of economies of scale. Flexible manufacturing technologies, indeed, allows companies to easily shift from one product model to another one, reducing the importance of economies of scale. These technologies are relevant when the market offer room for product differentiation and to meet different customer segments.

Another kind of barriers, which discourage potential firms from entering the market, are network externalities. Network externalities arise when the advantages of using a product increase with the number of people using that specific product, which is named the installed base. They are common in those industries that are networked, such as railroads, telecommunication, instant messaging and cloud sharing and arise when compatibility and complementary goods are important. Complementary goods are other goods or services that allow to use or improve the use of another good. An example of industry where there are network externalities is the operating system market. Regarding compatibility, people may decide to use Windows operating system in order to enlarge the amount of people which they can share their files with; while regarding complementary goods people may decide to use Windows operating system in order to maximise the number of applications they can use (Schilling, 2016). In this kind of industries customers do not consider only the stand-alone value of a technology, like its functions, its ease of use or its aesthetic, but they also consider the existence of network externalities, that is complementary goods and an installed base. This

means that for a new firm which wants to enter the market, it is not enough to have higher technological performance, but it has also to be compatible with the existing technology's installed base and complementary goods. Network externalities can be considered to be an entry barrier when they lead to the selection of a dominant design, that is a product or process design that become the one more adopted by producers. Only those firms supporting this winning technology can stay in the market, the others not able to adapt to the winning technology will exit the market. Thus, this force can lead to monopolies or oligopolies of firms that have been able to establish their technology as the dominant design in the industry and dominate the market.

There are then other factors that constitute a barrier to entry and are those conditions intentionally created by the movement of incumbent firms, in order to prevent new firms from entering the market. Examples are patents, control over essential materials or lobby protection from government, just to name a few. Patents are a mechanism that prevents others from copying or using an invention for a specific period. They should protect technological innovation, allow a firm to maintain control over it and benefit from the rent related to that specific technology (Schilling, 2016).

Other examples of entry barriers are state authority regulation that can allow only some firms to have the permission to do something. Government regulation plays a key role also when consumers benefit more from having a single technology in order to have compatibility among products. For example, in 1998, a specific wireless telephone standard was selected by the European Union. The aim was creating a single standard and avoid incompatibility due to the existence of many different standards. By creating a single standard, the number of firms able to adopt this standard decrease and the market become more concentrated (Schilling, 2016).

In "Competitive strategy Techniques for Analysing Industries and Competitors" Porter mentioned the main sources of barrier to entry. Economies of scale, previously mentioned, can discourage new firms to enter the market because they should get in with large scale or enter with small scale and face a period of cost disadvantage. Particularly, economies of scale can emerge in many functions, such as marketing, production or R&D.

Another source of barrier to entry that can hinder competitive intensity are capital requirements, for example investment in advertising or R&D. If entering a new market implies huge investments, not all companies may have all these resources or have the possibility to obtain them externally, through debt or equity markets. This means that even though a market has the potential to be very profitable and shows high-demand growth, competing against

companies like Apple or Samsung may discourage new entrants. The start-up costs of advertising, research and development, developing the know-how and internal knowledge can be perceived to be too high to be competitive (Shilling, 2018).

Switching costs represent another barrier to entry. They refer to the cost, faced by a customer, when moving from a product to another one. If a new entrant wants to enter the market it should be able to offer a product that customers perceive to have a higher value than the costs to switch to this new product. In some markets, such the mobile phone market, switching barriers deeply influence customer retention and lead customers to switch to new products. Even customer loyalty can increase customer retention (Oyeniyi and Abiodun, 2009).

Product differentiation is another source of barrier to entry. When in a market, there are a lot of differentiated products, new entrants have to find a way to conquer existing customer loyalty. There is then also to consider “cost disadvantages independent of scale”. Examples are exclusive access to scarce assets, such as raw materials; favourable location; patents or trade secret that cover product know how or design characteristics.

Another element that can increase concentration are mergers. If firms perceive that their market share is threatened, they may decide to merge in order to discourage new firms to entry the market. They may also decide to merge in order to enter a new market or to acquire knowledge they do not have. This lowers competition and may lead to the creation of oligopoly. Indeed, horizontal and vertical concentration can create seller concentration (Wilkerson, 2018). However, there are also events which can lower concentration and encourage competition, like for example deregulation, which refers to the elimination or reduction of state power over a market, can play a key role in increasing competition (Ertl and McCarrell, 2002).

1.5. Empirical studies of the determinants of competition

There are many empirical studies that focus on the drivers of concentration and competitive intensity. Among them, there is Jenny and Weber (1978)’ one. They analysed how concentration changed in France in the manufacturing sector from 1961 to 1969 and studied the influence of the following forces: initial concentration level, barriers to entry, level of growth of the industries and how the number of firms in each industry changed over the years.

The main findings of this research are the following:

- Among the barriers to entry, economies of scale and high capital investments to face when entering a new market, turn out to be significantly and positively associated with

industry concentration. The third barrier to entry considered, product differentiation, is not significantly related to industry concentration.

- Initial level of concentration is negatively and significantly related to changes in industry concentration. It means that higher the level of initial concentration, lower the change in level of concentration over the years. Thus, in a concentrated market, where there are high barriers to entry, the incumbents firms tend to preserve their market share over the years; while, in markets where there are low barriers, incumbents firms end up either to aggressively compete in order to gain monopoly profits in the short term or to succumb to the competition of new firms. Thus, deconcentration trends tend to occur more frequently where barriers to entry are low.
- Variation in the number of firms is negatively and significantly associated with industry concentration trend. It means that when the number of firms increases, concentration level decreases. For what concerns the level of growth of the industries, it is negatively related to industry concentration changes and shows a high collinearity with the variation of the number of firms: when the market grows, new firms enter the market and competition increases.

Wright (1978) analysed the role of product differentiation and scale economies in influencing industry concentration in 206 industries in US from 1947 to 1963. The dependent variable is the change of concentration in the period selected. The results of this research show that a high level of product differentiation and scale economies will lead to a higher level of industry concentration, because these two elements allow the incumbents and bigger firms to preserve their market share without allowing smaller firms to erode their market share.

Another research focusing on the manufacturing sector is the one of Rogers (1980). He studied the role of advertising in shaping the concentration level of manufacturing industries. He studied the change of concentration level in a sample of 167 manufacturing industries, selected by using SIC classifications, in the period from 1947 to 1972. The dependent variable is the change in four firms concentration ratio over the selected period: $\Delta CR_4 = CR_4(1972) - CR_4(1947)$. To study the determinants of concentration, in addition to advertising intensity, measured by using an advertising-to-sale ratio, they also used the following variables: industry growth rate, industry size and change in economies of scale. The means of communication considered are television, radio, newspaper, magazine and any other means of advertising. The final results of this research show that there has been a rising trend of concentration levels in the period considered. A moderate role has been played by economies of scale. However, the most

important finding of this research is the role played by television advertising: it has strongly increased the concentration level in consumer goods industries, which are industries more vulnerable to advertising related to differentiated products.

Pickford (1983) also studied the determinants of seller concentration in the manufacturing industry. His research focused on the New Zealand manufacturing market over the periods 1974-1975 and 1978-1979. He used the Herfindahl–Hirschman index and concentration ratios CR4 and CR3 as dependent variables. In exposing his work, he stated that the impact of drivers of concentration vary according to the level of concentration: the ability of these forces to increase or lower concentration diminish when the market reaches high levels of concentration. Some independent variables are similar to those exposed in the previous researches, others are new:

- Size of market (S): the assumption made is that when the market is large, the concentration in the industry should be low. Thus, there should be a negative relationship between market size and concentration.
- Growth of market (ΔS): it is measured by computing the difference between S and S_{t-1} . When market growth is fast, there should be a high number of new entrants in the market, with the consequence of increasing competition. While when the growth is slow, few firms are encouraged to enter and the competition decreases, because there is no place for these firms. Thus, a negative relationship is expected between concentration and market growth. However, results show that the relation between these two variables is weak and not significant. A possible explanation could be the fact that in the manufacturing market of New Zealand of those years, fast growth attracted a lot of new firms, which established fast in the market by creating large-scale economies and by obtaining a lot of market power,
- Scale economies (K/L): a positive relationship is expected between scale economies and concentration: when a market is characterized by economies of scale, the number of firms that can reach certain level of production is low and a lot of firms which do not reach these levels are forced to exit the market. The author used the K/L ratio as a proxy for economies of scale. K/L states for capital/labour.
- Multiplant ownership (P/N): this factor is used to highlight the fact that in a market there could be a lot of plants which reach the minimum efficient scale of production, suggesting that the firms are many and there is a significant competitive equilibrium. However, these plants may be owned by a few firms. Thus, P/N should capture those

situations where more plants belonged to a single owner. P/N states for plants/firms and a positive relationship between this ratio and concentration is expected.

- Merger activity ($\Delta (P/N)$): it has been demonstrated that horizontal and vertical mergers contribute to the increase of concentration in an industry: this is what happened in UK in the 1960s. Since data about mergers were not available, the author used the following difference: $P/N - P/N_{t-1}$. A positive relationship is expected between this variable and concentration.
- Product differentiation (A/T): according to some empirical studies, in those market characterized by a significant level of product differentiation, new entrants have more difficulties to enter, compared to those market where product differentiation is low. It may constitute a sort of barrier to entry. However, it may be also argued, according to some economic theories, that when this ratio is high, it is usually associated with consumer goods markets dealing with many buyers. The authors, relying on the latter assumption, used A/T ratio, stating for advertising/sales ratio, as proxy to explain product differentiation. What should be expected is a negative relationship between this ratio and concentration index.

The author added that there are many other elements which can influence concentration, but they cannot be used in these kinds of empirical studies because of the scarcity of data or proxies. Some examples are represented by the challenge of competing not only with domestic firms, but also with foreign firms; another determinant of concentration could be the effect of government regulations that can raise or lower concentration. The results of regression show that the variables that influence concentration and have the expected positive or negative relationship with concentration ratio, are size of the market, multiplant ownership, mergers, product differentiation and scale economies. The latter turned out to be the more influent force in shaping different levels of concentration.

Another research dealing with the drivers of competitive intensity is Kessides's one (1990). Starting from the theory of contestability, he studied the role of sunk costs in increasing competition within a market.

The theory of contestable market has been developed by William J. Baumol and states that there are markets where there are few firms but, despite this, there is high level of competition because of the threat represented by the potential entrance of new firms. This model may refer to a hypothetical oligopoly where incumbents firms do not own strategic resources that eventually may be easily expropriated by new entrants. The author claimed that those forces

that determine the degree of contestability are also correlated to market concentration. One of these forces are sunk costs. Sunk costs are those costs that cannot be recovered, once they are sustained. For example, investments in advertising, in scale economies or “absolute capital requirement” can be considered as sunk costs. They constitute barriers to entry which decrease the entry of new firms, with the consequence of reducing competition. According to the author, these factors can shape industry concentration. In order to study the influence of sunk costs on concentration, he developed the following function: $C_i = f(\text{Sunk}_i)$. C_i is the four-firms concentration index, while Sunk_i is the amount of initial investments that are sunk costs. He calculated the CR4 concentration ratio, for more than three hundred industries of the U.S economy. The idea is that when sunk costs are very high, it is more likely that the market will become inefficiently concentrated. Indeed, what emerged from this model, is that when sunk cost increase of 1 percentage point, concentration of the four bigger firms increase of 3.2 percentage points. The most important finding of this research is that the effect of sunk costs on concentration is lower in those market where capital can be easily leased or where capital, when it is industry-specific and not firm-specific, can be sold to other firms. The possibility to reuse old plants, for example, can reduce concentration by reducing the costs of entry. If capital is mobile and a rental market exists, the entrant firm may decide to buy or to rent the capital needed (Kessides, 1990).

Another empirical study dealing with manufacturing industries is the one of Bhattacharya and Bloch (2000). The dependent variable is industry concentration and is measured by using the Herfindahl-Hirschman Index. The study refers the Australian manufacturing industries and cover the period from 1977 to 1978 and the period from 1984 to 1985. The independent variables are listed below:

- Minimum efficient size firm (MKT): this variable should have an inverse relationship with the number of firms that operate within a market: higher the value of this variable, lower the number of firms in a market. Thus, this variable has a positive correlation with industry concentration.
- Cost disadvantages: these are the costs that small firms entering a market with small-scale operations have to face. Larger firms may have easier access to financial aids, may buy inputs at a lower cost or may be more able to attract talents. The author identifies two different proxies of cost disadvantages that small firms must face: capital intensity (K/S) and cost disadvantage ratio (CDR).
- Product differentiation (CDP): product differentiation may represent a barrier for new entrants, because of the investments in marketing to promote the products and the

investments in brand awareness. Thus, a positive relationship between industry concentration and this variable is expected.

- Import intensity variable (IMP): differently from Pickford (1983), the authors found a way to describe international competition by using an import proxy. Competition coming from international competitors may lead to the exit of many small firms, reducing domestic competition even more. Thus, again, a positive relationship between industry concentration and this variable is expected.

The results of the statistical regression show that the only variables that have a significant impact on concentration are MKT and CDR. In particular, they found out that the impact of market size on concentration is more relevant in low-advertising market than in high-advertising markets.

A research not dealing with the manufacturing industries, but with the banking industry is the one of Murthy and Deb (2008) about the drivers of industry concentration in the banking sector in India. The assumption they made was that the entrance of new banks in the sector would have prompted competition and reduce concentration. What they tried to analyse was whether there is a relationship between entry of new firms and competition and what are the drivers on concentration in the banking sector. As the authors reported, the relationship between concentration and competition comes from monopoly concept. The main idea is that when monopoly power decrease, also concentration level decrease. Thus, it may be said that entry of new firms reduces concentration levels, this reduction will lead to a reduction of monopoly power, which consequently lead to an increase in competition. However, the authors stated that even though a great amount of articles has been written about the correlation between concentration and entry of new firms, stating that the entry of new firms would decrease competition, there are also authors who showed in their research that entry can also increase concentration ratio. The problem is that this topic has usually been treated in a naive and very mechanistic way. Entry of new firms in a market does not explain totally why concentration decreases. It may be argued that even if new firms enter the market, these new firms merge with incumbent firms and the number of firms in the market does not vary. Indeed, they claimed that in literature there is little interest for empirically explain the determinants of concentration ratio, which cannot be explained by using a single variable. Thus, to study the drivers of concentration, the authors calculated the concentration ratios over a period of nine years in the banking sector and then they calculated the Herfindahl–Hirschman index. Thus, in their study they consider a set of variables. First, they consider average asset size: the assumption is that

when average asset size of banks increases, concentration falls. This happens because when the average value of banks' assets size increases, it means that the asset base of firms is increasing, with the consequence that more firms are becoming more powerful. The second variable is the number of firms, assuming that the rise of the number of companies in a market lowers concentration level, because there is more competition. The third variable they considered is the asymmetry of distribution of assets. What emerged is that the number of banks and asset size are negatively correlated to concentration. Market shares of top banks decrease when the number of firms increases and when average asset size increases. Regarding the third variable, they found out a positive relationship between distribution of assets and concentration. This occurs because an unequal distribution of assets implies unequal market power, leading to lower competition and increasing concentration.

Alfranca et al. (2014) focused on the European wood market. According to the authors, the relationship between innovation and concentration can be seen in two different ways, depending on which variable is the dependent or independent one. Thus, two different perspective can be adopted: innovation influences market concentration or, conversely, market concentration influences innovation. The majority of researches have considered the concentration as the independent variable and have studied how market concentration is an important element in business innovation. A few researches have focused on the opposing relationship. The authors decided to focus on the latter relationship: how business innovation can give market power and increase concentration. The independent variable is firm innovation: R&D spending, measured as the amount of money spent to increase knowledge or develop new products, and R&D personnel, measured as the percentage of R&D employees among all employees. These two variables are used as proxies to explain innovation; while the concentration is measured by using the Herfindahl-Hirschman Index and is the dependent variable. What emerged from the econometric model is that a correlation between these two variables exists. They also recognized that the causality relationship between innovation and market concentration can be controversial and for this reason they calculated the Granger causality test. The results of the latter tests show that R&D spending and R&D personnel can induce market concentration, but not the contrary. In order to test how innovation affects market concentration, they also developed two model, one represents a market with low concentration and the other with high concentration. In low concentrated markets, R&D spending seems to lower competition, while, in highly concentrated market they increase competition. Thus, their influence depends on the initial degree of industry concentration. This kind of research dealing with the effect of innovation on competition are the minority in literature. The majority of

academic articles dealing with these two variables are those studying how competition affects innovation patterns and are all influenced by Schumpeterian tradition. According to Schumpeter competition impacts economic growth, whose innovation is considered to be the central force. There are two aspects to consider regarding the impact that concentration has on innovation. The first one is that Schumpeter believed that firms innovate in order to obtain ex-post market power, after the introduction of an innovation, and this is what firms obtained with patents for example. The second aspect is that firms that have ex-ante market power before the introduction of innovation, because of an oligopolistic market structure, are those more inclined to innovate because they have the financial resources. In the literature many surveys dealing with these topics have been written (Alfranca et al., 2014). Namely, Blundell et al. (1999) found a correlation between ex-ante market power and innovation. Market power was measured by using market share and innovation by using the number of technological innovations among a panel of more than three hundred firms. They found a positive impact of market share on innovation, however, when they considered the level of concentration of markets, the innovation tends to decrease with the increase of concentration, suggesting that in highly concentrated market firms innovate less.

Kochanski (2009), differently from previous researchers, did not rely on existing data, but developed a model to simulate how some factors affect industry concentration and used Herfindahl-Hirschman Index to calculate market concentration. He considered factors that are usually said to be determinants of market concentration, such as barriers to entry or low/high-cost industries. He tested two different set of parameters: the first one regards all those firms and market features that are commonly considered to be drivers of concentration by economics literature, while the second set of factors regards some aspects of innovation. The first set of forces considered, which are the independent variables, are costs of production, demand growth and barriers to entry. This analysis aims to validate some economic theory, such as the assumption that markets with high costs of production are more concentrated than those with low costs; that when demand starts to grow and the market becomes more profitable, more firms enter the market, which in the end becomes less concentrated; and the assumption that when barriers to entry are high, the market tends to be more concentrated. What emerged from his research is consistent with economic literature and presents a positive and significative correlation between the parameters and HHI outcome:

- in sectors like aviation or automobile where initial costs and costs of production are very high, there are usually few firms and high producer's concentration;

- when consumer demand grows, the market become more profitable, more firms enter the market and concentration decreases;
- higher the barriers to entry, higher HHI result: with no barriers, market moves toward perfect competition.

Regarding the second set of parameters, the variables considered are the costs of innovation, the returns to innovation and the propensity to innovate. Results of regression show that when costs of innovation are very high, rates of innovation are slow because firms are slow to innovate, since it is difficult to accumulate capital, and this produces a less concentrated market. Higher the cost of innovation, lower the HHI result. Another discover of this model, which actually is a consequence of the previous discover, is that when return to innovation are high, firms gain a cost advantage over competitors, the rate of innovation increases, firms' market shares increase, and the market becomes more concentrated. The last discover regard the propensity to innovate. In those market where there are firms more inclined to innovate due to their exclusive access to critical resources or due to patent protection, concentration is higher (Kochanski, 2009).

Regarding other determinants of industry concentration, Lien and Foss (2009), proposed two new drivers. The underlying theory of their model is that "industries have neighbours", meaning that markets are not islands but are interconnected between each other. Their study considers 885 different industries in US in 1981, 1983, 1985 and 1987. They analysed how the level of concentration in the focal industry, measured by the four firm's concentration ratio, is influenced by the concentration levels of neighbouring industries and the level of relatedness between industries, intended as the degree to which industries are connected. The dependent variable is the CR4 of focal industry, while the independent variables are the CR4 of the closest, second closest, third closest, and so on, industries. The main finding of this research is that there is a positive correlation between concentration level across related industries. The reasons of this result may be various. Namely, the fact that the closest industry to the focal one is highly concentrated, may reduce the number of firms able to enter the focal industry indirectly, by using the neighbour as a starting point to enter the focal industry.

Two drivers analysed to understand their impact on intensity of rivalry are similarity between firms and multimarket contacts. Gimeno and Woo (1996) studied the role played by strategic similarity, intended as similar competitive behaviours such as the similarity of resources and capabilities used, and multimarket contact, which is the extent to which firms compete between each other in different markets or niches of the same industry. Multimarket

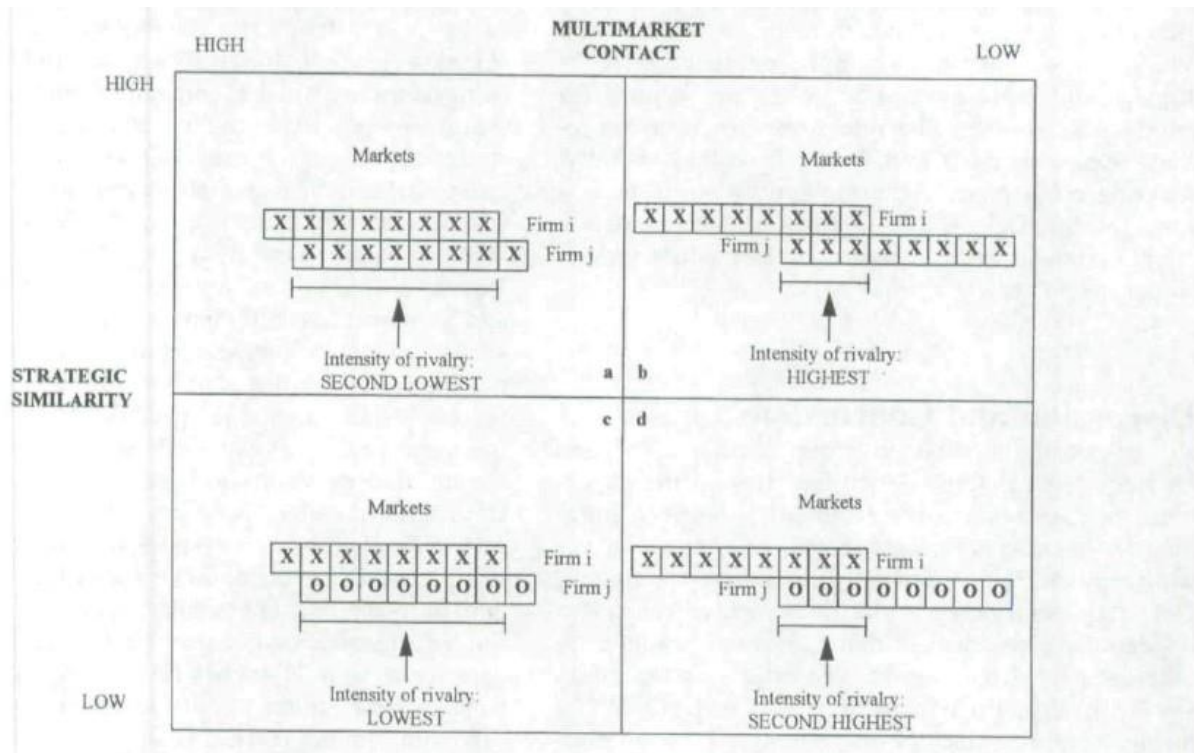
environments can be defined as a series of different markets, which offer products that are not great substitutes, and these markets are linked together by common technologies or capabilities. The authors studied how these two forces together influence intensity of rivalry in the city-pair markets in the US airline industry.

Regarding the first factor, strategic similarity, scholars in literature have adopted opposite points of view: some have argued that strategic similarity decreases rivalry, while others stated that it actually increases competition. Gimeno and Woo report that according to the Harvard approach, strategic similarity allows tacit cooperation, however, when firms are not strategically similar, in the sense that they have different resources and strategic behaviours, they cannot collude and competition increase. Similarly, Bengtsson and Sölvell (2004) also distinguish two different points of view. The first one is related to the strategic group literature, where some authors sustain that a high degree of symmetry facilitates collusion between firms, with the consequence of diminishing the competitive intensity. The second and opposite point of view is the one presented in the industrial organization framework. Some authors argue that when in a market there are few firms, they may have difficulty in coordinating and cooperating between each other, and they will end to directly compete. This is what sustained Porter (1979) in the article titled “The structure within industries and companies performance”: he explains that symmetry can rise competitive intensity because firms, since their product are similar, are more likely to get involved in price wars with the result of increasing competition. Moreover, even though a market is an oligopoly, firms may fail in coordinating between each other because they have different strategies, namely they make different choices about price or about how many products introduce every year. Thus, Gimeno and Woo (1996) developed the first two alternative hypotheses: the first one is that strategic similarity decreases the intensity of rivalry, while the second is the opposite, similarity increase competition.

Regarding the second factor, multimarket contact, theory states that firms, which compete between each other in more than one market, are more likely to not be engaged in intense rivalry. This happens because, according to the supporters of this theory, the activities carried on in a market can have consequences, in terms of rivals’ responses, in other markets. The result is the reduction of competition, in order to avoid continuous retaliations from competitors. Thus, the second hypothesis is the following one: multimarket contacts decrease the intensity of rivalry. The main finding of this research is that competition is fiercer between firms with similar strategy and with few multimarket contacts. This result is in line with researches regarding product differentiation and resource-based view, which propose that firms which do not offer very different products or do not have unique resources, are more likely to

increase competitive actions. On the contrary, firms with a lot of multimarket contacts are less likely to aggressively compete because they know the threat of counterattack of rivals (Gimeno and Woo, 1996). A representation of Gimeno and Woo findings are presented below.

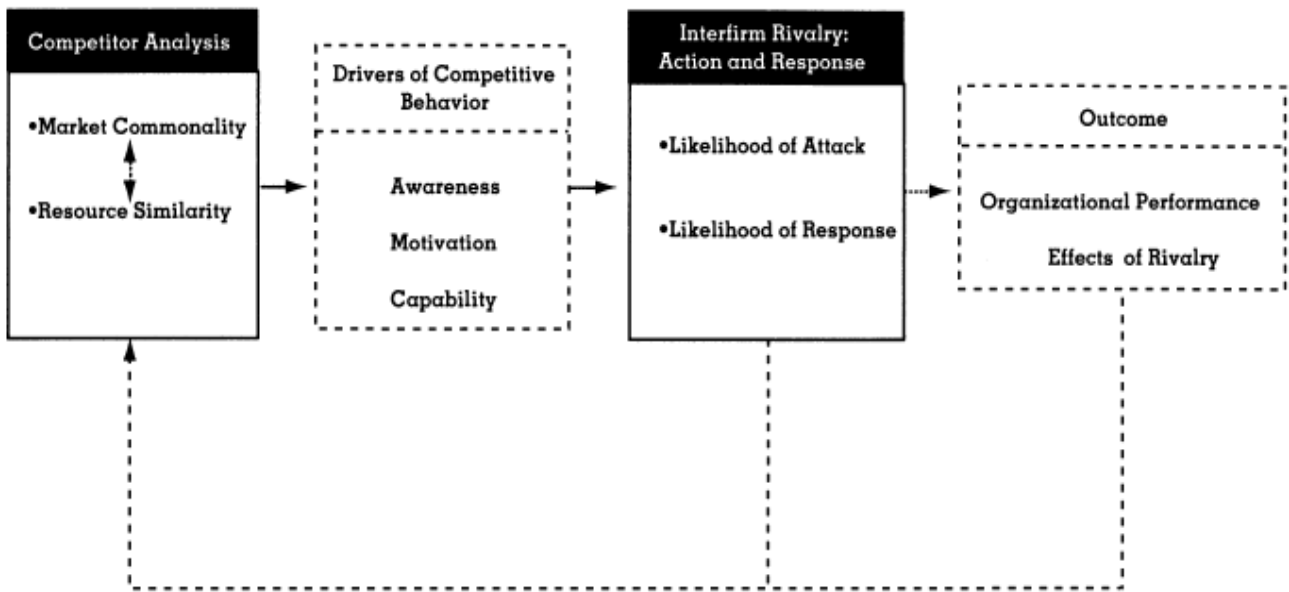
Figure 2: Effects of strategic similarity and multimarket contact on intensity of rivalry



Source: Gimeno and Woo, (1996).

Similar concepts to those described previously have also been treated by Chen (1996) in the article titled “Competitor analysis and interfirm rivalry: Towards a theoretical integration”. He focused on market commonality, which is the same concept of multimarket contact, and resource similarity, which refers to the degree to which firms use similar resources, to study the impact on rivalry between firms. He relied on the awareness-motivation-capability (AMC) framework: firms are more likely to undertake competitive actions when managers are aware of the need for and potential gains of competitive action, are motivated to do so, and have the capabilities to undertake competitive activity. This framework is used to explain competitive behaviours. The author argued that awareness is the prerequisite of any movement and it increases with market commonality and resource similarity, motivation to attack is accelerated by market commonality and capability to attack is influenced by resource similarity (Chen, 1996).

Figure 3: Representation of the linkages between competitor features and interfirm rivalry



Source: Chen (1996).

The previous figure shows that market commonality and resource similarity affect the drivers of competitive behaviours and, then, rivalry between firms. This figure also shows that rivalry influence the performance, however, this issue will not be treated here. The results of Chen’s research show the following findings vary depending on the firm which attack and the defender. These results are in line with the previous research and add something more about the dynamics between firms:

- when a firm decides to attack another firm, is less motivated to attack a firm with a strong market commonality, because the awareness of potential retaliations in other markets;
- when the attack is already in place, for example when a firm competes aggressively in order to increase its market share, the defenders which are more likely to react to the attack are those with great market commonality with the attacker;
- when a firm decides to attack other firms, is less likely to attack those with which share common strategic resources, because of the awareness of the ability of the other firms to respond;

- from the point of view of the defender, when an attack is already in place, the firms more likely to respond to the attack are those with similar strategic resources, because they have the capabilities to react.

Young et al. (2000) also tested a hypothesis related to multimarket contact and resource similarity theory in the software industry over a period of four years, from 1978 to 1991. Rivalry between firms was measured by using an index which considers the number of moves and the timing between one firm's move and another firm's move. In line with previous researches, they found out that the following findings:

- higher the number of multi point contacts of a firm with rivals in many markets, lower the number of competitive actions of the firms against others;
- similar to what found by Chen (1996), a firm attacked by a rival, with which shares many markets and same resource endowments, is more likely to respond more quickly to the attack;
- resource dissimilarity is likely to increase competitive intensity: different capabilities, unique technologies and tacit knowledge create more opportunities to attack rivals, increasing the intensity of rivalry; while when resources are similar, companies often share the same customers and suppliers and are coordinated in order to decrease competition.

Ferrier (2001) analysed the drivers of competitive aggressiveness, focusing on competitive attacks between firms and he analysed news headlines about firms' competitive actions. Competitive attacks are made up of four dimensions: attack volume, which is the total number of actions carried on during the attack of one firm against one another, attack duration, attack complexity, which is the extent to which the attack of a firms against one another is characterized by many types of actions, and attack unpredictability, which refers to the uncertainty of when attacks occur. The first factor he considered is top management team (TMT). According to strategic and management literature, knowledge and experience of the top management deeply influence decision-making process, the way of solving problems and dealing with the external environment and also the strategic vision. The top management team can be heterogeneous or homogeneous. The first kind of team is more likely to face challenging and risky situations. On the contrary, the second kind of team is more likely to maintain its status quo: for example, when there is uncertainty regarding the potential benefits of a new

investment, this kind of team tend to be characterized by inertia. Moreover, TMT heterogeneity, in literature, has been associated with a higher inclination to change, flexibility and aggressiveness. Ferrier in this research predicted that TMT heterogeneity has a positive relationship with attack complexity, and a negative relationship with attack unpredictability, with attack volume (the number of moves), and with attack duration. What emerged from the statistical analysis is that TMT heterogeneity has a significative positive relationship with attack complexity and a negative one with attack duration. The other hypotheses are not supported.

The other variable consider is past performance. As Ferrier report, many authors have argued that good past performance leads managers not to change and to support and enhance their strategic approach; while, poor past performance tends to increase the motivation to change and compete aggressively. So the hypothesis is there is a negative relationship between good past performance and competitive aggressiveness. Results show that this hypothesis is partially supported, since it is related only to attack duration. The third variable considered is organizational slack. It refers to the additional resources that a firm has, in addition to those needed to conduct its usual business. The hypothesis is that when a firm has a great amount of organizational slacks, has also more freedom to explore new strategies and to increase competitive actions, while when a firm has low organizational slack, is less likely to compete aggressively. Results demonstrate that organizational slack are not related to all the competitive attack dimensions, but only to attack volume and duration. The fourth and last variable is related to industry structure and is an aggregation of more industry characteristics. The first industry characteristic is industry growth. Ferrier argue that when a market is growing, managers are less interested in carrying on aggressive moves, because they rely on the fact that things are going well and there is no need to change strategy. Industries characterized by low growth lead managers to intensify aggressive moves in order to survive in the market. The second industry characteristic is the level of concentration: the underlying assumption is that with high levels of industry concentration, firms tend to collude, reducing intraindustry competition. The third feature is the barriers to entry, such as the level of capital intensity, advertising and innovation that characterize the market and that, when are significantly present, reduce competition between firms. What emerged from the statistical analysis is that high barriers have a negative relationship with attack volume and unpredictability; industry concentration is negatively related to attack complexity and unpredictability; industry growth has a negative relationship only with attack unpredictability. With the other variables, no correlation has been found.

The role played by team heterogeneity in influencing competitive moves was also studied by Hambrick et al. (1996). They studied how team heterogeneity have influenced the competitive moves of 32 companies in the U.S airline industry over a period of eight years, from 1979 to 1986. What emerged from this research is that top management heterogeneity has a positive relationship with the propensity of firms to compete, which is measured by the number of moves within the selected period: a heterogeneous team has more points of view, capabilities, stimuli and resources, which in turn means more opportunities to act. Differently from Ferrier (2001) who did not find any relation between TMT heterogeneity and the number of competitive moves, in this research the authors found a relationship. At the same time, this diversity and different perspective implies also more difficulty in find a solution shared by all members in a short time. Thus, team heterogeneity is also related to more time to take competitive actions against others or to respond to other firms' competitive attacks (Hambrick et al., 1996).

Another study focusing on drivers of competitive interaction are Yu and Cannella's researches. The authors stated that actually few interest has been posed to the determinants of competitive aggressiveness between firms, in particular between firms across different countries (Yu and Cannella, 2005). One of the articles where they presented their findings is titled: "Rivalry between multinational enterprises: an event history approach". The dependent variable is the intensity of rivalry among the 13 largest MNEs in the automotive industry in the world, such as Fiat, Ford or General Motors. The proxy used to describe this variable is the speed of response. It is represented by the number of days that elapse between the action of a firm against one another and the response of the latter. This response can be launched in the country where the initial attacking was launched or in any other countries where the two firms both compete. According to the authors, this variable is well suited to highlight the rivalry between firms. Regarding the factors affecting the speed of response, which are the independent variable, they differentiated between resource-related factors and market-related factors. For what concerns the first category, the elements considered are geographic distance, government policies and subsidiary control. While for the second category, elements considered are "initiating country importance", the country where the response to attack occurs and multimarket contacts.

The independent variables are measured in the following ways:

- geographic distance between domestic and foreign markets, measured by using the kilometres between home country and foreign country;

- government restrictions on MNEs. They used a survey to executive developed by the World Economic Forum in order to have insights on the access to credit in foreign markets, on the problems of importing in a foreign market and on “judiciary independence”;
- initiating country importance, which is the importance of the country from where the attack has been launched, measured by the sales coming from that country;
- subsidiary control is measured by considering the percentage of the subsidiary’s equity that the headquarter has;
- multimarket contact is measured by using an index developed by Baum and Korn which calculates the number of contacts of firms within a period.

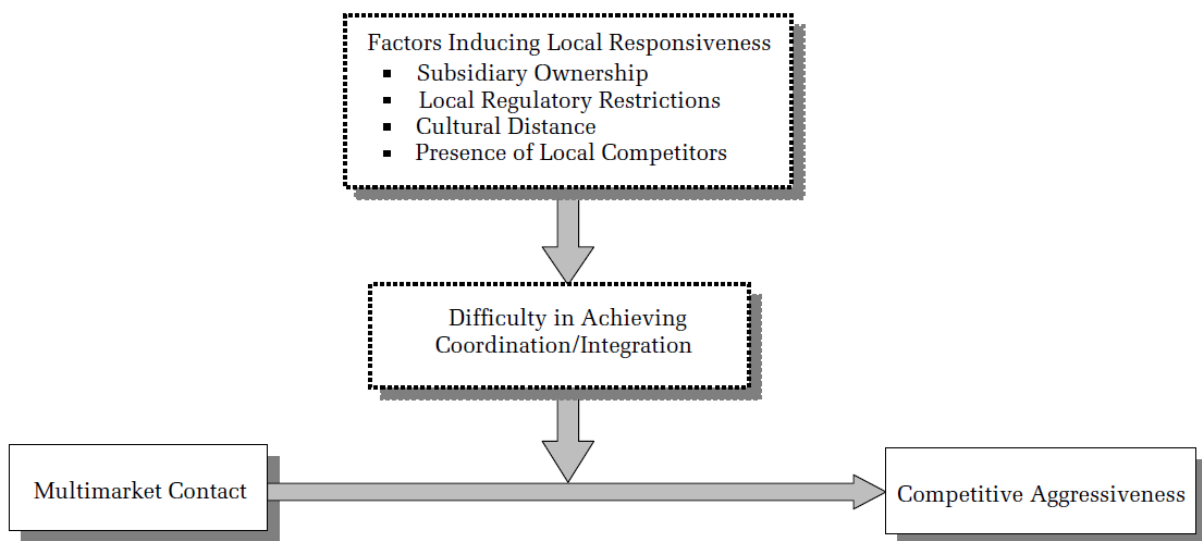
The models developed by the authors and the statistical analysis lead to many findings:

- the greater the distance between the country where the headquarter of the MNE is located and the country where MNE’s response to attack occurs or the country where the attack was initiated, the lower the velocity of response;
- a high level of government restrictions in the country where the MNE competes and has a subsidiary, decreases the velocity of MNE’s response to the attack in that country;
- the greater the level of government restrictions in the home country of the MNE, the greater the velocity of MNE’s response in other countries where there are its subsidiaries;
- the velocity of response of a MNE in a host country, a country where it competes different from the home country, is greater when the attack started in that specific host country;
- the higher the multimarket contacts between the MNE and the rival from which is attacked, the higher the speed of response of the MNE.

Another article written by the same authors, with the additional contribution of Subramaniam M., is titled “Rivalry deterrence in international markets: contingencies governing the mutual forbearance hypothesis” and deals with similar concepts of those previously developed. According to the mutual forbearance hypothesis, when companies met each other in many markets, competitive intensity diminishes. Starting from the researches showing that multimarket contacts decrease competitive aggressiveness, such as the studies of Gimeno and Woo (1996) and Chen (1996), the authors stated that there are forces which make

the coordination between MNE headquarter and its subsidiaries around the world more difficult and reduce the influence of multimarket contact on competitive aggressiveness. When subsidiaries in host countries are required to be local responsive, the influence of the headquarter over these subsidiaries is reduced and they are more autonomous. Thus, according to the authors, local responsiveness not only reduce MNE headquarter ability of coordinate actions with subsidiaries, but also reduce the effect of multimarket contact on competitive aggressiveness. This means that when the level of multimarket contact decreases, competitive aggressiveness increases. The reasoning is illustrated in Figure 4.

Figure 4: **Forces influencing competitive aggressiveness**



Source: Yu et al., (2009).

The main findings of this research are the following:

- when the headquarter holds a great percentage of subsidiary's equity and can exercise a great control and coordinate subsidiaries' actions, the influence of multimarket contact variable is strong and, consequently, competitive aggressiveness of that subsidiary is low;
- when the cultural distance between MNE's home country and host country is relevant, the effect of multimarket contact decrease, with the result of increasing competition;
- government restrictions to MNE operations can make it difficult and more complex to do business in the host country. For this reason, subsidiary tend to rely more on local

guidelines and to not follow headquarter' ones, such as mutual forbearance conditions. The result is that the level of competitive aggressiveness increases;

- when in a host country there is a strong presence of rivals, whose profits and competitive advantage is restricted only to that specific country and not to foreign countries, they have no interest in the benefits coming from mutual forbearance. They are not worried about retaliations of rivals in other countries and are not interested in any form of collusion coming from multimarket contacts. For this reason, the subsidiary has to face the locals' rivalry, by increasing its competitive aggressiveness (Yu et al., 2009).

Among the studies dealing with the forces which influence competitive aggressiveness, Nadkarni et al. (2016) have considered executive temporal depth and industry velocity. Competitive aggressiveness is represented by the number of competitive actions and the speed of these actions, intended as the time elapsing between focal firm's action and rivals' actions. Regarding the drivers of competitive aggressiveness, the first factor, executive temporal depth, refers to the time horizon adopted by executives when considering events that occurred in the past or may occur in the future. This variable is important because the time horizon used by executive can influence the strategy that will be adopted. It has two dimensions: past temporal depth (PTD) and future temporal depth (FTD):

- a) PTD reflects the extent to which executive look back in the past when evaluating past events. The positive aspect of a long PTD is the ability of having a broader view of what happened in the past and learning from it, while the negative side is that having a too long PTD may lead to look at past events and creating linkages with the present that are no more relevant, because the context is changed;
- b) FTD refers how far executive look at the future when considering their actions. A long FTD implies the ability of having a long-term approach, which allows to identifying aspects that are not visible in the present. On the contrary, a short FTD approach, lead to focus on short-term horizons and not properly identifying the future consequences of decisions.

The second factor considered is industry velocity. High velocity markets are markets where products introduction and technological innovations occur very frequently, it is more difficult to maintain competitive advantage. In this kind of industries, firms are continuously pushed to respond to rivals' actions, by introducing new products or by making strategic alliances. On the contrary, in low velocity markets, firms tend to have more time to make changes, to introduce new products or to develop new technologies. The hypothesis made by the authors are the

following: PTD and FTD are correlated to competitive aggressiveness in different ways, depending on the kind of market, if it is a high or low velocity market. The results of this research show that in low velocity market, when PTD increases, competitive aggressiveness increases too; while in high velocity market occurs the contrary: when PTD increases, competitive aggressiveness decreases. Regarding the second factor, FTD, results show that when FTD increases, competitive aggressiveness increases too. Thus, in low velocity industry, both PTD and FTD intensify competition. In high velocity industry, however, it has been demonstrated an inverted U-shaped between FTD and competitive aggressiveness: when future temporal depth is too low or too high, competitive aggressiveness is low, while with a medium term FTD, competitive aggressiveness is higher. The main finding of this research is that executive temporal approach contributes to shape competitive behaviours, depending on the kind of market (Nadkarni et al., 2016).

2. INFLUENCE OF THE INSTITUTIONAL CONTEXT ON COMPETITION

2.1. Introduction

This chapter deals with the influence that the institutional context, which characterizes every country, has on the level of competition among firms. The first part presents a brief overview of the institutional perspective in literature. The focus on institutions and how they interact with organizations has its roots in institutional economics and sociology. Over the years the institutional perspective brought together many areas of research whose interest is the interaction between economic actors and institutions. Nowadays, this discipline gain acceptance and it is a well-studied discipline in literature. Then, the second paragraph focuses more specifically on emerging countries. The institutional setting of emerging countries is a very interesting topic, which captures many authors' attention in the last years. Doing business in these countries is different and more complicated than doing business in developed countries. One of the reasons lies in the underdeveloped institutional setting that characterized emerging countries: institutional voids - imperfections in financial, product and labour market (Khanna and Yafeh, 2007) - afflict emerging countries. The frequent absence of a well-developed institutional context may represent an obstacle to do business in these countries, where informal institutions such as code of conducts or social norms, prevail on formal institutions, which are the laws and rules. Other features that characterize emerging countries are the role played by the government in regulating business activities and the changes and development of institutional context in the last years. Since all these features represent a great challenge for foreign firms, a paragraph focuses on the strategies to cope with the absence of institutions in emerging countries. Finally, the attention is paid to the relation between competition and institutional quality. In the literature there is not a consensus regarding the effect that the absence of institutions has on the intensity of competition. Some authors argue that in emerging countries the absence of well-developed institutions hinder the rivalry among firms, while others state that competition in emerging countries is strong as in developed countries.

2.2. Institutions

2.2.1. Institutional perspective

The previous chapter exposes researches dealing with the determinants of competitive intensity. The majority of drivers considered in these studies regard industry and firms' characteristics, such as barriers to entry, mergers, product differentiation, team heterogeneity or organizational slacks, just to name a few. However, there are also studies which consider the institutional context. Yu and Cannella (2007) and Yu et al (2009), when studying the forces which influence competitive aggressiveness, also consider the impact of host country government restrictions on MNEs. Thus, they considered factors which fall outside the industry or firm's perspective.

When strategic management born approximately forty years ago, in the eighties, the Five Forces Model by Porter assumed that firm's strategy, performance and competitive intensity depend on industry conditions. Later, in the nineties, Barney proposed the resource-based view, which considers the firms' peculiarities as determinants in influencing firms' actions. These two perspectives tend to consider institutions, laws, regulations, but also culture and norms, as the background, and they do not give much importance to their role in shaping competitive environment (Peng et al., 2008). Meyer et al. (2009) stated that scholars rarely explored the role played by institutions, legal and regulatory framework. Moreover, Yiu and Makino (2002), stated that those studies which consider only firms' and industries' features, most of the time assume also that institutional context is "constant or less important". However, institutional characteristics can create differences among firms operating in the same industry. Japanese electronics and automotive sector are very successful, and many believe that all Japanese firms are innovative and competitive. However, if we consider the pharmaceutical sector, among the more innovative firms around the world, none is from Japan. In Japan, indeed, pharmaceutical firms are not pushed to innovate and invest in R&D and the reason is merely institutional. The firms and the Ministry of Health discuss and decide together the drug prices. Once the price is decided, it cannot be increased anymore. This means that if price remains stable and costs, over the years, decrease thanks to economies of scale, the oldest drug are the one to obtain the highest margins and not the newest. This is why firms are not inclined to invest in new drugs: it is less convenient (Peng et al., 2009). Another example showing how institutional framework can influence the market is the conglomerate period which took place in US from the fifties to the seventies. The Celler-Kefauver law in 1950 made mergers in the same industries more difficult, because they were considered to be too much anticompetitive. The consequence was that a lot of companies started a process of diversification by acquiring

firms operating in other industries. This is how conglomerates are born. Deciding to grow by operating in many markets, which is what a conglomerate does, was not a managers' rationale choice, but the result of government's rules (Amatori and Colli, 2011).

In the strategic management literature, this attention to the institutions represent the institution-based view. This term has been first coined by Peng (2002) in order to identify all those researches dealing with the institutional framework. On the contrary, the attention to industry structure and firms' resource belong to industry-based view and resource-based view; this is how they are called in the strategic literature.

According to the institutional-based view, performance of firms depends not only on industry characteristics or firms' different capabilities, but institutions also influence performance. When firms decide to compete internationally, they have to know the "rule of the game", which are the rules, regulations but also norms and cultures that characterized countries. For example, a cost strategy that does not consider the rules of foreign countries, may be illegal: in the bookselling market of Japan price competition is not permitted. This means that an MNEs which ignores the host country's rules is going to be legally attacked. However, even the domestic market must be scrupulously studied, in order to cope with the "rules of the game". In 2008, Tata Group, an Indian group, decided to manufacturer its Tata Nano, the cheapest car in the world, in West Bengal. However, this strategy failed because it did not take into account the hostility of government and of those farmers in whose lands, the factory, producing these cars, established (Peng et al., 2009).

The attention to the institutions rises during the second part of the twenty century thanks to economists and sociologists (Peng et al. 2009). The study of how institutions affect organizations has its roots in Selznick's work, a sociologist who published in 1957 a book titled "Leadership in Administration" (Rottig, 2016). Since then, the study of institutions' effects has been very popular, particularly in the emerging countries' context and the way in which environment influences firms' activities has been studied more and more. Following White et al. (2019) 's literature review, in the last years scholars have started to adopt an institutional perspective: authors found out that those firms that pay attention to different institutional settings are more likely to better choice the best countries to invest in; others noticed that government influences firms in entering new markets and, moreover, good governance and well-developed policies for foreign firms is a good input to attract the investments of MNEs. Firms that do not comply with the regulations, norms, beliefs and culture may be penalized and lose the support of the society, leading to lose the competitive advantage and to obtain poor performances. Globerman and Shapiro's (2003) analysed "governance infrastructure", which

are “legislation, regulation, and legal systems that condition freedom of transacting, security of property rights, transparency of government and legal process”. Their study found out that good governance is necessary to receive U.S foreign direct investments and it is the main determinant in the amount of investments received. According to Ingram and Silverman (2002) institutions are responsible in determining firms’ competitive advantage. All these studies show that paying attention to the institutional framework is essential to do business around the world. As Khanna and Palepu (2005) stated, it is possible to note that the profitability and attractiveness in the same industry can deeply vary around the world: so this means that a market that is profitable in the domestic market, it is not necessarily in foreign countries. Thus, before analysing industry factors such the presence of entry barriers, the market growth or the level of product differentiation, CEOs and executives have first to study the institutional context.

2.2.2. Definition of institutions

As Buchanan (2020) notes, in literature there are many definitions of what an institution is. Even though finding the perfect definition of what an institution is it is not of great practical importance, it is useful to have a theoretical overview. North (1990), an institutional economist, defined institution as “the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction”. These are made of formal rules such as property rights and of informal rules such as traditions and codes of conduct. Thelen (1999), an historical institutionalist, defined institutions as “formal and informal procedures, routines, norms, and conventions”. Scott (1995), a sociologist, defined them as “regulative, normative, and cognitive structures and activities that provide stability and meaning to social behaviour”. Peng et al. (2009), relying on previous literature, proposed a division between formal and informal institutions. Formal institutions are laws, regulations and rules, which limit some behaviours and incentivize others and at the same time guarantee services such as regulatory organizations, capital and labour market and other fundamental infrastructures like utilities or transportation; while informal institutions, which are usually unwritten, are social norms, customs, codes of conducts, cultures and ethics, which all together determine what is socially acceptable. Chan et al. (2008) made a division between economic, political and social institutions:

- economic institutions regulate economic transactions and usually involve market intermediaries, such as investments banks, traders, consultants, auditors and brokers. Their role consists in informing actors involved in the transaction. These economic transactions are assisted by infrastructures, which can be divided into physical, human

and technological infrastructures. Physical infrastructures refer to all those services that are needed for economic transaction, such as financial or banking services. Human infrastructures include the system through which companies obtain information and knowledge such as a pool of skilled workers. Technological infrastructures include all those services linked to technology, such as the telecommunications.

- political institutions involve the government and all the policies it decides regarding areas like taxation, investments laws, constraints on foreign ownership, policies that encourage or discourage foreign direct investments. Political institutions should also guarantee law transparency, prevent corruption and promote the protection of intellectual property rights, in order to encourage the development of technological innovations.
- social institutions are the result of interactions between people which produce “recursive practice” and lead people to prefer some behaviours instead of others. This means that across countries there can be different beliefs and approaches toward work, ethics, what is wrong and what is not, trust and so on. For example, a low degree of trust among partners, increase the cost of doing business because a lot of time is spent in making sure the other part is respecting the contract.

2.3. Institutional voids

2.3.1. Emerging markets

The term “emerging market” has been first coined by the investment banker Antoin van Agtmael in 1981. Over the years, the literature has used different definitions. Emerging markets have been defined as all those markets different from the developed ones: first the developed markets are identified, and then, all that remains, are emerging markets. According to this view, if developed economies are the countries of the European Union and in addition, Iceland, Norway, Switzerland, then North America and finally Australia, Bermuda, Israel, Japan and New Zealand, all other countries are to be considered as emerging economies (OECD). According to the OECD emerging Markets Network countries of Africa, Asia and Latin America are to be considered as emerging markets (Rottig, 2016). Other criteria used include GDP levels, poverty levels, growth forecast. However, the most important thing to consider is the fact that nowadays emerging markets represent important countries for investments, new consumers and trade (Gao et al., 2017).

From an institutional perspective, emerging markets are characterized by unique institutional features. According to Khanna and Palepu (1997) in emerging markets, intermediaries, which connected parties to do business, are missing. Some examples of these intermediaries are credit ratings agencies, banks or labour unions. The absence of these intermediaries makes transactions more difficult and uncertain. According to Gao et al. (2017), emerging markets are those markets where there are institutional voids, while in developed countries they are inexistent. Institutional voids are better explained in the paragraph “2.3.2. *Institutional voids framework*”.

As previously reported, institutions can be divided between formal and informal institutions. In the context of emerging markets, where usually formal institutions are not well-developed and where efficient market intermediaries are absent, informal institutions are very important and frequently end up replacing formal institutions. Informal institutions can be local provider of services that are available only to a limited number of market members, not to all. For example, in a developed country, a formal market intermediary is represented by the realtors. In India, however, this kind of market does not exist, and it is based on people who communicate to their community the availability of new houses. In India, the same happens in the capital market. Providers of loans provide capitals basing on a network of social relationships, instead of relying on a structured credit market. Even when they have to receive the refund, they use pressure mechanisms because no contract enforcement exists or are not well-developed. Thus, it can be argued that in emerging markets the informal institutional sphere prevails on the formal one. This is the main difference between developed and developing countries from an institutional point of view (Rottig, 2016). As London and Hart (2004) note “social contracts” and “social institutions” prevail in emerging economies. Business activities, indeed, are based on social, not legal, contracts and MNE that leverage on these ties also obtain the best performances. An example is represented by micro-loans programs designed for poor populations. Regarding the payback, peer stress turns out to be the best solution to have money back: this work well in this kind of societies, but in developed contexts would be inapplicable (London and Hart, 2004).

Another aspect that characterized emerging markets is the role played by the government. In developed countries, the government usually plays a marginal role in business activities. On the contrary, in emerging markets it usually exerts a strong influence. It can affect firms’ strategies, decisions and actions. This means that when MNEs enter a new market, they have also to consider this influence. It may be possible, for example, that MNEs have to collaborate with state-owned organizations. It is also true that some countries impose

regulations that increase the costs of doing business. For example, in India and China, governments are known to impose price ceiling to some products: this obviously put MNEs at a disadvantage. Moreover, government can also influence the access to capital, resources or raw materials. In China, State Owned Enterprises (SOEs) receive more benefits from the government compared to non-SOE, like for example tax incentives or subsidies. All these benefits are counterbalanced by frequent interferences with business activities. Indeed, government or government related organizations held a high number of shares of SOEs. Senior managers are usually hired and fired by the government. Moreover, SOEs pursue government's political and economic goals. The Chinese government indeed relies on SOEs to guarantee employment, insurance and pensions and invest in these firms in order to promote the Chinese economics' growth (Noh and Shin, 2018).

Emerging markets are then characterized by changes in the institutional context and transitions. Regarding the first aspect, in developed economies institutions also change, but in a different way. In developed economies, institutions' changes are usually foreseeable and certain. On the contrary, in emerging markets these changes are usually more unexpected and MNEs can have difficulties in managing them. Regarding the second aspect, transitions, this is more typical in developing countries. In the literature, "institutional transitions" refer to political and economic events that have led to, for example, from a totalitarianism to a democracy, from government-dependent economies to free markets. Some practical examples of transitioning economies are some countries of Eastern Europe, which become democracies after a long period under the Soviet Union influence. Moreover, these transitions usually lead to the development of institutions and political and economic infrastructures which support market activities. Thus, unpredictable institution changes and transitions are a peculiarity of emerging markets (Rottig, 2016).

2.3.2. Institutional voids framework

Among the various themes related to institutions, institutional voids represent an interesting issue, particularly in emerging markets. One of the aspects that firms competing globally have to consider is that they have to adapt to the different institutional contexts. As Khanna and Palepu (1997) underlined, managers and executive of Western companies tend to believe that the markets, in which they will compete, are similar from an institutional point of view to their domestic market. Indeed, they tend to assume that they will find the same network of institutions supporting them. But this is not true, because in many countries and areas around the world, these institutions do not exist. The problem is that in the developed countries,

institutions tend to be given for granted and not be appreciated. In developed countries, in fact, institutions supporting market work well and are almost unseen; while, in emerging markets where the institutional structure is often bad and inefficient, the lack of a good and efficient institutional structure is more evident. When market-supporting institutions are not present, there is the risk that property rights are not respected, that externalities are not taken into account, that competition is not promoted and that there is asymmetry information. A market which greatly relies on institutions is the equity market: since the asymmetry of information between investors and managers of listed companies is very high, only a good and complete set of rules which safeguard investors can encourage the latter to invest in these firms. This means that without the proper system of rules, firms in emerging markets may fail to raise investments. Moreover, it may be argued that, market-supporting institutions allow reducing transaction costs between buyers and sellers, which are all those costs, in terms of money and time, related to making comparison between partners, choosing the right partners, creating agreements with partners and so on (McMillan, 2017). Institutions are useful also to enforce contracts and in emerging economies most of the time these mechanisms to enforce contracts are absent. In western economies, when firms make arrangements between each other, they know they are protected by the law and the judicial system if the partner breaks the contract: this means that doing business is safer and easier. However, in developing countries, the judicial system is not always very efficient, and the risk of not being safeguarded by the law is high. A solution is doing business with big groups, the conglomerates. Partners, suppliers and customers are more likely to trust these groups, whose reputation has been created over the years: these groups indeed have every interest in fulfilling all the contracts, because the misbehaviour of one company can ruin the reputation of another's one within the same group.

Taking for granted the presence of an institutional structure in all countries, in particular in the emerging ones, is not the best approach. This because of the existence of institutional voids. "Institutional voids" has first been coined by Khanna and Palepu (1997). They occur when institutions are absent, inefficient or not well-developed and do not support market activities, operations and transactions. Some practical examples of institutional voids are inadequate intellectual property rights' protection, which do not allow firms to gain value from their innovations, corruption, political uncertainty, inefficient bureaucracy or absence of transparency, weak contract enforcement and non-availability of information needed to make investments. Lack of fundamental infrastructures such as communication, utilities and transport services can be also considered an institutional void (Doh et al., 2017; Peng et al., 2017; Kinglsey and Graham, 2017; Rottig, 2016; Khanna and Palepu, 1997).

According to Khanna and Palepu (2005), emerging markets are characterized by the presence of institutional voids in many areas, from product market to capital market and many others. In order to understand the institutional context, they have developed the “five-context-framework”, which means that the product, capital and labour markets and the political and social systems and openness are considered:

- in the case of product market, there are three problems that affect the relationship between buyers and sellers in emerging markets. The first problem regard communication: poor wireless services and postal, power shortages that make means of telecommunication inefficient and high levels of illiteracy make the communication between a buyer and a seller very problematic. Second, even if buyers and sellers are able to communicate, there is no way to be sure that the affirmations made by the seller or the buyer are true. External organizations or agencies which provide reliable information about products and sellers are rare. Third, if products do not correspond to the premises, it is very difficult to be reimbursed or to use a redress mechanism. The consequence of this situation is that firms in emerging markets have to face far higher costs to create their brand awareness and solid reputation. This means that once the incumbents establish in the market and are able to exploit the reputation they have built, it is very difficult for new firms to enter the market. The result is that incumbents obtain a lot of power. Conglomerates, which have a good reputation of offering good quality products, are more facilitated to enter new business, even if they are not correlated to their principal line of business. Korean chaebols are an example of these conglomerates. They use their group name to enter any new business. Samsung is one of them. Its principal line of business is the one of mobile phones, but it uses its name and reputation to advertise and promote even televisions or microwave ovens (Khanna and Palepu, 1997,2005).
- The other market where institutional voids can exist are capital markets. As previously explained, asymmetry information between investors and firms listed may hinder business and investments. Indeed, when the availability of information is scarce and not reliable, investors may be reluctant to put their money in unknown companies. In developed countries, this problem is usually solved thanks to the existence of a mechanism that safeguard investors: examples are reliable financial reporting, reports made by independent analysts, intermediaries like merchant bankers or venture capital firms and bodies such as the Securities and Exchange Commission that make it difficult to mislead naïve investors. The difference with emerging markets, where these

institutions are often absent, is that in developed countries, since investors are more safeguarded, also small companies and start-ups are able to raise money. In emerging countries, on the contrary, it is more likely that only big groups, such as conglomerates, which can rely on their reputation, are trusted by investors and they are the only ones to be able to access capital markets, at the expenses of smaller firms. In US, where even small firms can benefit from investments, the majority of firms operating in internet-related markets are start-up. On the contrary, in Asia, this market is dominated by established conglomerates, which raise financing and investments more easily (Peng et al., 2002).

- Institutional voids occur also in the labour market. The first problem to consider is that for MNE it is difficult to find well-trained workers and managers. Moreover, few high-quality business schools exist. The consequence is that many big groups in the emerging countries have their internal management programs, that serve to improve the managerial skills. There are also groups, such as the Malaysian conglomerate Sime Darby, that offer training programs not only for managers, but also to all employees, of every level. Some Korean chaebols have created training programs together with the best American business schools. Secondly, the labour market in emerging countries, can be very rigid and may be difficult to fire employees, also because of the absence of government support for fired people. The big groups solve this problem by moving one employee from a company to another within the same group. Moreover, business groups are also very good at recognizing and relocating their talents where they are more required by exploiting their skills and knowledges. For example, the Wipro Group, and Indian conglomerate, was able to move from the computer market to financial service's one by using their engineers' capabilities. However, for smaller and independent firms it is harder to do so, because they do not have a pool of talents where recruiting, but they have to look for talents in the market: it is harder than it looks because the quality of employees' education can deeply vary and certifications from high-quality universities and training institutions are scarce. This is another proof of the fact that in these countries smaller and not affiliated firms are disadvantaged compared to big groups.
- The other context to consider when entering a new market is the political and social system. It affects products, labour and capital markets. In China, for example, it is forbidden to create independent trade unions: this obviously affect the quality of Chinese jobs and wages. In China, indeed, there is only one permitted trade union which

is called the All-China Federation of Trade Unions. It is managed and supervised by the Chinese government. Over the years, it has been accused of having protected more the firms' interests than the employees' interests (Ghorbani et al, 2019). Khanna and Palepu reported that in the year 2000, in India, firms were obliged to ask the government the permission for many decisions, such as setting a new price, exiting the market, importing raw materials.

- The last aspect to consider in order to picture the institutional context is the degree of openness of economies. More open the economy of a country is, the easier it is to enter that market, because it is more inclined to accept foreign direct investments. When evaluating the degree of openness of an economy it is important to not be misled. For example, executives may believe that Chinese economy is open because it is very inclined to welcome foreign direct investments, while India is more closed. However, even if investing in China may be easier than investing in India, China has prohibited its citizens to travel freely for many years and ideas are, even today, filtered by the Chinese government. On the contrary, in India, managers are more open to the external world. Moreover, the openness of a country affects also the role played by intermediaries. More open a country is, more available it will be to accept global and foreign intermediaries (Khanna and Palepu, 1997).

Khoury and Hitt (2019) distinguished between formal and informal institutional voids. The first are the more studied in literature and are what have been described so far. As previously reported, they occur every time that formal institutions are absent or inefficient. However, according to the authors, informal institutional voids also exist and deserve due attention. They represent the failure of social norms, value and beliefs to efficiently support business activities: this happens, for example, when access to financing, credit or resources are not guaranteed even by social relationships that govern emerging countries. It does not mean that a society is devoid of social norms, beliefs or values, but it means that they are not able to guarantee the functioning of business activities. For example, in societies where there are castes or patriarchal systems, a certain member of the society may be discriminated and left out from economic activities and put at a disadvantage. In some countries, women are discriminated and do not have access to credit: this creates an obstacle for women who want to be entrepreneurs. Moreover, in many emerging countries, women do not receive an education, and this again increase their inability to initiate business activities. An informal institutional void also occurs when the society allows a certain elite, such as clan leaders, to misallocate resource and to act

in a way that do not favour the entire population but only the elite's interests. Even lack of trust in society can be considered a void. They may arise, for example, because of cases of corruption which lead people to underestimate the value of doing business legally. Also, a lack of trust in foreign people may hamper economic activities and reduce the opportunity of creating social cohesion and collaboration. The absence of an institutional context however does not always mean that doing business is hard. As Peng et al. (2008,2009) reported, in literature many scholars have argued that a well-developed institutional context is the basis for the economic development of a country. However, one may argue that there are countries, like China, that, despite a poor institutional framework, have been able to grow rapidly in the last three decades. A possible answer is the existence of interpersonal network: despite the lack of institutional mechanism to do business, firms tend to rely on informal relationships and network strategies. In China these networks are called "guanxi", in Russia "blat" and in Latin America "compadre". They exist in Indonesia, India, Poland, Hungary, Czech Republic, South Korea and Argentina. They are ties between managers and social connections that represent a network of alliances and are based on trust. Furthermore, they represent the usual way of doing business in China and other countries and most of the time relying on this network of ties is the only way that foreign but also domestic firms have to survive. They allow to have access to scarce resources, to information, to achieve better performance and to create better relationships with suppliers and customers. In China, ties are not only between managers, the business ties, but also between government officials, the government ties. For example, Microsoft in China has been able to enhance its relationships with media and people, only after huge investments to create strong ties with the Chinese ministries. A European insurance company had to organize ten travel to China in three years to obtain the licence to operate in China. According to Li et al. (2008), however, the degree to which firms are able to gain value from these ties differ among domestic and foreign firms: since foreign firms do not have an extensive knowledge of the predominant social and political interactions, of how building lasting ties, they will be treated in different ways compared to domestic firms and the value they will obtain will be lower. What is certain is that in emerging countries, managers are forced to rely on these personal ties in order to substitute the missing institutional mechanisms. However, the more the institutions evolve, the fewer firms rely on these informal networks and the more on institutions.

2.3.3. Institutional voids and strategies

Low-quality institutions and institutional voids represent a great problem not only for local firms, but also for MNEs which want to enter developing countries. Indeed, when firms enter

and do business in foreign countries, they have to recognize the possibility that institutional voids exist. Once the institutional voids are identified, firms have to reorganize their strategy and adapt to the new institutional framework. According to Khanna et al. (2005) firms can pursue three different strategies: they can adapt to the new context, change the context or avoid some countries. Doh et al. (2017) stated that these are the three more proposed strategies in the literature.

The first strategy implies that firms which have to face institutional voids, decide to change their usual strategy and adapt it to the new context. Thus, firms should change some aspects of their business model. Khanna et al. (2005), however, suggested that firms should try to maintain their core activities: extreme changes may lead firms to lose their competitive advantage. An example of strategy adaptation is represented by Dell's different business model in China and the United States. In the US computers are usually sent directly to the buyer. Indeed, in the US, Dell usually does not rely on distributors: its strength, indeed, comes from the ability of not relying, or at least relying on a small extent, on inventories. On the contrary, in China, they adopted a different strategy because Chinese customers are not used to buy computers online and using credit cards and people want to see the product before buying it. Moreover, the Chinese government wanted the hardware vendors to make their proposals through system integrators. For this reason, in China, Dell relies on distributors (Lee et al., 2005). According to Doh et al. (2017), this strategy is the most studied one in the literature. Adapting the business model to the institutional context is a strategy that also domestic firms in emerging markets follow. Particularly, many authors focused on the role played by business groups in emerging markets. Since institutional intermediaries, essential for the functioning of firms, are usually absent in these countries, local firms can affiliate with business groups in order to have access and share their material and financial resources (Chang and Hong, 2000). The adaptability has three different dimensions:

- political adaptability: understanding the role played by local government is essential to enter an emerging country. First it is important to understand what the government demands and its legislation, and then it is also important to obtain local government support and trust. A solution could be creating ties with state-owned companies. Another solution could be establishing the business operations in the emerging country, hiring locals and buying from local suppliers. By doing so, the MNE shows the local government its commitment to do business in that country. Moreover, MNEs have also to consider the fact that in emerging markets, the governments exert a greater influence

on organizations than in developed countries. It is possible, indeed, that new regulation that are favourable only for local firms, at the expense of MNEs (Rottig, 2016).

- **Economic adaptability:** doing business in foreign countries is different from doing it in the domestic country. Especially, in emerging countries, where social ties and network relationships play a key role. These relations allow to have access to essential knowledges and resources. Hiring local manager is the best strategy to enter these relations. However, MNEs when entering new countries, usually underestimate the advantages of giving leadership to local managers and prefer sending expatriate to manage subsidiaries. However, local people have a deeper knowledge of the local institutional and market environment and know how enter social networks, which are very important in these kinds of markets (Law et al., 2009). Then another aspect to consider is that even if rapid expansion seems good at first, it also implies hiring fast a lot of people without having the time of training these people, monitoring them and ending up with low-quality employees performance, bad customer service and so on. Thus, this is an aspect to consider and to manage at best.
- **Social adaptability:** understanding the importance of social institutions and who are the main stakeholders is one of the first steps to succeed in foreign countries. The stakeholders are not only the host government, but also local business partners and organizations, labour unions, the media, the employees and the customers. Having their support is fundamental to succeed in an emerging country. Becoming a member of big business groups, such as the *guanxi* in China, is a good solution to create ties with local stakeholders (Rottig, 2016). Regarding local business partner, MNEs do not have to make the mistake of relying only on traditional partners in emerging low-income states. Traditional local partners are a minority of individuals and organizations that do business in a manner similar to partners in developed economies: these partners adhere to the formal network of institutions, on regulations and formal rules, know and appreciate the capitalistic system. Some examples are large domestic firms or state-owned organizations. However, London and Hart (2004) highlight that the latter usually serve only a small part of the population, the elite, which is usually located in the big cities, while the rest of the population is left out. Thus, a solution could be use non-traditional partners such as non-profit organizations or community groups, which have a strong knowledge of the local context and can offer useful insights to target the right customers, suppliers and so on.

The second strategy that can be adopted consists in changing the context by creating new conditions or adjusting local characteristics. MNEs, indeed, have the power to change local deficiencies by offering products and services that change completely the local market. An example is given by Khanna et al. (2005). In the Brazilian capital market, one may argue that the related institutional context is not well-developed. However, over the last decades, many MNEs have decided to establish subsidiaries in Brazil and they needed reliable audit services, since there were not high-quality Brazilian accounting firms. For this reason, the big Four accounting firms, which are Ernst & Young, Deloitte, KPMG and PWC, decided to expand their business there by opening branches in Brazil. In doing so, the presence of these firms filled an institutional void, the financial reporting services.

The third strategy entails not doing business in emerging markets. When adapting the business model and the strategy to the developing market is useless or impossible to do or the costs of doing so are too high, the best solution is avoiding that country (Khanna et al., 2005). MNEs in emerging markets can, however, focusing on how to exploit these unstable institutions. Instead of focusing on the institutional gaps and the obstacles that this entails and trying to adapt the business model to the institutional context, they can benefit from institutional arbitrage, which is the use of institutional differences across countries. Ghemawat (2003) defined arbitrage as “the strategy of differences”. Rottig (2016) distinguished between formal and informal institutional arbitrage. The first refers to the exploitation of differences related to regulations and laws. For example, a firm may decide to locate its operations and business activities in a country where taxes are lower; or it may decide to exploit different environmental regulations to produce in a certain way in a foreign country. Another famous example of arbitrage is taking advantage of cheap labour: this is what happens in labour-intensive industries like the fashion market. There is then informal institutional arbitrage. They may refer to cultural differences that give MNEs a competitive advantage in the host countries. For example, firms in the wine or perfume market have used and continue to use the image that people have of the French culture in order to export these products abroad, even in emerging countries. American fast-food chains succeed in emerging countries because American culture is very popular and well-accepted in these countries. These cultural characteristics represent something new and exotic in emerging countries, where the growing wealthy class see these products as a symbol of change and transition to a better world and may be a source of competitive advantage (Ghemawat, 2003).

Then there are other practical examples of responses to institutional voids. Peng and Pinkham (2017) study deals with the institutional voids that international firms face when trying

to create joint venture with partners in the emerging market. One of the strategies that MNEs adopt to enter a new market is by creating joint ventures with local firms. The problem is that the institution of the host market in emerging countries are often not well-developed. When the institutional intermediaries related to contract-enforcement activities are not strong, there is the risk that the costs to create the joint venture will increase. Particularly, transaction costs will increase. The literature regarding joint-ventures contracts usually assume that the laws adopted are the ones of the host country. However, if the institutional quality of the host country is low, firms can solve the problem through “institutional borrowing”. Institutional borrowing refers to the adoption of institutions outside the domestic market. For example, by relying on domestic court or on sort of international court specific to deal with these cases. In other words, instead of using the host country’s institutions, the MNE uses another country’s institutions. This will allow reducing transaction costs: the enforcement costs, the costs related to determine that each part respects the contract, and to reduce also the search costs, costs of looking for the best partner and the negotiation costs, the costs of bargaining the best option for both parties.

One of the markets where institutional voids may emerge is the capital market. When stock markets are efficient there is no information asymmetry between buyers and sellers and the flow of information to investors is useful to make good investments. On the contrary, when the stock market is inefficient and not well-developed there is more asymmetry information, lack of fundamental information and the transaction costs increase dramatically. Particularly, they focused on M&A deal abandonments. Every year many M&A are not completed even after being publicly announced. The reason may be that new information or problems arise. As the authors report, it has been found a relation between M&A abandonments and institutional development: in the United Kingdom and in the United States, where institutions work well, the number of abandonments is lower than the number in emerging countries. From 2000 to 2014 the rate of deal abandonment in UK was 1.9% and in US was of 2.8%, while in China was about 7.8%. The completion rate was 87.2% for the United Kingdom and 81.7% for the United States, while in China the completion of M&A abandonment was about 44.9% (Doh et al., 2017). However, Kim and Song (2016) found out that the level of institutional development in emerging countries affect M&A deal abandonments only when host country’ firms are not affiliated to a business group. Business group, indeed, provide internally the necessary information to make M&A with the group-affiliated companies. As previously reported, Khanna and Palepu stated that a solution is doing business with these kinds of firms. This is the same suggestion made by Kim and Song. However, they also suggest that governments wanting

to promote investments toward independent firms, should invest in the improvement of capital market institutions.

Another example is presented in Kingsley and Graham's study (2017). They analysed a specific kind of institutional void: the information voids. They represent the absence and inadequacy of information for firms which want to invest in another country. Furthermore, they arise when institutional intermediaries are not able to provide the information needed to reduce uncertainty and encourage flows of investments from foreign investors. This happens when the government does not provide information regard the level of employment, the level of inflation, the economic growth and so on; or when third-party analysts do not work well and do not provide to investors the necessary information. According to the authors, in order to overcome these information voids, firms may rely on their internal knowledge. This strategy is called substitution strategy. Since public information about the host country where investments are directed are not available, firms use their private information about the climate of the host country. Private knowledge comes from the experience of firms, generally MNEs, from their expertise and the know-how developed over the years. However, if information voids are too large, the substitution strategy can be impractical, it may be impossible to make good investments choices, and the only solution is not investing in that country.

So far, all the responses to institutional voids are market responses. El-Ghoul et al. (2017) provided a non-market solution to fill the gap of institutions. Indeed, they argue that Corporate Social Responsibility initiatives can be of great value for firms in emerging countries. They stated that CSR activities can be useful to improve reputation, trust, attract new customers, to access necessary resources and obtain stakeholders' support. Finally, these activities are useful to reduce transaction costs. This is the reason why, according to the authors, CSR is of great value in those countries where the absence of institutions increases the transaction costs between parties. Indeed, since raising external investments is difficult, because external firms suffer from asymmetry information, CSR may increase credibility and transparency of firms in emerging countries. Similar to the previous research, even Marano et al. (2017) studied the role of CSR activities in emerging countries. Particularly, they focused on the MNEs whose country of origin is an emerging country. According to Luo and Tung (2007), one of the strategies that firms and in particular MNE can adopt if in their home country there are not well-developed institutions and the market is inefficient is expanding over the national border. Internationalizing, indeed, offer the opportunity of entering markets where there are high-quality institutions. However, Marano et al. (2017) argued that when these firms internationalize, they face the so-called "liabilities of origin". In other words, they suffer from

stereotypes and negative impressions. Through Corporate Social Responsibility they can communicate their commitment to environmental safety and to product and service quality, to anti-corruption conducts, their respect of human rights and so on. This will allow the MNE to overcome the negative image, coming from the country of origin, in host countries. Even though a trustworthy government and institutions are absent, stakeholders can rely on these CSR activities and reports (Marano et al, 2017). Another strategy that firms coming from emerging markets with not well-developed institutions can adopt is to create alliances with foreign MNEs whose country of origin has efficient and good institutions. The firm of the emerging market can benefit from MNE's technologies and financial resources and, in exchange, the local firm gives insights regarding the local market. It has been demonstrated that the local firm, by doing so, improve its profits, the efficiency of its processes and obtain a competitive advantage over its local rivals (Siegel, 2009).

2.4. Institutions and competition

Peng et al. (2009) suggested that one of the areas of study in literature should be the role played by institutional framework in influencing competition and collusion. Thus, a question that could be addressed is the following: how institutions affect competition.

First, competition may be influenced by policies adopted by governments. As Chacar and Vissa (2005) claimed, institutions influence the level of competitive intensity. For example, firms may face a higher level of competition after the adoption of an antitrust law that makes it costly to collude. Dobbin and Dowd (1997) studied how government policies in Massachusetts affect the railroad industry and its level of competition from 1825 and 1922. They sustained that public policy structure shape the competitive environment. Over a period of almost one hundred years, three different policy regimes have occurred. The first period, from 1825 to 1871, was characterized by a great government participation in economic activities. The State used public funds to promote private organizations whose services would be benefited by the entire community, such as the founding of railroads. However, this period ended when a corruption scandal related to state aids to the creation of railroads, hit Massachusetts. Moreover, it also emerged that state aids and public contribution were double the resource that actually were needed. Thus, this period was characterized by a rising in the number of railroads, far ahead of the actual demand and low level of competition. The second period, the one from 1872 to 1896, was characterized by pro-cartel policies. The authors report that in America, every railroad joined cartels during those years. Cartels were encouraged in part by the introduction

of rules which fostered price competition and in part by government request for cooperation between railroads. In particular, in Massachusetts the “short-haul law” of 1871 prohibited to impose higher price for short-distance routes than for longer ones. Thus, railroads firms, in order to not lose profits and money, entered the cartels. The result was a period with low level of competition between railroads, during which entrepreneurs believed that the market was constant, certain and easy to predict. The third and last period, from 1897 to 1922, was defined by the Antitrust regime. In 1897, the American supreme court emitted The Sherman Antitrust Act, which had the aim of prohibiting anticompetitive agreements and cartels and anything that hinder competition. Even though the railroad industry tried to invalidate the act, in the end it started a period of fierce competition between railroads, since fixing price became illegal.

Another aspect that can affect competition from an institutional point of view is the domestic market’s opening to foreign firms. Nguyen et al. (2018) focused on trade openness in emerging countries. They studied the impact of institutional quality on twenty-nine emerging countries from 2002 to 2015. They found out that, as institutional quality improves in an emerging country, the uncertainties and ambiguities related to doing business in that countries decrease: this happens because contract enforcement becomes more effective as well as the protection of intellectual property rights. The consequence is that foreign firms are more favoured and encouraged in doing business in these countries. Thus, one of the results of better-quality institutions is increasing trade openness and, consequently, making foreign competition fiercer. Indeed, foreign competition, brought by trade openness, increases domestic competition by forcing domestic firms to compete not only with locals but also with other rivals from other countries, usually from developed countries. Thus, domestic firms are forced to innovate and be more efficient in order to be competitive and not to succumb to foreign firms. As Chakrabarti and Mondal (2017) argued, trade openness is favoured and promoted by pro-market reforms. Indeed, they may help to weaken trade barriers in emerging markets and to encourage MNEs to do business in these countries. They also reduce the role played by the government in influencing business activities, reduce trade barriers and eradicate imperfections in commodity and factor market (Banalieva et al., 2015). These reforms help new firms to enter the market with the consequence of increasing the intensity of competition. These pro-market reforms can be of various types. The underlying objective is changing the laws and regulations in order to favour the right functioning of the market and business activities with the aim of increasing the country’s economic growth. In India these reforms, from 1991 to 2012, have regarded the improvement of labour and capital market and the creation of better regulatory bodies (Nguyen et al., 2018). They represent an example of institutional change. As Khanna and Palepu (2005)

noted, in emerging markets, institutional voids emerge in capital, labour and product markets. According to Cazorra and Dau (2009), when governments in emerging countries adopt these reforms, the quality and development of capital, product and labour market improve. For example, in the labour market these reforms may aim to weaken the rigid limitations related to hiring and firing employees; in the capital market, these reforms may lead to the creation of stronger and more effective regulatory agencies that monitor and check managers' and executives' misbehaviours in order to protect investors, that promote transparency among firms and that guarantee contract enforcement among parties; in the product market, similarly, reforms may lead to the abolishment of measures that prevent firms from being competitive, of restrictions on imports and foreign investments. One of the aims of these reforms is improving the institutional quality by strengthening market intermediaries and regulations. According to the authors, the result is that, once the institutional quality increases, the competition increases. The reason is that firms have to face new competitors, mainly foreign competitors attracted by the improvement of market intermediaries and regulations. Thus, Cazorra and Dau (2009) also believe that improvement of institutional quality in emerging markets lead to an opening toward foreign competitors, with the consequence of increasing the competition in the emerging markets. Indeed, countries with a high level of institutional development are usually characterized by rule of law, intellectual property rights protection, contract enforcements, pro-market regulations, low level of corruption: these are all conditions which favour the entry and investments of foreign firms (Shinkle and McCann, 2014).

One of the aspects to consider when evaluating the institutional developments of a country is the level of corruption, which is an institutional void. As Sequeira and Djankov (2010) suggested, corruption can be coercive or collusive. The first kind of corruption is also called cost-increasing corruption. It occurs when officials forced firms to make additional payments. Firms, in order not to lose everything and have access to the public services, prefer to pay: for example, this is what happened with the protection racket. Only the official, who asks for the payment, benefits from this payment, because the firm obtain nothing in exchange. (Sequeira and Djankov, 2010). According to Alexeev and Song (2013), the relation between coercive corruption and competition is dubious and unclear. The second kind of corruption, collusive corruption, is represented by the following situations: a tax inspector may decide to tolerate the underestimation of obligations and taxes that a company has to pay, in exchange for a bribe. It is what happens in Maputo, Mozambique, where firms pay bribes to officials in order to avoid high tariffs. Similarly, a health inspector can turn a blind eye to all the insects in a kitchen of a restaurant and in exchange he will receive an illegal payment by the restaurant's

owners. The reason why these corrupt payments exist is that the corrupt official, such as the tax or health inspector, can reduce the costs that the shop or the restaurant have to sustain in exchange for a payment, which is lower than what they should actually pay in case of an insects disinfestation or if tax would not be underestimated. This corruption is called collusive or cost-reducing corruption (Bliss and Di Tella, 1997). Both parties benefit from these illegal payments. The relation between competition and corruption is complex and depends on the kind of corruption. According to Alexeev and Song (2013), collusive corruption is related to higher competition. Even though a common assumption in literature is that a strong market competition is usually correlated with low level of corruption, the authors suggest that, when corruption is collusive, it can be related to higher level of product competition. They measure corruption by relying on the World Bank's Productivity and the Investments Climate Private Enterprise Survey: they use the share of sales that firms "similar to respondents pay to public officials...to get things done". The responses to this survey are from thousands of firms across many countries from 2000 to 2005 and the market analysed is the manufacturing sector. Competition is measured by using five different methods: number of competitors, HHI, mark-up on operating costs, market share, hypothetical firms' reactions to rival' increase of price. What emerged from the empirical analysis is that there is not any negative relationship between competition and corruption: indeed, the final result suggests that firms operating in the more competitive environment are also those which pay more in bribes. Even though this relationship is not always very strong and statically significant, nothing seems to suggest the inverse relationship. Similarly, Shleifer and Vishny (1993) argued that corruption may be higher in highly competitive environments, because firms, in order to increase their competitive advantage more and more, end up relying on corruption to improve their competitive position. Alexeev and Song said that the reason why different results emerged compared to other authors' researches, which suggested that corruption is linked to low levels of competition, may be that, in their research, they use firm-level information to develop a picture of the level of corruption around the world, while previous studies have used country-based information to identify the extent to which corruption pervades a country. Moreover, the authors recognize that relying on a survey on corruption responses can be biased. First, as suggested and demonstrated by previous researches (Jensen et al. 2007), in countries with low level of political freedom, the percentage of people who respond to surveys is lower compared to countries with higher political freedom; second, people of these countries tend to declare that the level of corruption is lower compared to the actual data suggested by the World Governance Indicators. These results go against the result found by other authors, such as Ades and Di Tella (1999) and

Emerson (2006), who found a negative relationship between corruption and competition. The first two authors, Ades and Di Tella (1999), found out that in those countries where firms do not face foreign competition because of natural or political induced barriers to entry, or where markets are dominated by few firms or antitrust laws are not very efficient, corruption is higher. In their statistical analysis, however, they studied the impact that competition has on corruption and they discovered that competition decrease corruption. They test reverse causality, the impact that corruption has on competition. Indeed, as Bologna stated, the “direction of causality likely runs both ways”. Anyway, the final result shows that competition is lower where corruption is higher.

Emerson (2006) found the same result, but he studied the impact that corruption has on competition. The main finding of his research is that the higher the level of corruption, the lower the level of competitive intensity between firms. He developed a model where officials ask bribes to firms and in exchange firms can avoid some costs, these bribes represent a way for these firms to gain competitive advantage compared to other firms which do not pay bribes. This happens because corrupted firms gain benefits from paying bribes. However, if bribes are asked from too many firms or are too large, the officials are likely to be discovered and lose all their profits. This happens because if bribes are too large, harder it will be to cover them, or because bribes are asked from too many firms and when corruption is well spread over the society, it will be detected easier. So, it is in officials’ interest to reduce the number of firms until the point to which they can maximize their profits. If there are few firms in the market, their profits will be very high and this is the best option for the officials, while when there are a lot of firms their profits usually decrease, with the consequence that the value of bribes that can be asked diminish. In other words, the official will try to reduce the number of firms that can operate in the market in order to reduce the competition: the consequence is that firms’ profits will increase and the value of bribes that can be demanded will increase too. However, according to Bliss and Di Tella (1997), there are difference across industries. In those markets where competition is not very strong because there are few firms that have to face high fixed costs, profits tend to be lower and this means that also bribes are lower: in these situations, corruption may be less intense even though the competitive intensity is not very high. In Emerson’s model, competition, which is measured as the level of competitiveness in a country, is a function of corruption. The model indeed suggests that competition is determined also by the level of corruption in a country. In this model competition is also a function of other variables: gross national product, foreign direct investments and the physical size of a country. Since data to calculate Herfindahl indexes or other index suggested by theory are not available,

the authors used data from World Economic Forum's Global Competitiveness Report 2001 and The Heritage Foundation's 2001 Index of Economic Freedom, even if they recognize the limitation of using these sources. Corruption is measured by using three proxies: the level of civil liberties, the investments in education and the rate of enrolment in primary and secondary school. The data to calculate corruption variables come from the World Audit Organization, Transparency International and the World Bank. Higher the value of these three variables, the higher the freedom of people of a country to report and denounce corruption and the more people are educated, the more are able to recognize corruption.

Bologna (2017) studied the relationship between institutional environment, corruption and competition. As the authors noted, previous researches studying the relationship between product competition and corruption have assumed that there is a negative relationship between these two elements: this means that when corruption is high, competition is low. The underlying reasoning of his research is that when corruption exists, it manifests itself as corrupted officials and workers who try to decrease competition in order to increase profits and, consequently, to increase the amount they can extort from firms' profits. However, Bologna, in this research, following Alexeev and Song's findings, suggested that there can be a positive relationship between corruption and competition, and this relationship depends on the institutional context. He argued that corruption can facilitate entrepreneurial activities when institutional development is low, but can also reduce entrepreneurial activities indirectly, for example by increasing uncertainty. Moreover, there is the risk that when an increase in corruption lead government to increase regulations and policies and, in the end, corruption increase even more to avoid the burden of these regulations. Indeed, in countries where there are too many regulations, firms tend to get involved in cost-reducing corruption in order to survive. The main finding of this research is that the effect of corruption on competition depend on the quality of the institutional context. The dependent variable of the analysis is the level of competition faced by firms of all sectors in US from 1997 to 2009. Competition is measured by using Li et al., (2013)'s method. This method consists in analysing 10-K documents. 10-K are documents that publicly traded companies are required to present by the law in US and their aim is to inform investors about all firms-related aspects that every investor wants to know before buying shares of a company. When analysing these documents, all references to competition must be reported. By counting the number of times that words related to competition are written such as "competition", "competitive", "competitors" and son on, an index of competitive intensity can be developed. The authors say that the advantage of this index, in contrast to other measures such as HHI or CR4, is that it is based on executive perceptions, knowledge and experience of

competition and is not limited by arbitrary definitions (Li et al., 2013). The sample used for the study consists of all firms that filed 10-K documents in US from 1995 to 2009. The independent variable is the level of corruption, which is measured by using data from the US Department of Justice Public Integrity Section which contain information about the number of sentences against a public official for cases of corruption. The institutional environment is measured by using data related to economic freedom. These data are taken from the Fraser Institute's Economic Freedom of North America. The main finding of this research is that the relationship between corruption and competition depends on the institutional environment. First, they found that the nature of corruption depends on the institutions. Particularly, in environments where institutions are inefficient and not well-developed, corruption will tend to be collusive, while in environments where institutions are more efficient corruption will tend to be coercive. Finally, in environments where there is high economic freedom and high-quality institutions, if corruption exists, it is going to decrease competition. On the contrary, in countries with low level of economic freedom and low-quality institutions, corruption, which tend to be collusive, is going to increase competition. Thus, in summary, in countries with low-quality institutions, where regulations are excessive, corruption is usually associated with an increase in competition, while in countries with high-quality institutions, corruption is usually linked to low levels of competitive intensity. This result however does not suggest that corruption is good because it increases competition, because in the long term the negative effect will emerge. But it is important to note that institutional quality plays a determinant role. Indeed, when institutional quality is efficient, resorting to the mechanisms of corruption is useless and competition can flourish, while when institutions are inefficient and do not favour competition, firms will tend to rely on corruption in order to be competitive. However, the effect of corruption on competition decreases when economic freedom increases because there is less space for corruption. So, governments should try to improve institutional quality and at the same time reducing corruption in order to increase competition (Bologna, 2017)

Delis (2012) also focused on the influence of corruption on competition. According to the author, the more common kind of corruption is financial corruption, which consists in illegal payments and bribes. The consequence of these payments is leading the market to be less efficient and to reduce the competitive behaviours. Corruption, however, may also be in the form of nepotism, patronage, reserving jobs, illegal quid pro quo and ambiguous ties between politicians and businessmen. He focused on the banking market across 84 countries around the world and studied the role played by institutional quality in shaping bank competition, which is measured by using the Lerner Index and the Boone Indicator. The institutional context is

proxied by creating three different indexes. The first is the level of country's transparency in the political system, which is the contrary of corruption and this variable is called transparency; the second is the judicial system's quality and the degree to which the laws are respected by people: this variable is called law quality and it represents the rule of law (Mirzaei and Moore, 2014); the third index is the quality of the bureaucratic system, the bureaucratic quality. The higher the values of these indexes, the higher the countries' institutional quality. The author expected that where corruption is high, so where transparency is low, competitive behaviours are limited. Thus, it means that higher the transparency, higher the competition. Similarly, the author also expected that law quality and bureaucratic quality are positively associated with competitive intensity. The results of empirical analysis show that author's expectations are met. However, the impact that institutions have on competition is not direct. Institutional context allows to maintain a certain level of competition, but it does not directly improve competition. Particularly, he found out that in developed economies with high-quality institutions, financial reforms allow increasing competition, while in emerging economies, where institutional quality is low, the financial reforms, aimed to improve financial liberalization and competition, do not allow improving competition in the same way and at the same rate. This happens because the institutions do not support the financial reforms in the proper way.

Similarly, Mirzaei and Moore (2014), studied the determinants of competition in the banking sector for 146 countries from 1999 to 2011. Among the variables used to explain competition levels, such as market structure, the number of banks, and market contestability, measured by using the restrictions on foreign banks or on the creation of financial conglomerates, they also considered the quality of institutional setting. The first variable to explain the institutional setting is property rights, which represent the level of protection of property rights and is measured by using Heritage Foundation Database. Then, the second variable explaining the institutional context is an aggregate index, KKZ index, which represent countries' institutional development. This index is composed by using the Worldwide Governance Indicator: control of corruption, government effectiveness, political stability and absence of violence, regulatory quality, rule of law and voice and accountability. The authors expected a positive relationship between competition, measured by using the Lerner index, and these institutional variables. This means that when institutions improve, competition increases. The results of this research show that a positive relation between competition and institutional variables exists. Thus, banks operating in countries with high-quality institutions, are going to face greater competition. Moreover, the authors found out that the improvement of institutional

context quality, proxied by property rights and KKZ index, lead to increase competition particularly in emerging countries.

In another study dealing with the banking sector, Saona and Azad (2019) focused on the relationship between the institutional context and the competition among banks. By using the six Worldwide Governance Indicators by Kaufmann, the authors found out that in underdeveloped institutional environments, banks are able to obtain monopolistic profits because of a weak regulatory system, which do not favour rivalry among firms. As institutions' quality improves, banks are not able anymore to obtain abnormal profits since the level of competition among firms increases.

It is clear that in literature there are different and opposing views about the state of competition in emerging markets. According to some authors, competition is limited in emerging markets because of the absence of well-developed institutions, such as efficacy antitrust regulations and also collusion and increase of concentration is easier. On the contrary, others argue that in emerging countries, competition is as strong as in developed countries.

As Chacar and Vissa (2005) reported, in literature there is a great consensus related to the fact that collusion may be easier in emerging countries because the antitrust regulations are not well-developed. Moreover, competition may be lower in emerging countries than in developed countries because the potential entry of new players is usually limited by the absence of availability of market information, or because of the absence of efficient contract enforcement regulations, or because incumbents firms have more power thanks to political ties. Similarly, Tybout (2000) argued that in emerging countries the entry of new firms in a market is usually more difficult than in developed countries. The reasons are various: low protection of property rights, low efficacy of anti-trust policies, not well-developed legal system and credit market. Particularly, in some countries, the legal system supports larger firms than smaller firms, with the consequence that large firms acquire more and more power, while smaller firms cannot emerge. This happens for example, when governments incentives are only for projects that are above a certain scale: this cut out all those firms that are not able to reach that specific minimum scale. Moreover, there may be also regulations that support "dying" firms and allow inefficient firms to continue to exist, with the effect of preventing new and efficient firms from entering the market. This means that governments tolerate and accept inefficient firms without promoting competitive behaviours. According to Hoskisson et al. (2000), in emerging countries the underdeveloped institutional environment does not favour competitive behaviours. First, the presence of institutional voids in these countries, may lead firms to affiliate to big groups, like the chaebols in Japan, in order to overcome these institutional weaknesses. This creates a

situation where firms not affiliated to big groups are at disadvantage and have to face more transactions and information costs. Since the role of institutions is to reduce transaction and information costs, in emerging countries the absence of well-developed institutions leads firms to rely on big groups, but firms which cannot rely on these groups have to face higher costs to do business. Thus, competition is low, because these groups act as a sort of monopolies in their market and external firms are not able to compete against them. Second, in emerging countries foreign investments occur less than in developed countries. This is due to many reasons: the economic and political instability of these countries and the consequent risk of doing business, the absence of good institutional infrastructures such as trained and skilled workers, the lack of effective property rights and frequent cases of corruption and bribery do not favour foreign investments. The consequence is that the economy continues to be dominated by the domestic firms and the entry of new foreign firms does not occur. Maskus and Lahouel (2000) noted that in emerging countries vertical agreements among firms may prevent the entry of domestic and foreign firms in the distribution markets. This happens, for example, when governments' regulations control the distribution phase. It may happen, indeed, that the government stipulates that foreign goods can be resold in the domestic market by only some dealers, by giving them an exclusive domestic dealership.

Among the authors believing that competition is limited in emerging markets because of the absence of a well-developed institutional context there are Hermelo and Vassolo (2010), who focused on the relationship between hypercompetition and the institutional development in emerging countries. Particularly, the sample used to test the hypothesis includes Latin American firms and the period studied goes from 1990 to 2006. They selected firms from the seven biggest countries of Latin America: Brazil, Chile, Colombia, Peru, Mexico, Venezuela and Argentina. D'Aveni (1995) defined hypercompetition as a case of high intensity competition and as the situation in which the speed, the frequency and the aggressiveness of competition increase, with the consequence of creating continuously changing market arena. The result of hypercompetition is that the competitive environment is unstable, very dynamic, uncertain and the competitive advantage is not lasting. If in developed countries a certain institutional context guarantee practices that favour efficient competition, non-collusion, protection of property rights, contract enforcement, in emerging markets the absence of this institutional context will create different competitive conditions. In order to study the level of competition within countries Hermelo and Vassolo used as a proxy the "persistent superior economic performance", (PSES) of firms. It represents a situation where a firm obtains a significant high ROA (return on assets) over a period of five years, compared to the average

ROA of other firms in the same sector. The assumption made by the authors is that when a firm reach a certain level of performance for a too long period, it means that the competition is not very intense in that market. Indeed, they assumed, that in a competitive market firms are not able to reach extraordinary performance for a long period. The institutional context is identified by using an aggregate indicator that is made of 11 different variables. These variables represent the following institutions:

- economic institutions: GDP, distribution of infrastructure and financial resources. Higher the level of this variable, higher the intensity of rivalry among firms because high-income levels and a good infrastructure and credit context boosts consumers' complexity requirements and their bargaining power;
- political institutions: intellectual property rights, regulatory system, bureaucracy and governments policies. When these variables are well-developed, they encourage business activities and foster competition;
- social institutions: justice, individual safety, corruption and civil freedoms. Countries characterized by high levels of justice, safety and freedom and low levels of bribing are going to attract more investments, with the consequence of increase the number of firms operating in the market and also increase competition.

According to the authors the institutional context influences hypercompetition in emerging countries. They stated that there are some characteristics of emerging countries that encourage competition, while others hinder it. In the first case, there may be institutional risks that create an unstable competitive environment characterized by frequent counterattacks by rivals. An example of institutional risk is the lack of efficacy of contract enforcement rules which leads to illogical delays in customers' payments. The consequences of these institutional risks may lead firms to lose their competitive advantage. This creates an opportunity for other firms. This means that the attacks and counterattacks of firms increase, with the result of an increase in competition. In addition, in emerging countries, economic cycles are not smooth and predictable as in developed countries, but are more unpredictable, frequent and characterized by many crises and external shocks. This creates a situation where competitive advantage is frequently lost and lead companies to attack and counterattack in order to survive in a such unstable and chaotic environment. At the same time, however, there may be particular features of the low-quality institutional context in emerging markets, that creates conditions that hinder and limit competition. A low developed regulatory system may, indeed, favour collusion among firms and reduce competitive intensity; or the absence of consumers' information limit the entry of new firms in the market. Thus, the first two hypothesis tested are the following: in

emerging countries, institutional context foster competition (hypothesis 1) or limit competition (hypothesis 2). The results of the statistical analysis show that hypothesis 1 is not supported, while the second one is supported. It means that in the emerging economies of Latin America, the institutional context limits competition. In emerging economies of Latin America, indeed, firms obtain high “persistent superior economic performance”, because of the presence of institutional factors that limit and not encourage competition, suggesting that competition between firms is very low. Latin American firms, indeed, obtained higher levels of “superior economic performance” than firms in US, suggesting that competition in emerging countries is less fierce. Then the authors developed the third hypothesis: institutional development foster and increase intensity of competition over time. The results of the empirical research confirm this hypothesis. They have come to this conclusion by studying the “persistent superior economic performance”. In other words, the authors wanted to understand if the institutional context can affect the ability of firms to maintain their competitive advantage over time. Some authors argue that reaching PSEP in emerging countries is tough because of the unstable context and macroeconomic shocks and crises that usually affect emerging countries; while other authors sustain that the particular institutional characteristic of these countries may hinder competition. However, the main finding of this research is that when institutional quality increase, competition increases too in three different ways:

- when the institutional context is not developed, bureaucracy and weak contract enforcement limit the creation of new business and limit also the amount of licences released to change products and services. On the contrary, well-developed institutions favour contract enforcement and limit information asymmetry and transaction costs, with the consequence of encouraging the entry of new players in the market. These new entrants will deteriorate incumbents’ competitive advantage based on price or quality strategies.
- The better the legal protection of investors and property rights, the higher the investments in technologies and innovations in the emerging countries and the higher the transfer of technologies and knowledges from foreign firms to local subsidiaries. This means that, as institutional quality improves, there is more incentive toward imitative and competitive behaviours in order to maintain the competitive advantage: know-how competition, based on innovation and deployment of new technologies, increases since domestic firms do not want to lose their competitive position when foreign firms transfer their knowledge in the host country.

- A better institutional quality decreases the power of incumbents and lead firms. By diminishing asymmetry information and transaction costs and improving capital market, the advantages coming from vertical integration and big group affiliation, in order to obtain the needed resources to do business, diminish. The establishment of regulatory bodies which monitor uncompetitive behaviours will decrease incumbents' power and favour the entry of new competitors.

These findings suggest that the institutional development lead firms to stop relying on particular institutional conditions to guarantee their competitive advantage and forced firms to focus more on other sources of competitive advantage, such as internal capabilities and resources and technologies.

A more recent research by Etiennot et al., (2019) came to similar results. The authors analysed the performance of all firms listed in the capital markets of 105 countries, both emerging and developed countries, from 2000 to 2007. The main finding of this research is that in emerging countries firms are better able to maintain their high profits above the average for a longer period than firms in developed markets, suggesting that competition is less intense. As previously explained, the reasoning is that when competition is intense, it erodes competitive advantage and lower profits, while when competition is not intense, firms maintain abnormal profits more easily. Particularly, the authors tested the different level of institutional development, using the Worldwide Governance Indicators and the results show that in countries with low level of institutional development firms which obtain performance above average, maintain it for a longer period compared to firms operating in well-developed institutional contexts.

If there is a great consensus in literature that in emerging countries competitive intensity may be weaker that because of the institutional context, compared with the level of competition in developed countries, there are also authors who believe that in emerging countries competition is as strong as in developed countries. Glen et al., (2001) focused on the competitive dynamic in emerging countries about 339 firms located in India, Malaysia, South Korea, Mexico, Jordan, Brazil and Zimbabwe from the '80s to the early '90s. The sample is made of the largest listed manufacturing company in these seven countries. In order to study the competitive dynamics of these countries, they used the methodology called "persistence of profitability". The latter is a well-established method in economic and management literature to study the competitive processes. As previously explained, the underlying reasoning of this method is the following: in markets characterized by a high level of competitive intensity, if a firm obtains high profits, these profits are going to be eroded by competitors in the following

years. On the contrary, when a firm is able to gain high rates of return for more than one period, the competitive intensity is likely to be low. This is the same approach adopted by Hermelo and Vassolo (2010) when studying hyper competition in emerging countries. The results of Glen's empirical research show that, following the "persistency of profitability" (PP) method, the intensity of competition is higher in developing countries than in developed countries. The authors, indeed, compared their results related to PP, with similar researches in developed countries such as UK, Germany, US, Canada and Japan. The comparison demonstrates that in developed countries, firms are able to maintain their high profits for a longer period than firms in emerging markets, suggesting that competition is less intense.

3. RESEARCH DESIGN

3.1. Introduction

The aim of this research is to understand how institutional quality in a country can affect competitive intensity in an industry. The market analysed to study this relationship is the mobile phone industry. This industry has been one of the fastest growing industries in the world, with billions of dollars at stake. Worldwide smartphone sales grew from 122 million units in 2007 to 1.4 billion units in 2015, with about \$400 billion in global revenue in 2015 (Fan and Yang, 2020).

This research is a cross-country analysis which considers a span of time of ten years, from 2010 to 2019. In order to run this research, a database has been created. In this database the elements reported are the following: mobile phone vendors' market share from 2010 to 2019 in 196 countries and the level of institutional quality in these countries.

Firms' market shares are used to compute the *competitive intensity* indexes: particularly, consistent with the extant literature, competitive intensity is measured by using one firm concentration ratio (CR1), four firms concentration ratio (CR4), the Herfindahl-Hirschman Index (HHI) and the number of firms (Alexeev and Song, 2013; Bhattacharya and Bloch, 2000; Alfranca et al., 2014; Delis, 2012; Gimeno and Woo, 1996; Hambrick et al., 1996; Kessides, 1990; Li et al., 2008; Li et al., 2013; Nadkarni et al., 2016). The *institutional quality* is measured by using the Worldwide Governance Indicators. These indicators come from the "Governance matters" project created by Kauffman et al. in 1999. The aim of this project was creating a database which reported six broad dimensions of governance. The underlying logic was that, according to the authors, an important and strong causal relationship existed between the institutional quality of a country and its economic activities.

Among the studies focusing on the influence of the institutional context on economic activities and in particular the effect on competitive intensity, there are different ideas among authors and this study aims to discover more on this interesting theme.

3.2. Methodology

In the following paragraph it is explained how this study has been run. Particularly, it is explained which is the hypothesis, which are the variables used and where the data have been found.

3.2.1. Hypothesis

In the literature dealing with the influence that the institutional context has on the intensity of competition between firms, there is not a consensus regarding the role played by the institutional context. However, considering the studies reported in the previous chapter, in the paragraph “2.3 *Institutions and competition*”, the majority of authors assume that there is a positive relationship between institutional quality and the level of competition between firms. Many authors, indeed, agree that the improvement of the institutional context leads to an increase of competitive intensity between firms (Saona and Azad, 2019; Mirzaei and Moore, 2014; Cazurra and Dau, 2009; Nguyen, 2018; Tybout, 2000; Hoskisson et al., 2000; Delis, 2012; Hermelo and Vassolo, 2010; Etiennot et al., 2019). This means that a country characterized by a well-developed institutional context, it is likely to offer a more competitive environment for firms. In other words, in developed countries where the level of institutional quality is usually higher, there is more competition between firms, while in developing countries where the level of institutional quality is usually lower there is a lower level of competitive intensity between firms. There are only two studies, among those reported in the previous chapter, which claim otherwise: Alexeev and Song (2013)’s one and Glen et al. (2001)’s one. The first article claims that in those contexts characterized by high levels of competitive intensity, in the manufacturing sector, firms tend to pay more in bribes. This means that corruption, which is a dimension of institutional quality, is associated to higher levels of competitive intensity. However, corruption is only one aspect of the institutional context of a country. There are many other dimensions that should be considered. Namely, the level of contract enforcement, the rule of law, the political stability and so on. The second research also focuses on the manufacturing sector and claims that in emerging countries, where institutions are usually not well-developed, there is more competition. The authors came to this conclusion by applying the well-established methodology of the “persistence of profitability”: if competition is intense there is likely to be little persistence in corporate rates of return; firms with above average profits in one period will not have such profits in the subsequent period, these having been eroded by competitors. If competition is less intense, profitability differences between firms may be expected to be more persistent. What they found is that in emerging countries there is lower persistency of profitability, suggesting that there is more competition in emerging countries rather than in developed countries (Glen et al., 2001). These last two researches are in contrast with the results of other researches, which claim that there is a positive relationship between institutional quality and competition: in developed countries, where

institutional quality is usually higher, competitive intensity is usually more intense. However, even Glen et al. (2001) warned that maybe the results of their research can be biased by some elements like for example the relatively short length of the time series data, the quality of data, accounting practices related to the measurement of returns or simple measurement errors. In the first study only the corruption element is used to represent the institutional context, while in the second research, the authors do not use any indicators to represent the institutional context, they just studied the persistent superior economic performance of emerging and developed countries and claimed that, according to the methodology of the “persistence of profitability”, in emerging countries where institutional quality is usually low there is a higher level of competitive intensity among firms. However, it is also interesting to note that in the researches where the institutional context has been represented by many variables, such as the Worldwide Governance Indicators or like in Hermelo and Vassolo (2010)’s study where they used eleven different variables, the results and main findings of the research suggest that a positive relationship between the institutional quality and competitive intensity exists. Using the Worldwide Governance Indicators, thus a set of different variables to represent the institutional context, is the same approach of this research.

Relying on the fact that the majority of studies reported in the previous chapter suggest that a positive relationship exists between these two variables, the institutional context and the competitive intensity, it is possible to assume a positive relationship between the two variables as the hypothesis of this research. There are many elements that sustain this assumption. In well-developed institutional contexts there can be in fact laws and norms which limit collusion and favour competition within a market (Chacar and Vissa, 2005). This could mean that after the introduction of these laws, colluding becomes costly. This is also what happened in many countries around the world where markets like the telecommunication’s or railroad’s ones shifted from monopolies to more competitive markets thanks to the introduction of laws which promote competition. These are also called pro-market reforms and are usually associated with well-developed institutional contexts (Chakrabarti and Mondal, 2017). Another aspect to consider is that in developing countries, where institutional quality is usually lower compared to the developed countries’ one, trade openness to foreign firms is low. When trade openness is low, it means that in the country there will be few foreign firms investing in that specific country (Nguyen, 2018). This happens for many reasons. Trade openness can be low because the level of contract enforcement, the rule of law, the credit system, government incentives, anti-trust policies, infrastructures, trained and skilled workers or intellectual property rights are not good enough and foreign companies believe that investing in that country is too risky. In

other words, well developed economic, political and social institutions foster investments of foreign firms with the consequence of increasing the number of companies in the market and the competition (Hermelo and Vassolo, 2010). The consequence of underdeveloped institutions is that the country will continue to be populated by domestic firms and the potential increase of competition caused by the entry of new foreign firms will not occur. Weak contract enforcement, corruption, asymmetry of information and high transaction costs also limit potential new domestic firms, because the creation of new businesses becomes harder and firms tend to reduce their competitiveness (Hermelo and Vassolo, 2010; Sequeira and Djankoy, 2010; Ales and Di Tella, 1999; Emerson, 2006; Etiennot et al., 2019). There are other aspects which do not favour competition in underdeveloped institutional contexts: weak regulatory agencies which do not control workers and executives' misbehaviour and conduct and low-quality market intermediaries; these are all barriers to the entry of new companies (Cazurra and Dau, 2009).

3.2.2. Variables

The hypothesis to test is whether the institutional quality of a country actually has a positive effect on competitive intensity between firms. In order to run this analysis, the variables considered are the institutional quality and the competitive intensity. Particularly, the dependent variable is the competitive intensity. This variable has been measured by using the Herfindahl-Hirschman Index and the concentration ratio indexes, CR1 and CR4. The underlying reasoning of using these indexes is that when concentration is high, competition is low. However, it is not always true that when concentration is low, competition is high. Relying on other methods could give more information: for example, studying the competitive aggressiveness by asking managers the level of competitive actions between firms. However, we do not have the resources to do such an analysis. Moreover, in literature it is common to use these indexes to understand the level of competition within a market. Regarding the 196 countries, the indexes have been computed for every firms operating in each country from the beginning of 2010 to the end of 2019. In this study the competitive intensity is measured by relying on these firms' market shares.

The independent variable is countries' institutional quality, which is measured by using the six Worldwide Governance Indicators (WGI). The six WGI are reported in a database in the World Bank website. At the end of the 90s, indeed, the World Bank started realizing surveys to understand governance quality all around the world. Since 2004, results of these surveys are

reported annually. The WGI cover different dimensions that characterize institutional quality. The data are obtained by 31 different data sources such as business information providers, non-governmental organizations or surveys. The values range from -2.5, which indicates the worst institutional quality, to +2.5, which refers to the best institutional quality. WGI are different dimensions of a country's governance and they are "voice and accountability", "political stability and absence of violence/terrorism", "government effectiveness", "regulatory quality", "rule of law" and "control of corruption". These indicators can be described as follows (Kaufmann et al., 2010; Hadhek and Mrad, 2015; Worldbank, 2020):

- **Voice and Accountability:** it refers to the degree to which people perceive that they can choose and take part in the selection process of their government, as well as, freedom of association and expression. It refers to legal system, transparency, civil liberties, political rights, democratic accountability and independent media.
- **Political Stability and Absence of Violence/Terrorism:** it refers to the perception of the probability of political instability and violence, including terrorism. It includes military coups, political tensions, civil wars, social unrest, ethnic tensions, political violence, unpredictable changes in institutions and rules.
- **Government Effectiveness:** it captures the degree to which the public and civil services and the independence of these services are perceived as of good quality. It includes government policy, quality of directors, effective public servants, government credibility, bureaucratic delays, utilities, and waste in government spending.
- **Regulatory Quality:** it reflects the degree to which the policies defined by the government are perceived as of high quality and useful to allow the development of the private sector. It refers, for example, to trade policy, price liberalization, regulation of financial institutions or price controls.
- **Rule of law:** it refers to the perception that people have about the law and rules of a society and the confidence they have in these rules. Particularly, it refers to the quality of contract enforcement, property rights, the police and the court, as well as the probability of crimes.
- **Control of corruption:** this variable reflects the degree to which people perceive that public power is influenced by private gain. It refers, for example, to illegal payments and corruption in the political and institutional context.

These six indicators have been used in many studies in order to identify the level of institutional development of a country. Namely, White et al. (2019) relied on the WGI to understand how the quality of institutions affects the localization strategies of companies in Africa. Cuadrado-Ballesterosa and Peña-Miguel (2020) used the WGI to represent the quality of governance in a study about corruption perception after privatization reforms. Similarly, WGI have been used to represent institutional quality by Nguyen et al. (2018) in a study about economic growth in emerging countries and by Hadhek and Mrad (2015) in a study about institutional quality and economic growth.

Then another variable has been used as the control variables. The control variable is the mobile cellular subscription per 100 people (*it_cel_sets_p2*): this control is important in order to increase confidence in the results of the regression, since the market analysed is the mobile phone market.

3.2.3. Data

In order to compute the level of competition, it has been necessary to report firms' market shares in the mobile phone industry. The data regarding the market share of the mobile phone vendors and operating system are derived from StatCounter Global Stats. The latter is a service made it available by StatCounter, which is a service of web analytics. The StatCounter tracking code is set up in more than two million websites, spread globally. Through this tracking code, billions of pages views to these websites are examined every month. Every page view is analysed in order to understand if the page views itself come from a mobile device and which mobile device. Moreover, the views are also used to understand the operating system used by the users who are watching the website concerned. The main strength of this service is that it allows analysing up to ten billion-page views every month from people all over the world. This allows to understand which are the most used mobile phones. For example, in September 2015, the global sample was made of 16.3 billion-page views. In this way StatCounter Global allows to identify the market share of each mobile phone vendor in every country. The countries considered are 196.

The data regarding the institutional quality of each country have been gathered from the Worldwide Governance Indicators database from the World Bank. As previously explained, this database was first created in 1999 in order to have insights on the importance of governance all around the world.

3.3. Results

The hypothesis to test is whether the institutional context has a positive effect on competitive intensity. The variables are tested in order to determine whether the hypothesis previously developed is met.

Overall, in this statistical analysis, there are 1855 observations and 196 number of groups, which are the countries considered in the analysis. Per group there are minimum 3 observations and a maximum of 10 observations. 10 stands for the span of time considered, which is from the beginning of 2010 to the end of 2019. However, for some countries, usually the smallest one, there are not the information for all the ten years. Table 1 and Table 2 contain descriptive statistics and correlations of the variables used in this analysis.

Table 1 **Summary Statistics**

Variable	Observations	Mean	Standard Deviation	Min	Max
h_mpvendor	1855	.314	.145	.109	1
cr4_mpvendor	1855	85.318	9.203	55.08	100
cr1_mpvendor	1855	46.245	15.627	18.76	100
n_mpvendor	1855	23.797	10.316	1	64
inst_qual	1855	-.029	.916	-2.314	1.873
rle	1855	-.035	1	-2.423	2.1
it_cel_sets_p2	1855	103.308	42.052	1.174	345.325 ¹

Table 1 shows that for every variable there are 1855 observations; then it shows, for every variable, the mean, the standard deviation, the minimum and maximum value¹.

Table 2 represents the correlation matrix which shows that concentration indexes are highly and positively correlated between each other, while the number of mobile phone vendors is negatively correlated with the concentration indexes. Where the market is more concentrated, indeed, there are less companies.

¹ The maximum value of 345.3245 is not a mistake. This primacy belongs to Macau.

Table 2 Correlation matrix

	1	2	3	4	5	6	7
1. h_mpvendor	1.000						
2. cr4_mpvendor	0.7738 0.0000	1.0000					
3. cr1_mpvendor	0.9665 0.0000	0.7358 0.0000	1.0000				
4. n_mpvendor	-0.5523 0.0000	-0.6650 0.0000	-0.4849 0.0000	1.0000			
5. inst_qual	0.0231 0.3208	0.0623 0.0072	-0.0276 0.2356	0.0094 0.6845	1.0000		
6. rle	0.0119 0.6079	0.0976 0.0000	0.0056 0.8100	-0.0185 0.4251	0.9767 0.0000	1.0000	
7. it_cel_set_p2	-0.1722 0.0000	-0.0871 0.0002	-0.1491 0.0000	0.1214 0.0000	0.5040 0.0000	0.4810 0.0000	1.0000

Note: This graph reports the correlation coefficients and the p-values

Then, regressions are run in order to test the Hypothesis. Particularly, two regressions are run: one where the independent variable is the countries' institutional quality (inst_qual), as shown in Table 3, and one where the independent variables is the rule of law (rle), as shown in Table 4. The dependent variable is the level of industry concentration in the mobile phone industry. As previously explained, in order to compute the institutional quality, the six Worldwide Governance Indicators are used. However, all the six measures of institutional quality by the World Bank are highly correlated between each other, so it is not correct to use all of them in a single equation. Highly correlation between variables, in fact, may distort the results of regression. Thus, in order to compute the institutional quality value, the six Worldwide Governance Indicators have been summed up and then the mean has been computed. The control variable is the mobile cellular subscription per 100 people

(it_cel_sets_p2): this control is important in order to increase confidence in the results of the regression. Table 3 and Table 4 shows the regression results. This analysis is a fixed panel analysis and it allows drawing information from the panel data, which in this case is the database composed of industry concentration indexes and the Worldwide Governance Indicators for 196 countries from 2010 to 2019. This dataset allows to do a cross-sectional (many firms are considered) and time series (over a span of years) analysis. It is in contrast to a cross-sectional analysis which considers only a period, like a month or a year, and to a time series analysis, which considers only a unit of analysis, like only one company.

In Table 3 and Table 4, the dummy variables of each year are reported, and they show how much the dependent variable of each year varies compared to the initial year's one (2010). By looking at these dummies, it is possible to note that the degree of concentration has generally decreased over time or at least it has remained stable. When the coefficients become larger it means that the degree of concentration has fallen quite a bit and therefore the degree of competitive intensity has increased. As presented in Table 3, Model 1 and Model 2, the coefficient becomes increasingly larger until 2015, where it reaches the highest degree of competitive intensity and the values remain similar. Similarly, as reported in Table 4, Model 1 and Model 2, the coefficient becomes increasingly larger until 2017, where it reaches the highest degree of competitive intensity and the values remain similar over time.

To sum up, in these regression analyses the dependent variable is the level of industry concentration which is measured by using four different concentration indexes, the Herfindahl-Hirschman Index (h_mvvendor), the four firms concentration ratio (cr4_mvvendor) and the one firm concentration ratio (cr1_mvvendor), and the number of mobile phone vendors, (n_mvvendor), while the independent variable is, first, the level of institutional quality and then the rule of law. The results of the two regressions (Table 3 and Table 4) are consistent between themselves: indeed, the relationship between the institutional quality/rule of law and the degree of concentration is significant and negative, while the relationship with the number of mobile phone vendors is significant and positive. This means that as institutional quality increases, the degree of competitive intensity increases: there is more competition where there is a high institutional quality and less competition where there are institutional voids.

Table 3 represents the regression analysis which considers the institutional quality as the independent variable. Model 1 shows the result of the influence that institutional quality has on industry concentration when it is measured by Herfindahl-Hirschman Index and the control variable is the number of the mobile cellular subscription per 100 people. R-squared of this regression model is 0.558 and it means that approximately 56% of the variance of h_mvvendor

-the dependent variable- is explained by the model. In order to understand if the result is significant, we need to examine the p-values of regression coefficients. In this case, the p-value (0.038) associated with the independent variable is lower than 0.1, which is a frequently used significance level. It means that the regression is statistically significant and that the institutional quality is significant in explaining the variance of industry concentration. This result means that the model is useful in explaining the different level of industry concentration and that the coefficient for “inst_qual” - the institutional quality variable - is significantly different from zero. The coefficient for the institutional quality variable is -0.0413, meaning that for a one unit increase in inst_qual, it is possible to suppose a 0.04 decrease in h_mpvendor. In other words, this result means that a negative and significant relationship exists between the level of industry concentration in the mobile phone industry and the institutional quality of countries.

Similarly, in Model 2 and Model 3, results are the same. In Model 2, the coefficient related to institutional quality is -3.838 and it is statistically significant since the p-value is 0.001, lower than 0.1. In Model 3, the coefficient related to institutional quality is -5.9469 and it is statistically significant since the p-value is 0.001, lower than 0.1. The R-squared values are, respectively, 0.5982 and 0.4794. Even when the dependent variable considered is the number of mobile phone vendors, in Model 4, the institutional quality significantly explains the positive relationship between the number of firms within a country and the institutional quality. The R-squared values is 0.9073. By analysing the relationship between number of mobile phone vendors with institutional quality of a country, the regression results show a significant positive relationship. In other words, this means that in countries where institutional quality is low, there are fewer companies competing between each other than in countries with high-quality institutions. As explained in the previous chapter, higher the quality of the institutional context of a country, higher the number of new firms in that country and higher the number of foreign firms that invest there.

Table 3 Fixed-effects regression

	Model 1	Model 2	Model 3	Model 4
	H_mpvendor	CR4_mpvendor	CR1_mpvendor	N_mpvendor
inst_qual	-.04** (.019)	-3.838*** (1.186)	-5.946** (2.295)	2.390*** (.731)
It_cel_sets_p2	-.00*** (.001)	-.018* (.009)	-.075*** (.018)	.009 (.006)
year				
2011	-.044*** (.009)	-1.776*** (.518)	-3.468*** (1.003)	.347 (.319)
2012	-.186*** (.009)	-10.549*** (.522)	-17.515*** (1.010)	6.138*** (.322)
2013	-.231*** (.009)	-11.539*** (.531)	-23.867*** (1.026)	9.095*** (.327)
2014	-.239*** (.009)	-13.623*** (.537)	-23.867*** (1.039)	13.308*** (.331)
2015	-.242*** (.009)	-15.296*** (.543)	-23.366*** (1.049)	16.780*** (.335)
2016	-.227*** (.009)	-14.614*** (.547)	-20.827*** (1.059)	19.328*** (.337)
2017	-.232*** (.009)	-16.869*** (.548)	-20.569*** (1.060)	25.018*** (.338)
2018	-.233*** (.009)	-16.532*** (.568)	-21.279*** (1.098)	25.226*** (.350)
2019	-.225*** (.010)	-13.671*** (.601)	-21.686*** (1.162)	24.091*** (.370)

Note: * p < .10, ** p < .05, *** p < .01; Standard errors in parentheses

Among the “sub-variables” which constitute the institutional quality variable, the “rule of law” variable represents well the institutional context of a country: as Estrin et al. (2015) argued, a weak rule of law is usually associated with low level of competition and with a context where local firms are favoured over foreign investors and incumbents are favoured over new firms and start-ups. As previously reported, the rule of law refers to the perception that people have about the law and rules of a society and the confidence they have in. Particularly, it refers to the quality of contract enforcement, property rights, the police and the court, as well as the probability of crimes. Thus, a second set of regressions is run in order to assess the role played by the variable rule of law in influencing the level of industry concentration. It is represented in Table 4. Model 1 shows the results of the influence that rule of law has on Herfindahl-Hirschman Index and the control variable is the number of the mobile cellular subscription per 100 people. The R-squared value is 0.5582. The p-value (0.025) associated with the independent variable is lower than 0.1. It means that the regression is statistically significant and that the rule of law is significant in explaining the variance of industry concentration. This result means that the model is useful in explaining the different level of industry concentration and that the coefficient for rle -rule of law- is significantly different from zero. The coefficient for the rule of law variable is -0.0326, meaning that for a one unit increase in rle, it is possible to suppose a 0.0326 decrease in h_mpvendor. In other words, this result means that a negative and significant relationship exists between the level of industry concentration in the mobile phone industry and the level of rule of laws of countries. Similarly, in Model 2 and Model 3, the results are the same. In Model 2, the coefficient related to rule of law is -2.133 and it is statistically significant since the p-value is 0.014, lower than 0.1. In Model 3, the coefficient related to rule of law is -5.3287 and it is statistically significant since the p-value is 0.001, lower than 0.1. The R-squared values are, respectively, 0.5971 and 0.4805. Even when the dependent variable considered is the number of mobile phone vendors, Model 4, the rule of law significantly explains the positive relationship between the number of firms within a country and the rule of law. In this case the R-squared value is 0.9071.

These results are consistent with what was theorized, and the findings meet the hypothesis. Thus, it is possible to conclude that institutional quality of a country is positively related to the level of competitive intensity. This also met what was only theorized by many other authors, who suggested this relationship. These results do not only suggest that in countries with good institutions the level of competitive intensity is higher, but also that with the improvement of institutional quality in countries with the worst institutions, the industry concentration decreases. By analysing the database and by looking at “rule of law” (rle) values

over the years, it is possible to give some examples. In Afghanistan the rule of law value in 2010 is -1.84, while in 2014 is -1.44 and the levels of industry concentration are, respectively, 0.596 and 0.271. In Guinea the rule of law value in 2010 is -1.48, while in 2013 is -1.37 and the levels of industry concentration are, respectively, 0.75 and 0.28. In Kenya the rule of law value in 2010 is -0.942, while in 2014 is -0.41 and the levels of industry concentration are, respectively, 0.65 and 0.26. These examples demonstrate that higher level of institutional quality corresponds to lower level of industry concentration. It is also interesting to note that with the increase of the institutional quality and rule of law values, the number of firms in a market increases. One of the reasons could be that better institutional conditions lead companies to invest in that country more easily. In many Asian and African countries, the lack of regulatory institutions, which creates the so-called institutional voids, represent a high obstacle to the foreign firm. In Nigeria the rule of law value increase by 23% from 2010 to 2019 and it is interesting to note that the number of mobile phone vendors in this country went from 11 in 2010, to 42 in 2019.

To sum up, when competition becomes "more intense", the likelihood of collusive behaviour between a few large companies is reduced. The lower the quality of institutions (and therefore the more "institutional voids"), the less intense the competition (the more likely the market is to be dominated by a few large companies that come together). In fact, we do not know if companies collude, but we assume that the higher the concentration, the more likely companies collude and therefore the lower the competitive intensity.

Table 4 Fixed-effects regression

	Model 1	Model 2	Model 3	Model 4
	H_mpvendor	CR4_mpvendor	CR1_mpvendor	N_mpvendor
rle	-.033** (.0145)	-2.133** (.867)	-5.329*** (1.672)	1.313** (.534)
It_cel_sets_p2	-.001*** (.001)	-.020** (.009)	-.076*** (.0184)	.011* (.006)
year				
2011	-.044*** (.009)	-1.783*** (.519)	-3.501*** (1.002)	.352 (.320)
2012	-.186*** (.009)	-10.542*** (.523)	-17.536*** (1.009)	6.133*** (.322)
2013	-.231*** (.009)	-11.530*** (.531)	-23.907*** (1.025)	9.088*** (.328)
2014	-.239*** (.009)	-13.569*** (.538)	-23.784*** (1.038)	13.275*** (.332)
2015	-.242*** (.009)	-15.257*** (.543)	-23.339*** (1.048)	16.755*** (.335)
2016	-.227*** (.009)	-14.574*** (.548)	-20.803*** (1.057)	19.303*** (.338)
2017	-.232*** (.009)	-16.822*** (.548)	-20.538*** (1.058)	24.989*** (.338)
2018	-.233*** (.009)	-16.478*** (.568)	-21.236*** (1.096)	25.192*** (.350)
2019	-.225*** (.010)	-13.633*** (.601)	-21.650*** (1.161)	24.068*** (.371)

Note: * p < .10, ** p < .05, *** p < .01; Standard errors in parentheses

3.4. Discussion

The central proposition of this research is assessing the role played by countries' characteristics, from an institutional point of view, in influencing the level of concentration –and then competitive intensity– in an industry. To do so, a database has been created in order to carry on this research. The elements considered are the market shares of mobile phone vendors in 196 countries and the Worldwide Governance Indicators. The period considered goes from the beginning of 2010 to the end of 2019 and the market is the mobile phone's one. The results of the empirical analysis confirm what was theorized in the hypothesis. The main finding of this research is that bad quality institutions represent a limit to the intensity of competition: this finding, indeed, seems to suggest that when firms operate in a country characterized by low contract enforcement, corruption, political uncertainty, inefficient bureaucracy or absence of transparency, weak contract enforcement and non-availability of information needed to make investments and also lack of fundamental infrastructures such as communication, utilities and transport services, the probability that the competition is not intense is higher.

The empirical results of this research are in line with previous researches in literature, however they differ for some aspects, offering new evidences from previous researches. First of all, the number of countries considered is greatly higher compared to the mean of other researches. This research, indeed, is based on information coming from 196 countries: as far as we know, in the researches dealing with the influence of institutional context on competition, this is the research with the higher number of countries analysed. Moreover, no researches so far have focused on the mobile phone market, a high-tech sector where continuous technological innovation, high projected growth and profitability attract a lot of entries and where there is room for start-ups. It is also a sector where competition is increasingly global and increasingly populated by players coming from emerging countries. This study indeed differs from previous ones also for the different market analysed: Delis (2012), Mirzaei and Moore (2014), Saona and Azad (2019) develop their researches around the banking sector; Alexeev and Song (2013) and Glen et al. (2001) around the manufacturing sector; Hermelo and Vassolo (2010) and Etiennot et al. (2019) run a cross-industries research. Some studies focused on the banking sector, while others on manufacturing, but none deals with the mobile phone sector. It is interesting because it gives evidences on a market which is far more technological, innovative and fast than other sectors. It is also the only study which uses simultaneously the Herfindahl index and CR4 and CR1 indexes to compute the level of competitive intensity, and

the Worldwide Governance Indicators to represent the institutional context of a country. Last but not least, as far as we know, this is also the more recent study conducted in this stream of research.

Even when we look at the studies whose main result is that competition and good institutions are positively related and in which institutional quality is represented by Worldwide Governance Indicators, this study presents some differences. As for Mirzaei and Moore (2014), the institutional context is proxied by using the WWI, however this study has a different approach. First of all, as previously said, Mirzaei and Moore (2014)'s study focuses on the banking sector; secondly the span of time considered is precedent to this research and the number of countries considered is 146; finally the competition is measured by using the Lerner Index and is analysed not only considering the influence of the institutional context but also the influence of other elements: indeed, among the driving forces of bank competition there are for example the market structure, the financial conglomerate, the market capitalization or the financial freedom, GDP and inflation. A negative relationship between the competition, measured using the Lerner index, and the WWI exist also here, however the coefficient of the regression is less significant compared to the coefficient of this research. Saona and Azad (2019) also use the Worldwide Governance Indicators to represent the institutional system. The main finding of their research is that when banks obtain monopolistic profits and consequently abnormal profits, it means that there is no competition among firms and this absence of competition is also due to the lack of a good institutional context. However, the main difference is that their study focuses on the role played by countries' characteristics, including the institutional context, in influencing the performance of banks in 11 Asian countries. Indeed, the dependent variable is the performance of Asian banks. Etiennent e al. (2019) studied how countries' characteristics impact on performance of firms in 105 countries in the period from 2000 to 2007. The conclusion they came to is that in emerging countries, where institutions can be less developed than in developed countries, the competitive advantage of firms and consequent profits persist longer than in developed countries and the cause is that competition is weaker in the emerging countries. Similarly to the previous study, the dependent variable is the performance of companies.

Thus, the main contribution of this study is that it specifically focuses on the impact of institutional quality on intensity of competition by using specific competition indexes; secondly it considers a bigger sample compared to previous studies, and finally it covers a more recent span of time. Moreover, it deals with a market never considered before: the mobile phone market. A lot of authors claim the positive relationship between competition and well-

developed institutional quality, but as far as we know, none empirically test the relationship between intensity of competition measured by using CR4 and Herfindahl index and the institutional quality measured by using the Worldwide Governance Indicators.

In literature, a well-developed stream of study is the one related to the relationship between foreign direct investments (FDI) and institutional quality. Foreign direct investments theme can explain why in countries characterized by well-developed institutions, competitive intensity is stronger. According to some authors the choice of investing in one country is dependent on the institutional context of the country. The prevailing view in strategic literature is that poor quality institutions hinder FDI inflow (Dorożyński et al., 2020). Globerman and Shapiro's (2003) claimed that good governance infrastructures, such as regulations or property rights, are fundamental in order to receive U.S. foreign direct investments and are the main determinants in the amount of investments received. A more recent study is Dorożyński et al.(2020)'s one. They analysed the impact of institutional quality on FDI coming from foreign countries. The study takes in consideration 17 countries of Central and Eastern Europe in the period from 2007 to 2017. The main finding of this research is consistent with what many authors sustain: effective and adequate institutions favour and attract more investments and increase FDI flows. As the authors noted, there are many elements which favour FDI inflows, like cost of labour, taxes, the market size of the host country and institutions. However, the institutional aspect is very important to consider when dealing with emerging countries, where the institutional context is usually different compared to what people usually expect in developed countries. Indeed, in developing countries, the poor quality of institutions offers lower return investments compared to countries with better institutions and act as a sort of tax, since it can increase transactions costs. According to the authors, institutions influence the investment environment by adopting certain regulations, by monitoring and preventing corruption or by ensuring the rule of law. Moreover, a good governance environment seems to increase MNEs' trust and security in doing business in the foreign country and to lower uncertainty which in the end means lower costs of doing business and lower transaction costs. Even Sabir et al. (2019) sustained that institutional quality is the main factor which influence FDI inflows regardless of the country's economic development. Particularly, they sustained that, regarding the rule of law, when property rights and contract enforcement are not well guaranteed, the risk of doing business in a country is high and business activities are slower. This may lead investor to prefer "risk-free environment", where there is a higher probability of obtaining high returns. The rule of law, in fact, favour market-friendly policies and assures that there are policies and rules which protect future returns and FDIs overall. Political stability is

also important to investors since they do not have to fear sudden policy reversal: stable economies are ideal since investments are long-term commitments and political stability guarantees confidence among foreign investors. Regulatory quality also promotes inward FDIs by ensuring policies which allows certain government actions, or which allows the free movement of capitals. In other words, it reflects the capability of implementing polices which promote economic development and business activities. Voice and Accountability also guarantees that citizens have freedom of expression, of association and free media, which allow people to hinder a corrupt government.

In some countries, like China or the economies of the former Soviet Union, the legal system has been poor developed for many years and sometimes continues to be also nowadays. For example, these economies do not have a long history of using intellectual property rights laws to secure innovations and patents: the perception of private property indeed is still weak since the influence of communism. Poorly protected property rights may be a great barrier for foreign companies which want to invest in these countries. These kinds of weaknesses represent a great obstacle to business activities. As Liu and Li (2019) reported, China, in the past, has been cited many times in literature for being a country where the rule of law is very weak. The underdeveloped legal system has represented a problem not only for foreign companies, but also for domestic companies. For example, weak protection of intellectual property rights means that firms do not have the means to protect their technology innovations, their brands and other original inventions: in this way, innovations are less profitable and can be also risky. This kind of environment may distort market competition and diminish the entry of new firms. There are then other countries, such as Hungary or Poland, where economic institutions, which are the infrastructures that favour economic and business activities, have been underdeveloped for a very long time, with the consequent reduction of entrepreneurial activities and constraints for firms to follow business opportunities. For example, in these countries, firms have had and sometimes continue to have difficulties in having access to credit, financial intermediaries or other critical resources, making it difficult for firms to innovate and invest in R&D. Thus, competitive intensity may be weak because new market entry tends to be constrained. It seems clear that in such contexts new entry in the market are not easy and the competition struggles to take off (Liu and Li, 2019). The result of this research suggests that in those countries characterized by institutional voids, the improvement of institutional quality can lead to the increase of competitive intensity over the years.

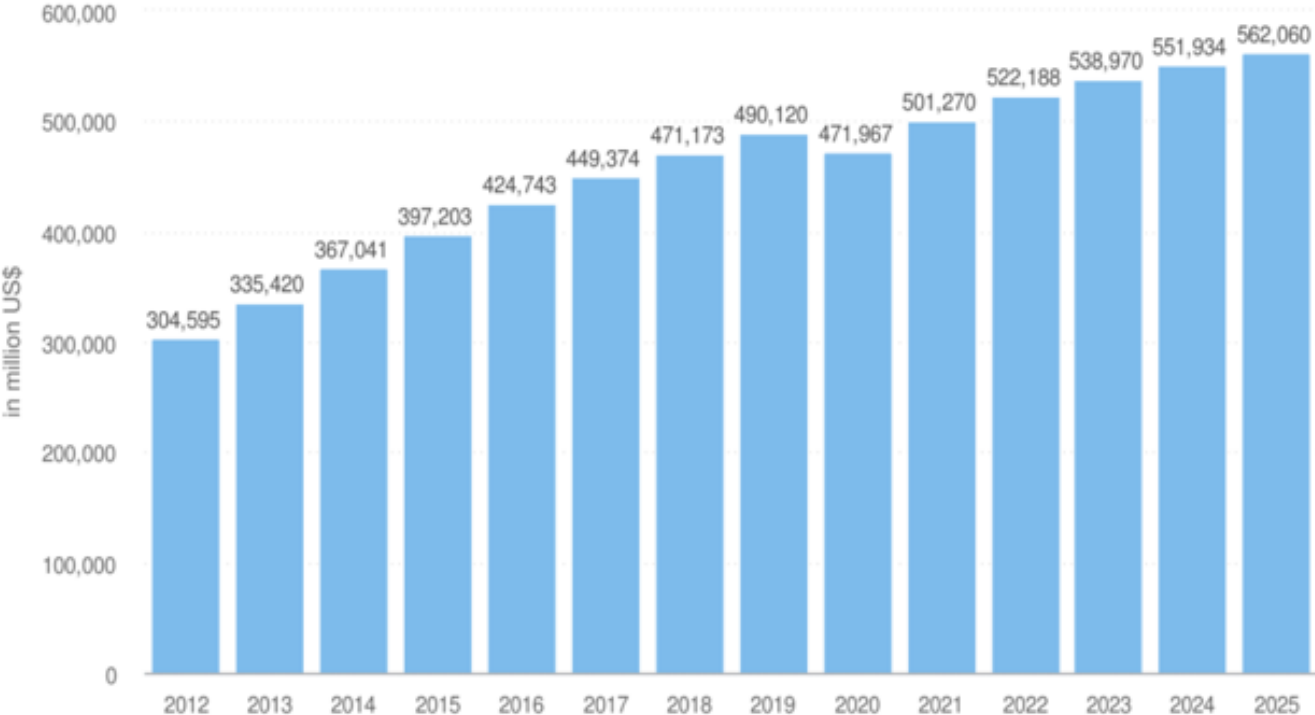
There is also another aspect to consider. As Etiennot et al. (2019) stated, in emerging countries, companies from different industry have been able to obtain lasting competitive

advantages in many industries: since the competitive arena was not very dynamic in the past and barriers to competition were very high, those firms which had established first in these countries have been able to obtain permanent advantages.

These results are very interesting and contribute to extend the stream of research dealing with institutional literature. In this study the market analysed to run the analysis is the mobile phone industry. The market is expected to grow annually by 2.1% (CAGR 2021-2025). The volume is expected to amount to 145.11 million units by 2025 (Graph 2). Even though the mobile phone industry has been significantly impacted by the Covid-19 and it has experienced its worst decline ever, with a decline of 13% in units sold in 2020, the market will face a good recovery of 9.4% in the next years (Gartner, 2020).

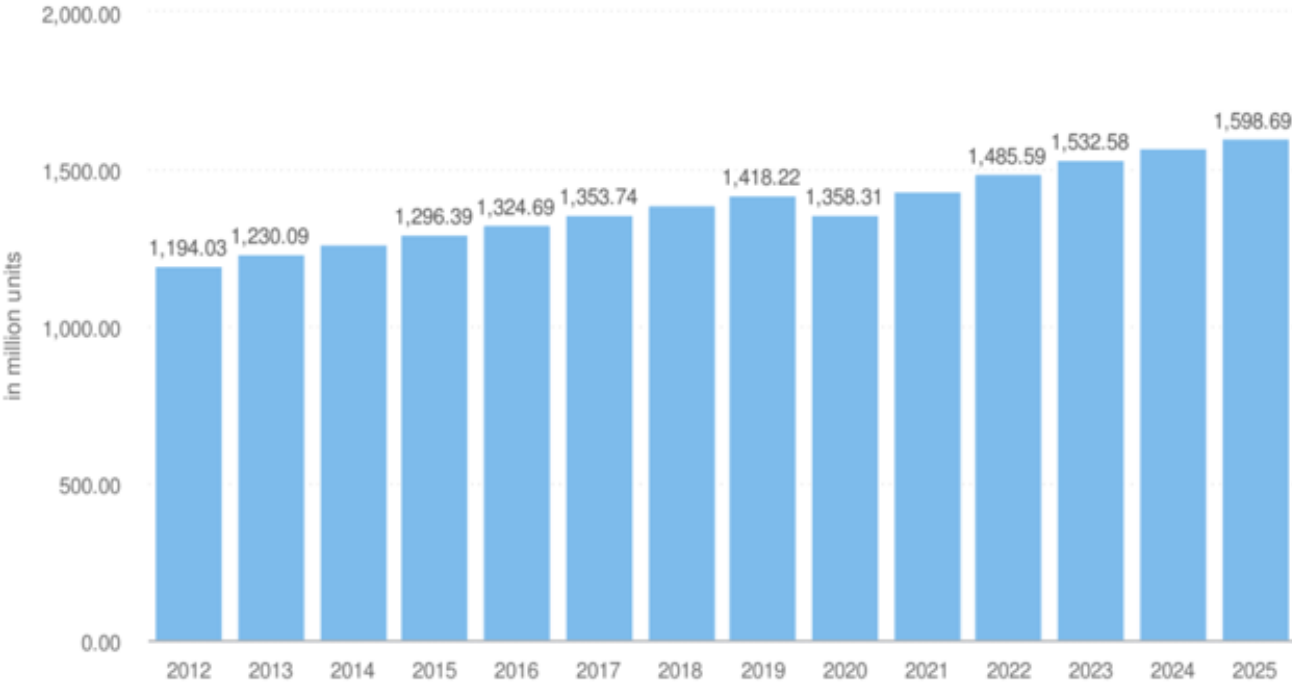
Even though in the mobile phone market, the high projected growth could attract new potential entrants, competing with firms like Apple or Samsung or Xiaomi, which are large, efficient and well-established giants, it is a challenge that may deter a lot of new entries. Indeed, these firms have gained great competitive advantages over the years: many firms in the mobile phone industry have earned a long-lasting reputation as leaders. This reputation helps them to sustain their company's image, brand loyalty and market share even when competitors introduce comparable products. Being a leader also enabled them to shape customers' expectations about the technology's form, features, pricing and other characteristics. By the time new firms enter the market, customer requirements may be well established. If aspects that customers started to expect in a technology are difficult for competitors to imitate, maybe because they are protected by patents or because they arise from a company's unique capabilities and knowledges, being a leader can yield great competitive advantages. Even when the product's features are imitable, these firms can leverage on the brand loyalty they have built over the years. Moreover, once buyers have adopted a good, they often face costs to switch to another good. For example, the initial cost of the good is itself a switching cost and also the cost of complementary goods purchased for the good is another switching cost.

Graph 1: Revenue in the Mobile Phone Market Worldwide (in million US\$)



Source: Statista

Graph 2: Volume in the Mobile Phone market Worldwide (in million units)



Source: Statista

Furthermore, when a product is complex, customers spend a lot of time becoming familiar with the product itself: this time invested in the product may represent a switching cost for some customers. Also, the time required to look for alternatives may be a deterrent to change the product. Another aspect to consider is that these firms could have already captured limited resources such as patents, access to certain distribution channels or certain relationships with suppliers and higher bargaining power with suppliers. It is clear that the mobile phone market is a concentrated market characterized by oligopolistic competition. However, the entry of new firms in the market, especially in the emerging countries, could highly increase the competition. It is interesting to note that in China, in the period from 2010 to 2019, the number of mobile phone vendors went from 10 to 34 and simultaneously the level of institutional quality increased. Moreover, 19 of these 34 mobile phone vendors are Chinese companies.

Although there are barriers that represent an obstacle to the increase of competition, new entrants could still enter the market by accessing the credit and financial services or by partnering with other firms, such as having contract manufacturers handle production and having mobile phone service providers handle distribution, thereby lowering start-up costs. It is clear that only in a context where market intermediaries and institutions provide a system which favours business, new start-ups can arise. Particularly in emerging markets, local mobile phone firms could successfully penetrate this industry by leveraging on their deep knowledge of locals or distribution channels. New firms, moreover, can capitalize and exploit the investments in research and development made by incumbent firms, can avoid mistakes made by other firms and exploit incumbent inertia, which is the tendency for incumbents to be slow to respond to changes due to their large size, established routines, or prior strategic commitments. Firms can also collaborate and partner with other firms. Indeed, collaborating can allow companies to gain access to critical and necessary resources more quickly than developing them in-house. Moreover, partnering or collaborating with other firms in order to obtain necessary skills and knowledges rather than building them in-house can help a company to decrease its asset commitments and increase its flexibility. This is particularly relevant in markets characterized by rapid technological change, like the mobile phone industry. Since, in these kinds of markets product life cycle is short and innovation is fundamental to be competitive, firms may decide not to invest in fixed assets technologies that rapidly change and can become obsolete soon. They can, for example, create linkages with specialized firms and rely on them for some activities. Collaborations can also allow firms to learn and to share the

costs and risks of a new project. Examples of collaborative arrangements are joint ventures², outsourcing³ or licensing⁴ (Schilling, 2016).

It is clear that probably there are other industries which are more institution intensive. In other words, there could be industries where the relationship between institutional quality and competitive intensity is even more significant and more evident. These are industry where firms may be more influenced by the quality of countries' regulations: the telecommunication or the railroads markets could be some examples. For example, Bohlin et al. (2010) studied the factors which contributed to the diffusion, all around the world, of new generations of mobile telecommunication technologies, which, over the years, improve voice services and data transmission. Among the factors which contributed to the introduction and adoption of new technologies, which coincided with more competition among firms, the regulatory quality is one of them.

In markets which require high capital investments such as the mobile phone industry, the number of new entrants may be limited due to the high financial resources required. It is not only about the financial resources: the number of new firms can be limited also by the difficult in gaining access to critical suppliers and distributors, by the threat of retaliation by existing companies or by the brand loyalty that big existing firms can enjoy. However, there may be also industries which are less capital intensive and potentially more accessible than the mobile phone sector. However, in countries characterized by institutional voids the competitive arena is static, and the market is highly concentrated. Maybe in these kinds of industries, the different levels of institutional quality could have a far higher impact on competitive intensity.

Oxley and Yeing in 2001 wrote that one of the reasons why e-commerce developed slowly outside North America was the institutional environment. The authors claimed that the institutional context, particularly with respect to the "rule of law", is essential for the development of online markets. They claimed that only in a well-developed institutional context people can feel that e-commerce transactions are safe. Particularly, the strength of the "rule of law" contributes to the building of "transactional integrity in online markets". The authors reported that, for example, one of the frauds that people can experience with e-commerce was

² A joint venture is a partnership between firms that entails a significant equity investment. They are usually designed to enable partners to share the costs and risks of a project and to pool and transfer capabilities between firms.

³ Outsourcing enables companies to rapidly access another firm's expertise, scale or other advantages. Outsourcing can give a firm more flexibility and enables it to focus on its core competencies. Overreliance on outsourcing, however, can make the firm hollow.

⁴ Licensing involves the selling of rights to use a particular technology from a licensor to a licensee. It is a fast way of gaining access (for the licensee) or leveraging (for the licensor) a technology.

“page-jacking”: it is the technique by which hackers create a fraudulent web page that perfectly replicate an existing site with the purpose of relevant information such as password or personal identification numbers. According to the authors, the institutional context of a country contributes to the credibility of payment channels, which are in turn a function of a country’s institutions and regulations and finally influence the investments in this market. The “rule of law” guarantees greater transparency, which means that there is less uncertainty about legal protection of payments, and people’s general attitude and trust in markets and contracting. The main finding of this research is that cross-country difference in e-commerce activity is due also to the ability of institutions to improve “transactional integrity in online markets”. Thus, they play an important role in shaping the market. Since the e-commerce has been a springboard for many companies, like Xiaomi, the influence of institutions on online transactions has had also an influence on competitive dynamics in many markets, by giving the opportunity to many new firms to enter the market and reduce the entry barrier. As reported in the OECD website, the growth of e-commerce has indeed the potential of increasing the competition within markets by increasing customer choices and brands among which people can choose.

The results of this research also suggest that good institutions, besides being important to the competitive dynamics between firms, are also important to end consumers. In a recent study, Fan and Yang (2020) highlighted that the smartphones market is an oligopolistic market and that there are too few products available for consumers. The result of the decrease of competition is the decrease of the number of products and the decrease of products variety in the market, with the consequence of reducing the total welfare for consumers.

It is generally known that consumers benefit from the increase of the competitive intensity. Competition is a process that brings fundamental benefits for consumers in terms of lower prices, higher quality, innovation, more variety of goods and services available. In a competitive market prices are pushed down. The consumers are not the only ones who benefit from it: when more people can afford to buy a product, companies have a larger target, and it is good for the economy as a whole. This can be particularly true in the poorest countries. Competition also encourages companies to improve the quality of the goods and services they offer, to attract more customers and to expand their market share. Quality can mean various things: products that last longer or work better or more efficient after-sales technical assistance. More competition can also mean higher quality at the same prices. If we look at the past, there are many products that have a similar cost compared to the one in the past but offer far higher qualities. Then, it is also important to consider that in a competitive market, firms seek to differentiate their products. The result is a wider choice: consumers can choose the product that

offers the best quality/ price ratio for their needs. In order to offer more choice and better products, companies need to innovate, in terms of design, production techniques or services. Indeed, consumers can find more goods and services to choose according to their particular needs. This is differentiation. All these aspects contribute to increase the total welfare for consumers (Schilling, 2016).

APPENDIX

Authors	Industry	Country	Period	Measure of competition	Drivers (independent variable)	Main findings
Wright (1978)	206 different industries	US	1947-1963	CR4	Scale economies, product differentiation	Industry concentration positively related with the variables
Jenny and Weber (1978)	Manufacturing	France	1947-1963	CR4	Initial concentration, barriers to entry, industries growth, variation in the number of firms	Industry concentration, positively related with economies of scale, initial investments. It is negatively related with initial level of concentration and number of firms
Rogers (1980)	Manufacturing		1947-1972	CR4	Industry size, Industry growth rate, economies of scale, advertising intensity	TV advertising increase concentration level in consumer goods industries
Pickford (1983)	Manufacturing	New Zealand	1974-1975 / 1978-1979	CR4, CR3 and HHI	Size of market, growth of market, scale economies, multiplant ownership, merger activity, product differentiation	Size of market and product differentiation are negative related with concentration ratio. Scale economies, multiplant ownership and merger activities are positive associated with concentration ratio
Kessides (1990)	Manufacturing	US	1982	CR4	Sunk costs	Concentration is lower when capital can be easily leased or sold to other firms
Hambrick (1996)	Airline	US	1979-1986	Number of moves and speed of actions	Top management team heterogeneity	top management heterogeneity increases the probability of competitive moves
Gimeno and Woo (1996)	Airline	US	1984-1988	Average monthly prices of tickets	Strategic similarity and multimarket contacts	Strategic similarity fairly increases intensity of rivalry, while multimarket contacts greatly decrease it
Chen (1996)	Airline	US	1989	Survey to executives	Market commonality and resource similarity	Attackers and defenders react in different ways, depending on market commonality and resource similarity
Bhattacharya and Bloch (2000).	Manufacturing	Australia	1977-1978 /	HHI	Minimum efficient size firm, Cost disadvantages, product	Higher the level of minimum efficient size firm, higher the level of concentration. This

			1984-1985		differentiation, Import intensity variable	impact is more relevant in low-advertising market.
Young et al. (2000)	Software	US	1987-1991	Number of moves and the timing of moves	Resource dissimilarity and multimarket contacts	Multimarket contacts lead to a reduction in competition and resource dissimilarity is likely to increase competitive intensity
Ferrier (2001)	16 different industries	US	1987-1993	Attack volume, duration, complexity and unpredictability	Top management team heterogeneity, past performance, organizational slack and industry characteristics	Competitive aggressiveness is influenced by barriers to entry, industry concentration and industry growth
Yu and Cannella (2007)	Automotive	Global	1995-2001	Speed of response	Geographic distance, government restrictions on MNEs, initiating country importance, subsidiary control, multimarket contact	The only drivers analysed that impact speed of response are geographic distance, government restrictions on MNEs and multimarket contact
Murthy and Deb (2008)	Banking	India	1993-2002	HHI	Asset size, number of firms, asymmetry in distribution assets.	HHI is negatively related to asset size and number of firms, and positively related to assets distribution
Lien and Foss (2009)	855 different industries	US	1981,1983,1985,1987	CR4	Industry concentration of neighbouring firms	
Kochanski (2009)				HHI	Costs of production, demand growth, barriers to entry, costs of innovation, returns to innovation and propensity to innovate.	Positive relationship between HHI and costs of production, barriers to entry, propensity to innovate and returns to innovation. Negative relationship between HHI and demand growth and costs of innovation
Yu et al. (2009)	Automotive	Global	1995-2001	Number of competitive actions and competitive complexity	Subsidiary ownership, local restrictions, cultural distance, number of local rivals	There are factors that reduce the coordination between the headquarter of a MNE and its subsidiaries, with the consequence of reducing competitive aggressiveness
Alfranca et al. (2014)	Wood market	Europe	1996-2007	HHI	Innovation: R&D spending and R&D employees	R&D spending and R&D employees influence market concentration depending on the initial level of industry concentration

Nadkarni (2016)	23 different industries	US	1995-2000	Number of competitive actions and action speed	Executive temporal depth and industry velocity	Executives temporal approach shapes competitive behaviours, depending on the market.
Alexeev and Song (2013)	Manufacturing	Cross-country study (mainly developing and transitional countries)	2000-2005	Number of competitors, HHI, mark-up on operating costs, market share, hypothetical firms' reactions to rival' increase of price	Corruption (it is the dependent variable)	Firms operating in more competitive environments are also those which pay more in bribes. Even though this relationship is not always very strong and statically significant, nothing seems to suggest a negative relationship between competition and corruption
Emerson (2006)				Survey by World Economic Forum and an index constructed by The Heritage Foundation and the Wall Street Journal	Corruption	The higher the level of corruption, the lower the level of competitive intensity between firms
Delis (2012)	Banking	84 countries	1990-2005	Lerner Index and the Boone Indicator	Institutional context is proxied by country's transparency, law quality and bureaucratic quality.	The higher the value of the drivers, the higher the level of competition
Mirzaei and Moore (2104),	Banking	146 countries	1999 to 2011	Lerner Index	Quality of institutional setting proxied by property rights, six Worldwide Governance Indicators plus other variables	Positive relation between competition and institutional variables
Saona and Azad (2019)	Banking	11 Asian countries	2001-2013	Abnormal profits: when banks obtain monopolistic profits, it means that there is no competition among firms	Institutional context proxied by the six Worldwide Governance Indicators	Higher the quality of institutions, higher the level of competition
Hermelo and Vassolo (2010)	Different industries	Brazil, Chile, Colombia, Peru, Mexico, Venezuela and Argentina	1990-2006	Persistent superior economic performance, (when it occurs, this suggests low competition)	Institutional context proxied by 11 different variables	A not well-developed institutional context limits competition

Etiennot et al. (2019)	48 different industries	105 countries	2000-2007	Persistent superior economic performance, (when it occurs, this suggests low competition)	Institutional development proxied by Worldwide Governance Indicators	Positive relationship between competition and institutional development
Glen et al. (2001)	Manufacturing	India, Malaysia, South Korea, Mexico, Jordan, Brazil and Zimbabwe	1985-1994	Persistent superior economic performance, (when it occurs, this suggests low competition)		Intensity of competition is higher in developing countries than in developed countries.

CONCLUSION

The main objective of this thesis was to explore how institutional quality in a country can influence competitive intensity in an industry. The thesis has addressed this aim by analysing the mobile phone industry in a cross-country analysis which considers a span of time of ten years, from the beginning of 2010 to the end of 2019 and 196 countries.

The main finding of this research is that, according to the empirical results, institutional quality positively affects competitive intensity. Indeed, bad quality institutions represent a limit to the intensity of competition: this finding, indeed, seems to suggest that when firms operate in a country characterized by low contract enforcement, corruption, political uncertainty, information asymmetry, inefficient bureaucracy or absence of transparency, the probability that the competition is not intense is higher.

The managerial implications of this research are two: the impact of institutional quality on potential entrants and on incumbents. Since the main finding of this research is that the institutional quality is usually associated with higher level of competitive intensity, potential entrants and incumbents have to consider the following two aspects:

- in countries characterized by good institutional quality firms tend to compete more between each other. This means that the new entrants should be prepared to great competition which can translate in price wars, retaliation, advertising battles or higher R&D costs to keep pace with continuous innovation. However, potential entrants should not be afraid of collusion between existing firms. This is an advantage from their perspective. On the other hand, from the incumbents' perspective, this kind of environment constantly threaten their role in the industry. This means that they cannot always rely on their brand awareness, for example, or on their expertise, consumers' switching costs, their existing capabilities and complementary resources, their supplier and distribution networks and so on. The threat of new entries can be a great challenge and they should always be ready to face them.
- In countries characterized by low institutional quality, firms tend to compete less between each other, and the industry concentration is usually higher. This can be positive for incumbents but not for potential entrants. The first in fact can collude between each other; while the seconds have to face a very high barrier to entry: incumbents which collude will try to stop and to hinder their entry.

To sum up, the main implication of this research is that “the context matters” because it shapes and influences the competitive dynamics between firms. However, also in countries characterized by low institutional quality new entrants can succeed. As Rottig (2016) suggested,

firms may succeed in countries characterized by institutional voids by adapting to the environment, from a political, economic and social point of view. Political adaptability allows new entrants to be supported and accepted by local governments and this is fundamental particularly in emerging countries; economic adaptability implies understanding the dynamics of how to do business in these countries by relying on, for examples, local managers who have access to the crucial resources; social adaptability refers to the importance of building local stakeholders relationships and meeting their expectations. Adaptability is indeed the key element and may allow new entrants to survive and succeed in a new market.

There are many elements that can explain this positive influence of institutional quality on competitive intensity. First, high institutional quality favours the entry of new firms in many ways: good contract enforcement, good protection of intellectual property rights, more effective regulatory agencies favour their entry in a new market. Indeed, in countries characterized by low institutional quality and, consequently, by institutional voids, foreign investments occur less than in developed countries. This happens because the economic and political instability of these countries and the consequent risk of doing business, the absence of good institutional infrastructures such as trained and skilled workers, the lack of effective property rights and frequent cases of corruption and bribery do not favour foreign investments. This leads to the entry of fewer foreign companies, but also the entry of new local players is hindered. Indeed, the potential entry of new players is usually limited by the absence of availability of market information, low efficacy of anti-trust policies, not well-developed legal system or credit market, the absence of regulatory bodies which monitor uncompetitive behaviours or because incumbents firms have more power because thanks to political ties. However, these new entrants have the power to deteriorate incumbents' competitive advantage and increase the competition between firms.

This is a very interesting theme that future research may explore in more detail. Particularly, future studies may focus on other industries and analyse how institutional quality affect the competitive dynamics between firms. A cross-sector study could be very useful to understand which industries are more influenced by institutional characteristics and which industries are less influenced. In addition, this theme could be further analysed by developing a research which considers managers and executives' testimonials: direct experiences of how institutions affect the competitive dynamics between firms could be very interesting to better understand this theme.

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