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A new approach to study target CEO retention or replacement: the case of misjudgement

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Abstract

Nowadays firms undertake more and more acquisitions with the purpose to improve their value. In particular, the pursuit to obtain a technological innovation is increasingly recurrent motivation for the firms that through acquisitions try to achieve competitive advantage and a faster development. An industry in which such trend is especially frequent is the high-tech one, where very often large acquirers are attracted by the technological inputs and the technical capabilities highly developed by small-sized and relatively young firms. However, acquisitions hide a dark side inasmuch the truth is that is more likely destroy value than create it through these. In this context, a key factor that may influence acquisition success or failure is represented by the human resources, particularly board directors and CEOs.

This study investigates on the antecedents of the misjudgement about the decision related to target CEO retention or replacement in post-acquisition period. In particular, the thesis aims to determine how a powerful board of directors and the similarity between CEOs may affect misjudgement.

Based on a sample of completed acquisitions of small high-tech firms announced over the period 2001 to 2005, three out of four hypotheses developed in this thesis are supported by the findings. Inter alia, the results of the study demonstrate a positive association between misjudgement and CEOs similarity in terms of management style. Moreover, there is also a positive relation between misjudgement and the power of the board of directors, measured in terms of acquirer CEO duality and difference of tenure between acquirer CEO and the average tenure of external directors. Finally the number of external directors in the board has no a significant effect in determining misjudgement.

Abstract italiano

Al giorno d'oggi le imprese intraprendono sempre più frequentemente acquisizioni, al fine di migliorare le loro performance e il loro valore. Nella maggior parte dei casi, il desiderio di ottenere innovazione tecnologica è la motivazione trainante per le aziende che attraverso le acquisizioni cercano di ottenere un vantaggio competitivo e un più rapido sviluppo. Un settore in cui questo trend si è particolarmente diffuso, è quello high-tech, in cui le grandi aziende acquirenti sono attratte dalle tecnologie e dalle capacità tecniche altamente sviluppate da imprese relativamente giovani e di piccole dimensioni. Tuttavia, queste acquisizioni nascondono un lato oscuro. Infatti, dalle ricerche empiriche effettuate in passato da diversi studiosi, si evince che dall'unione di due aziende sia più probabile la distruzione di valore piuttosto che la sua creazione. Nel contesto analizzato, un fattore chiave che può influenzare il successo o il fallimento di un'acquisizione è rappresentato dalle risorse umane, in particolare dai membri facenti parte del Consiglio di Amministrazione (CdA) e dagli Amministratori Delegati (AD).

Questo studio indaga gli antecedenti del misjudgement, termine con il quale intendiamo rappresentare il disallineamento tra ciò che viene annunciato dall'azienda acquirente nel momento dell'acquisizione, riguardo al futuro mantenimento o sostituzione dell'amministratore delegato dell'azienda acquisita, e ciò che effettivamente si verifica in seguito. In particolare, la tesi si propone di determinare come il misjudgement possa essere influenzato da fattori come: il potere e l'incidenza del consiglio di amministrazione e la somiglianza tra gli amministratori delegati delle due aziende.

Grazie ad un campione composto da acquisizioni di piccole imprese high-tech annunciate tra gli anni 2001 e 2005, abbiamo potuto supportare tre delle nostre quattro ipotesi di partenza. Entrando maggiormente nel dettaglio, l'output del nostro modello di regressione logistica ha dimostrato un'associazione positiva tra il misjudgement e la somiglianza tra gli amministratori delegati in termini di stile di gestione aziendale. Inoltre, abbiamo anche riscontrato una relazione positiva tra il misjudgement e il potere del consiglio di amministrazione. Il potere e l'influenza del consiglio di amministrazione è stato misurato sia in termini di dualità dell'amministratore delegato dell'azienda acquirente (cioè in caso di dualità l'amministratore delegato riveste anche il ruolo di presidente del consiglio di amministrazione) che in termini

di differenza tra il numero di anni di carica dell'amministratore delegato dell'azienda acquirente e il numero di anni di carica dei membri esterni della stessa. Infine, dai risultati si può verificare anche che il numero dei membri esterni nel consiglio di amministrazione dell'azienda acquirente non ha alcun effetto significativo nella determinazione del misjudgement.

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1. Introduction

In the last few years, Mergers and Acquisitions (M&As) have become a very common practice, according to the growth rate of global mergers and acquisitions volume.

Such growth is motivated by the fact that through acquisitions firms seek to reach different purposes (Berkovitch & Narayanan, 1993; Brouthers et al., 1998; Dash, 2010, pp.10-44).
Among the most common motivations there is the desire to look for synergies. In this kind of acquisitions, acquirer wants to gain resources from the target in order to obtain an economical benefit, with costs reduction, economies of scale and scope, and in general through a better efficiency in the processes (Berkovitch & Narayanan, 1993; Dash, 2010, pp.10-44). Another recurrent motivation could be related to the desire to entry into new markets, opening the doors to new geographical borders or into new product segments, satisfying the desire of internationalization and increasing market share by acquiring rival firms or rising the barriers to entry (Brouthers et al., 1998). Managerial motivations as the empire building phenomenon and the research of tax benefits (Dash, 2010, pp.10-44) are just other two of a long list of motivations behind an acquisition.
Among the many, surely an important driver may be the pursuit to obtain certain technology inputs from the acquisition (Ahuja & Katila, 2001; Lihua & Feifei, 2009). During this kind of acquisition, acquirers may gain competitive advantage against competitors through technologies, new products, patent, or simply through the knowledge that is embedded in the human capital of the target (Ahuja & Katila, 2001).

However, cannot be neglected that, despite all these possibilities of value creation, the majority of the acquisitions fail. These failures can be evaluated with various measurements that show that the post-acquisition performances are lower and not satisfactory (Datta et al., 1992; Brouthers et al., 1998; King et al., 2004). For instance, there are measurements of post-acquisition performance based on stock market reactions, others based on accounting measures as sales decline, return on assets and so on.
King et al. (2004) demonstrate with a meta-analyses, based on the combination of most of the prior studies that capture the performance in post-acquisition period, that the rate of failure of acquisitions is about 70%.

Brouthers et al. (1998) try to explain this high percentage of failure in the acquisitions analysing the behaviour of top executives who very often judge with excessive optimism and without attention the possible acquisition returns or seek to expand more and more their power without thinking about the best for the firm.

Furthermore, the literature suggests that the problem resides especially in post-acquisition implementation (Datta et al., 1992; Jemison and Sitkin, 1986; Cartwright, 2002), therefore most of the responsibility lies in the decisions taken by the management in post-acquisition period.

Datta et al. (1992) state that environmental changes, like those brought from an acquisition, can affect firm performances. The same concept is valid for Jemison and Sitkin (1986): they believe that acquisitions disturb organizational balance, because acquirer focuses exclusively on the economic aspects without paying attention to the post-acquisition process, that also include all the structural changes act to provide integration and coordination between acquirer and target. The merger between the two firms requires an exchange of knowledge, skills and capabilities between the key people of the two sides, but sometimes in the target there may be the departure of human capital essential for the success of the acquisition (Cartwright 2002); this happens because they are demotivated by the loss of power, by a reduction of the freedom in decision-making and by the insecurity about their future (Hambrick & Cannella, 1993).

The retention of the human capital, and in particular the retention of the target Chief Executive Officer (CEO), is an important aspect and a great number of prior works are focused on it (Bargeron et al., 2012; Hambrick & Cannella, 1993; Martin & McConnell, 1991; Matsusaka, 1993; Wulf & Singh, 2011). In fact, the retention of the acquisition key people can produce positive effect in the combined firm.

Hambrick & Cannella (1993), Walsh (1988) and Walsh & Ellwood (1991), centered their attention on target management turnover, wondering how often they are replaced and the effects of the replacement on the firm performance. They find a positive relationship between the target key members' departure and the decline of the firm performance, because this is related to the loss of individuals' knowledge, capabilities and skills.

Indeed, the target CEO can potentially play an important role for providing coordination capacity in the post-acquisition period and also for providing motivation to target employees, discouraged and disheartened after merging with acquirer, increasing the likelihood of key members' retention (Graebner, 2004).

There are so many empirical studies that investigate on the effect of departure of target CEO on the post-acquisition performance and the determinants of departure itself (Martin & McConnell, 1991; Hambrick & Cannella, 1993; Matsusaka, 1993; Wulf & Singh, 2011; Bargeron et al., 2012).

Having said all of this, the thesis is focused on acquisitions of small high-tech firms in order to investigate deeper the phenomenon of target CEO retention or replacement. There are several reasons that make this kind of acquisitions more interesting. First of all, as explained before, acquisitions may have different motivations and it is not easy to study target CEO retention or replacement in all types of acquisitions. For instance, acquisitions in which the acquirer is looking for economies of scale and synergies, in order to reduce redundancy, are very likely that acquirer CEO replaces target CEO; while technological acquisitions have a scenario most suitable for the study of target CEO retention or replacement. Second, in acquisition of small high-tech firms, since the firms are small, the role of the target CEO in the organization is more pivotal than in a larger firm. Third, since high-tech acquisitions are mainly motivated by the desire to obtain certain technologies or knowledge difficult to transfer because embedded in human capital and also in formal and informal social ties between the individuals (Ranft & Lord, 2000), it increases the dependence of the acquirer to the target human capital and employees, that hold the knowledge. So, the departure of such individuals could be problematic for the acquirers because they lose the knowledge and the technologies.

For the above, in high-tech acquisitions, it has been shown from many studies that the post-acquisition outcomes are low (Ahuja & Katila, 2001; Frick and Torres, 2002; Kapoor and Lim, 2007). In detail, for instance a Harvard research state that the percentage of failure in small high-tech acquisitions is a value included between 70% and 90% (Christensen et al., 2011). Thus, all of those things we have discussed before are confirmed because the failure rate is even higher. In particular, the departure of human capital is a crucial factor for the acquirer. As mentioned before, in high-tech acquisitions the knowledge and the technologies are mostly tacit and embedded in formal and informal social complex networks (Ranft & Lord, 2000; Ahuja & Katila, 2001). Therefore, it exists the risk that during the acquisition and in post-acquisition period the technological knowledge, for which the acquisition was undertaken, is lost with the departure of key individuals or with an incorrect transfer of such knowledge between acquirers and targets.

For these reasons the role of individuals who have the knowledge or who are the key to reach the knowledge is pivotal for the acquirer and the success or failure of a small high-tech acquisition is strongly related to the level of knowledge that target possesses.

In many cases target CEO is the key factor to access to knowledge of the firm (Wulf and Singh, 2011), and this is even truer in small high-tech firms.
Hence the importance to study target CEO retention or replacement mostly in small high-tech acquisitions. In fact, first of all, target CEO can be considered as a good "asset", in term of technology knowledge and firm specific skills (Wulf & Singh, 2011). Secondly, since high-tech firms are characterized by advanced technology knowledge difficult to transfer, target CEO can help in accelerating the technological knowledge transfer, eliminating the asymmetric knowledge between acquirer and target (Graebner, 2004). Moreover, target CEO can be a good resource also for his managerial skills. Indeed, during an acquisition acquirer might find useful to rely on the target CEO to manage target, both due to lack of time to devote at the implementation phase (Graebner, 2004) and to an eventual geographical distance between acquirer and target (Krug & Hegarty, 1997). Finally, as previously said, target CEO retention can be a positive signal for target employees and can help them in experiencing smooth transition because in the post-acquisition period are common negative feelings of frustration and demotivation caused by the changes and the fear to lose the job (Graebner, 2004).
Thus, the role of the target CEO, in the phase of post-acquisition and in these types of firms, is important.

Although there are several quantitative and qualitative studies about high-tech industry and also about determinants of target CEO retention or replacement, we evaluated that most of the received information from this literature is about the acquisition characteristics, firm characteristics, human capital characteristics and aspects linked to CEO replacement or retention (Hambrick & Cannella, 1993; Wulf and Singh, 2011; Krug & Hegarty, 1997; Ranft & Lord, 2002; Graebner, 2004).
These empirical studies mainly observe the replacement or retention of the target's CEO in a certain year in post-acquisition period, for example two years after the acquisition, and then try to predict the observed replacement (or retention) with certain factors, but in our work we want to approach something very new.

The intriguing aspect, when it comes the target CEO retention or replacement, is if the acquirer is aware from the beginning of the choice that he will take in the future concerning the target CEO retention or replacement, or if it is something unexpected. In other words we wonder if target CEO retention or replacement is a decision taken later in the process unexpectedly for complications that occur in the course of events, or not. Therefore, there could be the case in which the acquirer at the beginning decides to keep the target CEO in post-acquisition period and, despite of this, at a certain point the replacement happens, so there is misjudgement.

In this thesis we try to address this aspect, that we defined as a phenomenon that occurs when afterwards an announcement in the news of the acquirer in the pre-acquisition period about the decision to retain target CEO in the combined firm, in reality target CEO leave the combined firm within two years. Thus, there is misjudgement either if the acquirer decides to replace target CEO soon after the acquisition or if target CEO decides to leave the firm due to hostile feelings generated against him or due to a reduction of autonomy and status (Cannella & Hambrick, 1993).

We study misjudgement about the decision related to target CEO retention or replacement in small high-tech acquisitions because the effect of target CEO replacement is worst when it comes misjudgement. This happens for several reasons. Certainly direct costs and losses related to target CEO replacement in small high-tech firms are amplified with misjudgement. Indeed, with misjudgement we have high costs for the lost of the target CEO as human capital (Wulf & Singh, 2011), because these people by themselves are extremely valuable. Secondly, misjudgement increases the cost of post-acquisition implementation because of the negative effect related to target employees' uncertainty and demotivation, which increases also the likelihood of key employees departure. The third aspect is that replacing someone unexpectedly, taking a new member to hold the position of target CEO, it is more expensive for the acquirer. Moreover, misjudgement also has an impact on the image and reputation of the acquirer both towards the shareholders and future target, therefore towards the market, because acquirer is considered unaware of what he is doing or is considered not trustworthy, so these become an extra cost for the acquirer.

In particular, beside the aspects commonly analysed in relation of target CEO replacement or retention that in our study are considered associated to misjudgement, we mainly investigate two among all the factors that may affect misjudgement, because we think they strongly influence the firm's decision-making process. Primarily, we must consider the impact that may have behavioural aspects on the decision-making and therefore studying the similarity effect between acquirer and target CEO. Then, it is important to understand how it is structured the decision-making process, considering those that in the firm has the final say in decision-making, the CEO or the Board of Directors (BoD); so it is interesting to assess the effect of the acquirer board of directors characteristics (like number of external directors, board of directors tenure and CEO duality).

Similarity between individuals, and in our case between CEOs, is an interesting phenomenon because, as sustained by theories related to social psychology, when individuals share similar characteristics are more prone to create ties, join to form groups and collaborate with these similar people (Murnieks et al., 2011; Tajfel, 1982; Ashforth & Mael, 1989; Gedds & Konrad, 2003; Schneider, 1987; Jackson et al., 1991; Westphal & Zajac, 1995). Thus, similarity in characteristics between acquirer and target CEOs leads to greater interaction and negotiation during the acquisition, influencing the way of work in post-acquisition period. So there is a positive relationship between the similarity and the announcement of further collaboration between these two individuals and therefore also a positive relationship with target CEO retention. However, afterwards this positive attraction, CEOs similarity has a dark side and could lead also to negative effects (Graebner, 2009; Rogan & Sorenson, 2014), seen that it could generate the increase of deception, mistrust and social biases. For instance, similarity between CEOs can increase the trust between acquirer and target CEOs that results to opportunistic behaviour (Graebner, 2009). For these reasons we expect that the similarity increases the likelihood of misjudgement.

As it regards the board of directors, it is equally interesting because represents the main monitoring and control system into the acquirer (Anderson et al., 2003) and therefore it should prevent a decision that could be very damaging for the firm, like the misjudgement about the decision related to target CEO retention or replacement. Thus, in other words, it can be stated that the board of directors improves the acquirer's decision-making process. Obviously, this is true if the board of directors has the real power and influence to affect the decision in the firm also during an acquisition. For this reason we test three aspects, that increases board of directors power and influence, to evaluate the effect of the acquirer board of directors on misjudgement. Such aspects are: the presence of external directors, the seniority of the external directors of the board of directors compared to the seniority of the CEO and CEO duality.

Summarizing, the purpose of this work is to understand the antecedents of misjudgement and what association they have on it. To achieve this objective, we use a sample of 217 completed acquisitions of small high-tech firms announced over the period 2001 to 2005, in which the acquirers are US listed firms, while targets are headquartered in USA or Europe.

After this introduction, the rest of the thesis is structured in five sections as following.
The first section introduces the reader in mergers and acquisitions context providing, first of all, definitions and fundamental concepts about mergers and acquisitions as well as their trend in the years. Subsequently we explain the main motivations behind mergers and acquisitions. After providing a general overview of the mergers and acquisitions context, the section deepens the argument about target CEO retention or replacement, showing pros and cons of such decision. This section ends with the investigation of a series of elements that according to previous studies or our considerations may influence whether or not target CEO retention.

The development of the hypotheses takes place in the second section. In particular we develop a new approach to study target CEO retention or replacement through the definition of misjudgement. Moreover, this section shows the logic process that leads to the proposal of four hypotheses, starting from the existing literature explained in the section one and our considerations.

In the third section is explained the reference sample, the source from which it was built, as well as the definition of the variables which constitute the empirical model. In addition we also explain and discuss about the econometric model used to achieve the objectives of this study: logit regression.

The fourth section explains the statistical evidence, the main estimations and results about the study.

Finally, in the last section the main estimations are discussed in a more qualitative and critical manner, highlighting similarities and discrepancies with the current literature. Moreover, considering that the described approach is brand new in the literature we expose consciously the improvement areas, which might be exploited in future works or studies. At the end, academic and practical contributions of the thesis are unfolded.

2. Theoretical background

2.1. Merger and acquisition

Mergers and acquisitions (M&A) are transactions in which a firm (acquirer) purchases another firm (target).

In cases of merger, the relative size of the acquirer and the target is generally equal. Dash (2010, pp. 10-44) believes that: “A merger happens when two firms, closer in size, agree to go forward as a single new firm rather than remain separately owned and operated”. However, even in cases of mergers there is an acquirer and a target. An example of merger is the one dated 2014 between two giants of automotive industry Fiat S.p.a. and Chrysler Group, with the purpose for Fiat to become a global player able to face the competition of the big world car manufacturers (Ebhardt & Lepido, 2014); in the mentioned example the acquirer was Fiat S.p.a. while Chrysler Group was the target.

Instead in cases of acquisition, the acquirer size is generally far bigger than target size. So acquisition usually refers to the imposition of a larger firm, as the new owner, over a smaller one (Dash, 2010, pp.10-40). An example is Microsoft acquisition in 2016 of Swiftkey, British start-up maker of a predictive keyboard powered by artificial intelligence, in a deal worth $250 million (Bradshaw & Ahmed, 2016).

According to Dash (2010, pp.10-44) mergers generally happens with the agreement of both the firms involved; therefore each firm has interest in jointly create value from the merger. In acquisitions contrariwise, it is not sure that the relationship will be friendly; in this case we’ll define this kind of transaction as hostile acquisition. Deepening this topic, it can be assumed that the transition from a friendly acquisition to a hostile one depends only upon the attitude of the acquirer towards the target.

Dash (2010, pp.10-44) clearly points out the two different situations. When it occurs a hostile acquisition, which is also called hostile takeover, the target's stocks are in the market and the acquirer began to buy the majority of these stocks, without approaching directly to the target. In other words, the target realizes that someone is buying all its stocks available on the market, namely that someone is imposing as the new owner of the firm. This is a problem because when the acquirer get 50% of the target’s stocks, it has the ability to take strategic

decisions, to choose the management, liquidate or enter into other areas of business. So in this case the target loses control and ownership without giving its consent to the acquisition.
In a friendly acquisition instead, the acquirer approaches the target proposing a purchasing price and the target, in its turn, proposes a counteroffer. This is how begins the dealing between the two parts. It is possible that the two parts do not reach an agreement immediately, but there might be a negotiation and an interruption for consultation with the board of directors. Anyhow, the negotiation ends with an agreement that can be achieved at a lower or higher price than the initial one; incentives can also be introduced to find a compromise between the two sides. An example of friendly acquisition was the Microsoft's acquisition of Fast Search and Transfer, for which was required a negotiation and a joint work for more than 6 months to get the deal (Dash, 2010, pp.10-44).

An important decision that has to be taken during the negotiation in a friendly acquisition is the payment method; in fact there are three different ways to pay for an acquisition: stocks swap, cash and a mix method.

In the first case, the acquirer issues new stocks in the market in order to purchase the assets and the stocks of the target. Stocks swap is mainly used when the two firms that take part in the transaction are listed firms and when the target is large. This method allows the shareholders of the two firms to share the risks of the transaction. (Dash, 2010, pp.10-44; Zhang et al., 2000).

The second method occurs when the acquirer buys a certain number of assets and/or stocks of the target paying in cash, allowing a very clear ownership transfer. With this payment method the target will be more inclined to accept the acquisitions' terms. At the same time this is the method preferred by the acquirers because they will benefit of all the profits that there will be generated after the transaction and they will not lose control after the acquisition (Rappaport & Sirower, 1999; Zhang et al., 2000).

The last method combines the payment with stocks swap and the payment with cash. It's a compromise made to please all the shareholders. This method of payment is mainly applied for relatively large targets and when the acquirers do not have enough cash (Zhang et al, 2000).

According to Rappaport & Sirower (1999) and Zhang et al. (2000), it is not possible to decide which is the best method because different aspects have to be analysed, but generally stocks transactions bring negative return at the moment of the announce; cash transactions instead could bring positive returns. The only thing that is sure is that the decision depends on the relative size of the target to the acquirer, the acquirer prior performance (in particular considering at return on equity) and the share ownership of the target management (Zhang et al., 2000).
The choice of the payment method also depends on the motivations behind the acquisitions; this theme will be treated more in detail further.

Let's see now the evolution of the merger and acquisition market through statistics.

2.2. Merger and acquisition statistics

The percentage of mergers and acquisitions is intensely increasing and these practices are becoming more and more common. To confirm this trend, global mergers and acquisitions volume has increased for the third consecutive year reaching an all time high of $5.03 trillion in 2015, up 37% from 2014 ($3.67 trillion). This value beats an earlier record of $4.296 trillion in 2007, to surpass the $5 trillion mark for the first time ever, citing data by financial services firm Dealogic (Liu, 2015).

The growth of global mergers and acquisitions is strongly related to the number of big deals (more than 10 billion). In 2015, 69 deals were announced totaling $1.90 trillion, more than double the $864.0 billion through 36 deals announced in 2014.

Still from the data collected by Dealogic (Liu, 2015), the most targeted industry for global mergers and acquisitions in 2015 was Healthcare with $723.7 billion, up 66% on $436.4 billion in 2014 and the highest annual level on record. Technology follows with a record of $713.2 billion, and Real Estate rounds off the top three industries with $457.8 billion, its second highest annual volume behind 2007 ($482.9 billion).

In this context of growth, the biggest merger by value in 2015 was the American pharmaceutical giant Pfizer's $160 billion acquisition of Allergan, eclipsing Anheuser-Busch

InBev's $110 billion acquisition of SABMiller (Kondalamahanty, 2015). While the former would give rise to the world's largest drug-maker, the latter aims to create the world's largest beer brewer.

In general, the increasing of merger and acquisition transactions was particularly remarkable in term of volume in the last two decades as it is evident in Figure 1 below, that shows a sinusoidal pattern and a growing trend in mergers and acquisitions volume in the last 20 years.

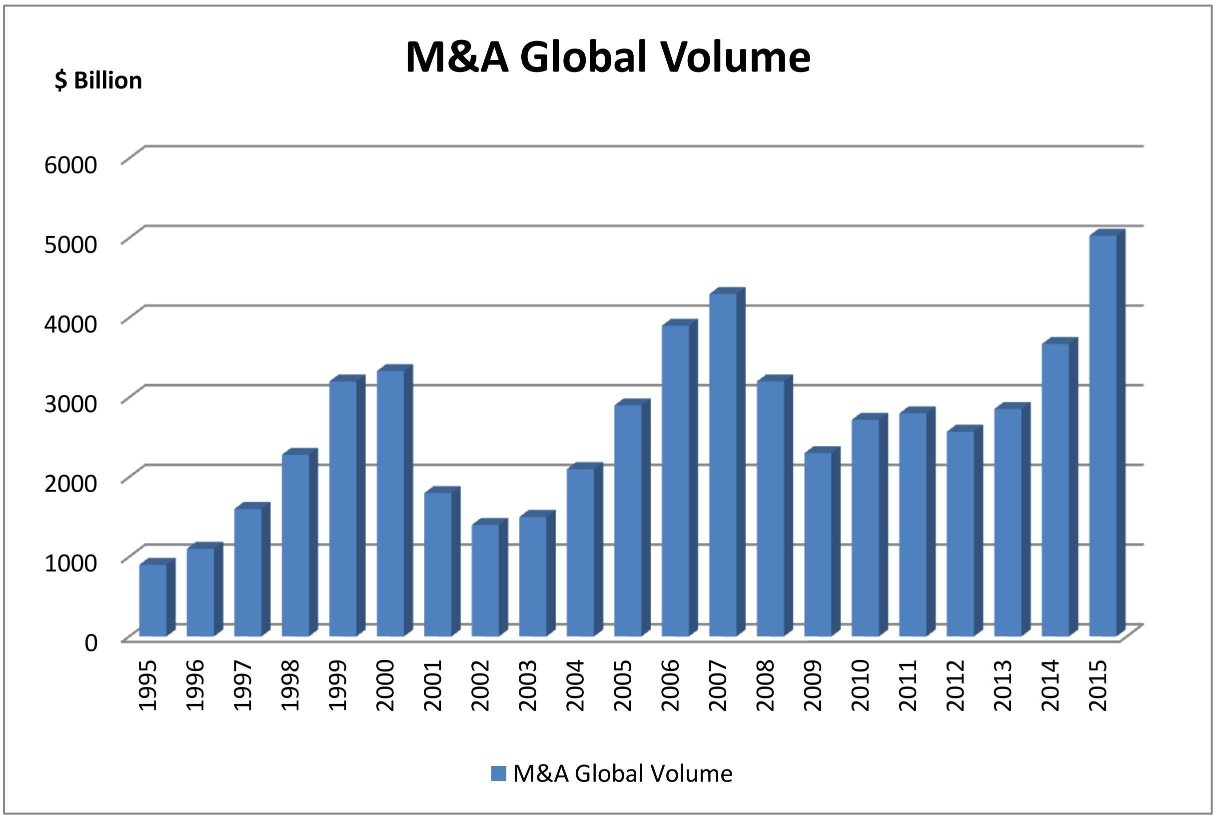

Figure 1: Dealogic- M&A statshot (2015), global M&A volume

The largest contributors to this global growth were North America and Asia, with a respective growth of 41% and 59% more than 2014. Mergers and acquisitions in Europe reached $1.03 trillion in 2015, up 17% on the $883.8 billion announced in 2014 and is the highest level since 2008 ($1.29 trillion), citing data by financial services firm Dealogic (Staiti, 2015). The increase was driven by 171 deals, more than 1 billion with a total of $699.4 billion so far this year, more than 8% over 2014 ($560.6 billion).

Nevertheless, despite the statistics confirm a large increase in mergers and acquisitions, many scholars have found that these practices in the majority of instances disappoint the expectations and do not add value (Datta et al., 1992, Brouthers et al., 1998, King et al., 2004).

King et al. (2004) offers meta-analyses of post-acquisition performance and verified the high failure rate, which is about 70%. Thus, they wonder why there is all this enthusiasm towards acquisitions if it is more likely a failure in performance than a success.
King et al. (2004) demonstrate positive abnormal returns both for the acquirer and the target in the day of the announcement. These positive results are motivated by the high initial expectations on future returns in firm performances, thanks to the realization of potential synergies with the acquisition. However, on average, immediately after the announcement acquirer returns become null or negative.

Also Datta et al. (1992) discuss this topic and exhibit how, on average, shareholders of the acquirers do not realize significant returns from mergers and acquisitions, at the contrary of the targets' shareholders that generally are the only ones to get benefits. They also identify the factors that can affect firm performances: environmental changes, kind of acquisition, acquirer approach and payment method. The first three, undoubtedly, are linked to one of the major problems related to acquisitions, the post-acquisition implementation (Datta et al., 1992).

Therefore the question arises spontaneously: Why mergers and acquisitions are so popular despite their high failure rate? (Brouthers et al., 1998; King et al., 2004).
The explanation given by Brouthers et al. (1998) consists in three main causes. The first one is that managers want to achieve their goal despite the maximization of the value for the shareholders. Furthermore, they identify a managers' excessive optimism: in fact managers believe that they learned from past experiences but very often they make the same mistakes. Finally, the last cause that is identified by Brouthers et al. (1998) is the inaccuracy of collected data and statistics based on previous studies.

There are, however, many other explanations to the firm desire to pursue acquisitions. Thus, in the next chapter, we decided to discuss about the drivers behind this popular corporate strategy, because it is important to identify the reasons why, despite everything, the mergers and acquisitions became widespread.

2.3. Merger and acquisition drivers

Many scholars agree that mergers and acquisitions have different purposes and motives (Berkovitch & Narayanan, 1993; Brouthers et al., 1998; Dash, 2010, pp.10-44). However, finding the real motivations behind each transaction is not an easy task. Many scholars try to make taxonomy of these drivers and in the following we mentioned some of them.

Berkovitch & Narayanan (1993) suggest three major motives for acquisitions: synergy, agency problems and hubris. In the first case the two firms want to share their resources in order to obtain an economic advantage and achieve higher goals and objectives. In fact, as explained by Dash (2010, pp.10-44), the equation one plus one will result three, not two, because theoretically the value of the combined firm after the acquisition is higher than the summation of the values of the two firms taken individually.

The agency problems theory, instead, supports that, in some circumstances, acquisitions are linked to the need of the acquirer management to satisfy their interests. These interests can vary from the diversification of their personal portfolio, the increase of the firm size or the achievement of assets that give them more power.

Finally, the hubris hypothesis is related to managerial errors. Indeed, managers with hubris frequently overestimate the ability to exploit synergies and are willing to pay more for the target (Roll, 1986). In other words, managers may engage into acquisitions because they think they can create some value, although they cannot create it.

Brouthers et al. (1998) study the case of mergers and find the same possible motives identified by Berkovitch & Narayanan (1993) for acquisition about synergies and agency problems. However, differently from Berkovitch & Narayanan (1993), they suggest as third driver strategic motives. Some example of strategic motivations are the desire of internationalization and the pursuit to increase market share acquiring rival firms, acquiring raw materials or raising the barriers to entry.

Having said this, we consider the analysis of Dash (2010, pp.10-44) as the most illuminating about mergers and acquisitions drivers. He considers that, although there are many reasons that justify an acquisition, the ones that really occur are five:

- The corporate growth, to attract talented managers and maintain those already present in the firm, thanks to the presence of continuous incentives and opportunities;
- The increase of earnings by reducing costs, taking advantage of: synergies, economies of scope and scale;
- The risk diversification, acquiring firms whose returns are not interrelated;
- The reduction of tax liability, which is exploited especially when the marginal tax rate is very high;
- The improvement of market power, allowed by the greater availability of resources that give freedom to firms to better assert their position by controlling the competitors.

Moreover, Dash (2010, pp.10-44) identified the motivations that do not create value for shareholders. Primarily there is the Empire Building phenomenon, where the managers seek to expand their power by acquiring other firms. Another may be the desire of managers to increase their remuneration. Finally, an acquisition does not create value for the shareholders in the event in which it has a vertical integration, because, in doing so, one side buys the product at a lower price but the other side has a lower return.

Aside from the aforementioned motivations, the pursuit of technological innovation is another driver of acquisitions (Lihua & Feifei, 2009). Indeed, the technological acquisitions are globally the second most targeted sector in 2015, according to Dealogic data (Staiti, 2016).
Thanks to technological acquisitions, firms seek faster development to keep up with the market trying to create a competitive advantage over competitors. Thus, acquirers can respond faster to the changes of market, but this is not the only reason leading firms to undertake a technological acquisition (Graebner et al., 2010). Firms also avoid risk of failure in the development since they obtain the finished product from external.
Another possible encouragement for the acquirers to develop a technological acquisition is the lack of skills, expertises or knowledge that they can find in the target; indeed, it is very common that firms may look for acquire intangible assets like technologies, patents and also tacit knowledge and capabilities embedded in the human capital (Ahuja & Katila, 2001; Graebner et al., 2010).

In the following we also explain more in detail the characteristics of technological acquisitions.

2.4. Technological acquisitions

In this chapter we would like to focus on an aspect that we found in the statistical data and in the drivers studied in the previous sections: the continuous rise of acquisitions with technological purposes. So let us explore this topic starting from a technological acquisition definition.

Ahuja & Katila (2001) define technological acquisitions as: "Acquisitions that provide technological inputs to the acquiring firm. Thus, they potentially expand the acquirer's knowledge base and offer scale, scope, and recombination benefits".
Graebner et al. (2010) believe that a technological acquisition is a transaction in which the target belongs to technological industry: networking equipment, software, medical devices, semiconductors or biotechnology. In their work, they study advantages derived from that kind of acquisition, both from the points of view of the acquirer and the target.
The main searched advantage by the acquirer is to gain products, technologies or knowledge from the target (Ahuja & Katila, 2001). Moreover, the increase of market power, eliminating potential competitors and expanding their control in new geographic areas, deeply influences the technological acquisition motivations.
Another researched advantage is to reduce the intrinsic inflexibility and inactivity of big firms to face the extremely dynamic environment in which they are located in the best possible way.
On the other hand, from the point of view of targets, the researched advantages are the mitigation of pressures, thanks to the growth of liquidity and to the reduction of responsibilities. This is a typical characteristic of young business. It is also important to mention the advantage of gain critic resources from the acquirer (Graebner et al., 2010).

Therefore, technological acquisitions are technologically motivated acquisitions, but there are also high-tech acquisitions that have different drivers. High-tech acquisitions involve firms operating in high-tech industry but the motivation of the acquisition might not be only technological.

High-tech firms are firms operating in high-tech industry, which is defined by Financial Times Lexicon as an industry involving advanced methods and the most modern equipment.
An example of high-tech acquisition is Dell Inc. acquisition of the data storage firm EMC Corp for a record of $67 billion (Weinberger, 2015). The main reasons for this acquisition are tax benefits, the attempt to diversify from a stagnant consumer PC market and give it greater scale in the more profitable and faster-growing market for cloud-based data services.

Patibandla & Petersen (2002) analyse the Indian market that in the high-tech industry is extremely competitive especially for engineering and scientific manpower low cost. They state that the evolution in the high-tech industry is basically determined by five factors: politics, creation of a global and open market, foreign investment, firm dynamics and local institutions in technological and financial environment.

Frick & Torres (2002), instead, consider that the strategic objectives behind a high-tech acquisition, from the point of view of the acquiring firm, can be grouped into three main categories: opening new markets, creating new capabilities and filling holes in the product offering. The decision to fill holes in the product offering with the acquisition of a target can be evaluated as an acquisition strategy to improve time to market, because in comparison to the production of new products in-house would require less time. This is of significant importance, because the product life cycle in high-tech industries is shrinking while technological change is increasing, so the time is regarded as a scarce resource.
The real competitive advantage is not only the capacity to innovate but also the speed of innovation that is defined as the elapsed time between an initial discovery and its commercialization (Kessler & Chakrabarti, 1996).
Currently, the management of product innovation and development processes are key points for the persistence of firms and they require the adoption of high methodologies and cutting-edge tools.

Chaudhuri & Tabrizi (1999) believe that it is logical a completely different approach between high-tech and general acquisitions. The limited products life cycle makes essential to launch products into the marketplace in a short time, exploiting rising technologies. One time that technological capabilities are developed, those become barriers to entry for all competitors. Chaudhuri & Tabrizi (1999) underline how firms must understand their purpose and their needs before an acquisition. Furthermore, they state that it is important to evaluate the possibility to find knowledge and capabilities internally to the firm, before looking for them externally. In case it is necessary to find what they need externally, the capabilities of the management are considered relevant, in particular in the persuasion of others members of the firm to believe in the acquisition.

Ranft & Lord (2002) also analyse high-tech industry, focusing on the management of information and competences transfer during acquisitions. Indeed, technological acquisitions drivers viewed before can be found also in high-tech acquisitions, but in this kind of acquisitions the process of transferring information, knowledge and capabilities from target to acquirer is more relevant. A firm must acquire new knowledge if it wants to move with the evolution of this industry.

Furthermore, Ranft & Lord (2002) report taxonomy of the acquisitions classified as "high-tech", taken from Securities Data Corp (SDC) Worldwide Mergers and Acquisitions database. This taxonomy includes four industries: biotechnology, related computer industry (computer equipment, software and services), electronics and telecommunications, all with a key characteristic that is the focus on innovation.

The first one is the biotechnology industry where mergers and acquisitions of biotech firms by large multinational pharmaceutical firms continue to drive the sector. The analysis of Protiviti - Risk and Business Consulting (Public Report, 2012) clearly show how this is mainly due to a large number of well-known patents that are set to begin expiring in the next few years and this is an additional driver for building new product. An example is Horizon Pharma that will buy all outstanding shares of Hyperion Therapeutics for $46 per share in cash, about $1.1 billion (Oyedele, 2015). This deal expands Horizon's portfolio of drugs for a rare metabolic disease.

The second is the related computer industry. According to Market Realist analysis (Shields, 2014), software industry brought radical changes in organizations, businesses and also in coordination between people. To be able to assess the strong impact that this industry had on the global market is enough to look at the current level of innovation, technological progress, productivity and workforce. In this industry in 2013 the total number of acquisitions registered a 4.7 % increase from 2011. The deal size of acquisitions also increased in 2013 to $88 billion, compared to $82 billion in 2011. Recently, evidence suggests that large firms acquire small firms to keep up with new technologies, such as the case of IBM, Microsoft, Cisco Systems, SAP AG and Oracle, with the aim of maintain their competitiveness and increase their presence in emerging technologies through mergers and acquisitions.

The third industry is the electronics. Also this industry is continuously evolving and thanks to EDN Network publication (Taranovich, 2015) it is possible to analyse its relevant cases. The first example is NXP firm that acquires Freescale with the purpose of create internally in NXP more performing systems based on Freescale processors. Another acquisition evaluated is Infineon with International Rectifier (IR); Taranovich (2015) believes that this is an ideal acquisition because there is a perfect harmony between target and acquirer. The acquisition achieved excellent performance with a good strength distribution between firms, competitive products, great innovation and an optimal exchange of knowledge between the parts.

The last one is the telecommunications industry. This is one of the industries that provides high returns and continuous and fast development. Telecommunication big firms understood that an efficient method to take on an industry with such characteristics is through mergers and acquisitions. McKinsey & Co (Lebraud & Karlstromer, 2011) provides a clear analysis of acquisitions in this industry; they start reflecting on the fact that mergers and acquisitions are the pivot for the telecom industry. This is confirmed by the data: in the past decade, the telecom industry has spent USD 1.5 trillion on merger and acquisition activities. An example is the acquisition of Mobilink Telecom by Broadcom that enlarges its market into cell-phone market.

2.5. Small high-tech acquisition

Benou & Madura (2005) remarked that there was a strong growth in mergers and acquisitions in the high-tech industry, starting from 1990. Specifically, they believe that these acquisitions mainly involve small-sized and relatively young firms. This because small high-technology-based firms are attractive to acquirers as sources of technological inputs and to provide highly developed technical skills and capabilities, in an era of rapid technological change (Granstrand & Sjolander, 1990).
Also Puranam & Srikanth (2007) state that acquisitions of small high-tech firms may provide the acquirer an opportunity to achieve further innovations. This opportunity can be reached

through the integration between the two firms, thanks to the monitoring of capable managers that supervise the possible negative consequences derived from the acquisition implementation.

Other scholars have evaluated this phenomenon; an example are Lihua & Feifei (2009), previously mentioned, that studied the motivations behind small high-tech mergers and acquisitions, analysing also the perspective of small sized target. For these scholars the main benefits that may be reached with a small high-tech acquisition are the fast achievement of a market position, the reduction of barriers to entry and the capability to earn essential funds that can be invested in new technologies to increase benefits.

Having said that, for the acquirers purchasing a small high-tech firm can reduce waste of time and create new technological knowledge, skills and resources (Puranam & Srikanth, 2007). The small high-tech firm’s value, therefore, is strongly linked to intangible assets. For this reason, small high-tech acquisitions are by definition a high-risk form of acquisition that could also lead to a negative impact on the innovation output of the acquiring firm (Kohers & Kohers, 2001).

Indeed, despite acquisitions in the high-tech industry became widespread practices, for managers it is not easy to manage an acquisition and it can generate incompliant results than the ones expected. Graebner et al. (2010) believe that a great number of actions can be carried out to reach a positive performance. It will be necessary to keep alive the productive "momentum" of both parts and also evaluate integration and autonomy levels of the firms (Graebner et al., 2010). Frick & Torres (2002) support that to overcome problems deriving from acquisitions two things are fundamental: act quickly and perform all exceptionally well.

Graebner (2004) suggests to integrate the processes, giving the opportunities for both sides to benefit and learn. Graebner (2004) also believes that trust creation between target and acquirer is essential, even before the integration related to the acquisition. All these actions must be implemented in short time, because time in high-tech industry is a critical resource.

Despite all these actions aim to manage in an optimal way the acquisition, the difficulty in the acquisition management generally lead to worst performance of the combined firm in post-acquisition period. Many scholars, as mentioned before, demonstrate that in mergers and acquisitions it is more likely to obtain low performance after an acquisition (Datta et al., 1992; Brouthers et al., 1998; King et al., 2004). This is particularly valid for mergers and acquisitions in the high-tech industry. In fact, high-tech acquisitions present among the highest rates of failure in improving firm performance (Ahuja & Katila, 2001; Frick & Torres, 2002; Kapoor & Lim, 2007). According to a research made by Harvard Business Review (Christensen et al., 2011), the failure rate of small high-tech acquisitions, defined as the missed achievement of better financial performance, is very high and it is approximately between 70% and 90%.

To confirm the difficulties that may be encountered during a high-tech acquisition, Business Insider (Rosoff, 2015) reported some problematic cases. For instance, the HP's acquisition of Compaq didn't lead to the expected synergies, or HP with EDS which is forcing HP to lay off thousands of people, and another one is the clash between HP and Autonomy, after writing off $8.8 billion in value from that acquisition. Another example is the acquisition of Motorola by Google lasted only two years and then Motorola was sold to Lenovo at a much lower price than that of acquisition.

Benou & Madura (2005) believe that a so high percentage of failure in the achievement of better performance after an acquisition can be motivated by an excessive optimism about the performance that may be reached thanks to the acquisition. This optimism is not justified because Kohers & Kohers (2001) assert that acquirer performance, after three years of the acquisition, are generally lower than the expected level. At this point, it is necessary to assess more in detail the possible reasons behind the high failure rate of technological mergers and acquisitions. Many researchers gave motivations behind these results (Ahuja & Katila, 2001; Kapoor & Lim, 2007).

Ahuja & Katila (2001) demonstrate that acquirers have generally negative innovation outputs after an acquisition. They find some explanation to motivate this negative trend. The failure in the achievement of better innovation outputs can be linked to agency problems or to a low concentration of management on R&D, because they are too busy with the processes of integration between acquirer and target.

Kapoor & Lim (2007), studying semiconductor industry, conclude that the firms involved in mergers and acquisitions have worse results than firms not involved in mergers and acquisitions. They believe that the failure of an acquisition is related to a counterproductive effect of the acquisition on the productivity. Hence, low productivity is related to the lack of synergies that acquirer expected to reach with the acquisition.

Paying attention, the most common motivations of the failure, identified from scholars mentioned above, are managerial reasons that lead to the failure of the acquisition, as explained also by Roll (1986). Examples might be: the hubris of the management or the irrationality in decision-making that both are going to affect the success of the acquisition, because they try to find synergies between the firms that do not really exist.

Other researchers considered that the acquisition breaks acquirers' organizational equilibrium (Jemison & Sitkin, 1986), because acquirer management takes care exclusively on economic analysis. Moreover, acquirers very often don't have capabilities to evaluate an acquisition, so they rely on external firms that are more interested in the negotiation than the integration between acquirer and target after the acquisition (Jemison & Sitkin, 1986). Thus, one of the most important reasons why we are seeing such a large number of failed acquisitions is due to the integration between the acquirer and the target organizations.

The merger between the two firms in fact requires that there is an exchange of knowledge, skills and capabilities between the key people of the firms, but sometimes demotivating factors can affect the target involving the departure of human capital essential for the acquisition (Cartwright 2002).

Hambrick & Cannella (1993), as other scholars (Walsh, 1988; Walsh & Ellwood, 1991), focus on target management retention or replacement. Indeed, they believe that a target key member departure affects negatively on firm performance, because key elements replacement entails the loss of individuals knowledge, capabilities and skills.

This issue certainly needs further study. It is not negligible, especially in the high-tech mergers and acquisitions, the strong bond between the quantity and nature of knowledge of the target and the positive or negative output that the acquisition will have (Ahuja & Katila, 2001).

As we have seen previously in the drivers of technological acquisitions, in fact, many acquisitions of high-tech firms are due to the research, by the acquirer, to have access to new technology and knowledge (Ranft & Lord, 2000).

However, the problem with this knowledge is that it is tacit and socially complex, embedded in the formal and informal ties between individuals inside the target's organization. Knowledge held by individuals and organizations, is such a central theme because, if well exploited, it can generate capabilities that create a firm's competitive advantage (Grant, 1996; Nonaka, 1994). It is necessary to transfer the human capital knowledge and the organizational knowledge in the products and services of the firm.

Barney (1991) talks about the organizational resources and evaluates the bond between these and the competitive advantage that the firm can gain. Certainly, knowledge is one of the most important resource for a firm. He defines the knowledge as something highly tacit and socially complex, as a competitive resource of differentiation, because it is very difficult for other firms to imitate.

An example that clarifies the matter is Cisco Systems, one of the most aggressive high-tech acquirers in the 1990s. The purpose of Cisco's acquisitions is surely to obtain critical technologies but also to preserve the best-skilled knowledge engineers and programmers (Ranft & Lord, 2000).

In the specific, by acquiring knowledge, acquirers not only 'get what they buy', that is the 'explicit knowledge', that is the knowledge communicable in formal, systematic language and for which the acquisition is made. The firm also receives the unseen and un-quantified 'tacit knowledge' that is hidden within the individuals and the organization and that is difficult to transfer and formalize (Nonaka, 1994). Tacit knowledge is an inaccessible competence developed inside the individuals' skills and accumulated through experience (Reed & DeFillippi 1990). The advantage that can derivate from this type of knowledge is that even a skilled performer has not the possibility to encode it.

Having said that, the difficulties that lie in the management of tacit knowledge and of organization are amplified when is implemented a merger or an acquisition.

In fact, during an acquisition, the acquirer will have availability of an explicit set of knowledge thanks to different manuals and documents that the target will share. Moreover, the firm will have also the possibility to gain the implicit knowledge, which is often reached thanks to experience and learning by doing, but that takes a lot of time and resources (Ranft & Lord, 2000; Reed & DeFillippi, 1990; Barney, 1991).

An important problem linked to this critical resource is the fact that the acquirer doesn't have the possibility to control and completely manage the human capital of the target.

Ranft & Lord (2000) evaluated that the human knowledge could leave the firm at any moment. So there is the risk that the competitors hire them or that they could establish a new firm. Thus, to retain the target's key people is very important and it is a critical factor in order to get a successful acquisition, especially in a knowledge-intensive industry, as the one of the high-tech.

When we talk about human capital, we refer to the skills, knowledge, information, ideas and health that the labour force possesses (Becker, 2002). Becker (2002) said that "this is by far the most important form of capital in modern economies", because although technology is the principal driver of the modern economy, human capital represents the fuel because it stimulates technological innovations.

Many times in small targets the technological knowledge that the acquirer wants to gain is accessible only with the help of target CEO (Wulf & Singh, 2011). So it is very important for the acquirer's management to retain target CEO and key personalities in the acquisition. From Wulf & Singh (2011) researches, it results that the firms, in which target CEOs are retained, are the ones involved in high performances after the acquisitions, characterized by an acquirer's management that support them.

Graebner (2004) examines eight high-tech acquisitions and identifies different dimensions of results that acquirers want to reach after an acquisition. To achieve such results it is important the contribution of target management in the post-acquisition period. Target management have a key role in the integration of the acquirers and targets and their influence can help acquirers to monitoring and control negative consequences that might arise with the acquisition implementation.

Ranft & Lord (2000) analyse that focusing only on the knowledge inherent in the top management is an error, although it is a knowledge of undoubtedly value. Indeed, in this way it is neglected the knowledge inherent in others individuals of the organization (individuals of all business unit and hierarchy), the knowledge related to individuals relationship and organizational knowledge.
The organization is important because, despite the ideas born in the people, it is the interaction between ideas and organization that develop real knowledge (Nonaka, 1994).

Technological knowledge can be found in researchers, engineers, programmers, marketers, and middle and lower-level managers, both considered as individuals and as group into an organization. Anyway, Ranft & Lord (2000) consider that to maintain knowledge within the firm, not all individuals are fundamental. It is necessary to focus on individuals who have strong personal knowledge about technology of interest or which are placed in a group that have a critical role in generating the firm's value. So it is essential that these key employees are retained in the firm during the post-acquisition implementation period to increase the possibility of a successful acquisition (Hambrick & Cannella, 1993). In fact the loss of key individuals involve the loss of knowledge, that perhaps is the origin of the interest in the acquisition.

As we said before, knowledge, however, not lies only in the corporate human capital. The firms are like big store where knowledge which obviously depends from individuals is contained (Ranft & Lord, 2000).

Also Kogut & Zander (1992) assert that the firm itself is repository of knowledge and capabilities. Indeed, the knowledge can be present in organization aspects like norms, operating rules, attitudes, manufacturing technologies, customer data banks and more. If knowledge is only held at individuals levels, individuals replacement would involve radical changes in the organization. Whereas it does not happen, also the organization must have an inherent knowledge.

This knowledge, which lies in the organization, makes complex the management of the acquisition because even a small change in the key members of the acquisition could lead to failure to achieve the hoped performance.

Consequently, Ranft & Lord (2000) conclude by saying that the missing of human capital therefore, does not adversely affects the acquisition just for the lost of the knowledge linked to that person but also for the lost of the knowledge that is socially complex and related to the organization.

However now our interest focuses on the role of the target CEO that can be helpful for generate smooth transition with a positive outcome, especially in this scenario of high-tech firms. In fact, target CEO could have a better understanding of the firm and, standing on the side of the target, he could have a greater influence on employees, overcoming the demotivation and encouraging their productivity. Certainly he could also be useful for transfer

the tacit knowledge (Graebner, 2004; Ranft & Lord, 2002). So target CEO himself could be seen as source of knowledge and could be a sort of human capital as well.
The reasons and characteristics that make the target CEO such important for the acquirer to manage the post-acquisition issue are examined in detail in the following chapter.

2.6. Target CEO retention or replacement

Booz & Company (2011) report, among the CEOs of the world's top 2,500 firms, an increased percentage of CEO replacement from 11.6% in 2010 to 14.2% in 2011, with an increased rate of CEO replacement motivated by merger and acquisition equal to the 2.2% in 2011, more than 1.8% compared to the previous two years. CEO replacement rates are significantly higher in the case of mergers and acquisitions (Walsh, 1988). Furthermore, in mergers and acquisitions, the replacement rate is higher among smaller firms, which in an acquisition are generally the targets (Booz & Company, 2011). Martin & McConnell (1991) discuss that CEO replacement increases significantly following acquisitions and that target CEO retention or replacement is related to target performance before the acquisition. In detail, target CEO is replaced when target performance are under the average of the industry, while target CEOs are retained when target performance are over the average of the industry.

Hambrick & Cannella (1993) also believe that worst performances of the target before the acquisition are related with a higher probability that top managers, among which CEO, are replaced. In addition, they believe that also acquirer performances before the acquisition are relevant in determining CEO retention or replacement. Indeed, if the difference between acquirer and target performances is high, it is more likely CEO replacement after the acquisition. This is in great part due to the fact that acquirer managers consider target managers as inferior and themselves as superior, so they remove autonomy and status to target managers (Hambrick & Cannella, 1993). The consequence of these actions is a higher rate of target CEO departure.

Bargeron et al. (2012) find that acquirers are willing to pay a higher premium for the acquisition when the target CEO is retained and they also notice evidence in a higher probability of target CEO retention in private equity acquirers. According to Martin & McConnell (1991), Bargeron et al. (2012) argue that target CEO is retained if the retention adds value to the acquirer, while if the CEO's contribution is void he is replaced. Target CEO can be considered valuable if the target pre-firm performance were good, or if the target is specialized, so that CEO capabilities are more difficult to be replaced by another manager. Moreover, target CEO can be considered useful if the acquirer does not intend to manage target with acquirer management. Thus, target CEOs with better performance are more likely to be retained and the acquisition premium difference paid when target CEO is retained is higher. It corresponds to a value ranging from 7% to 23% of the pre-acquisition firm value (Bargeron et al., 2012).

Besides, Wulf & Singh (2011) show how it is more likely to retain successful target CEOs, measuring successful CEOs through pre-firm performance, the compensation and the target CEO's tenure. The retention of target CEOs with valuable human capital, in small high-tech acquisitions, can enhance firm performance and create competitive advantage (Lihua & Feifei, 2009; Wulf & Singh, 2011). Wulf & Singh (2011) consider target CEO as "assets", that own managerial skills and firm specific skills (for example a deep knowledge of a technology innovation). In specialized firms, such as those in high-tech acquisitions, CEOs' knowledge is generally higher compared to CEOs which are not operating in high-tech firms. In this perspective, a high-technology acquisition can be considered as a means to improve competitive advantage and integrate target personnel with certain individual capabilities (Wulf & Sing, 2011). If target CEO decides to leave the firm after the acquisition, acquirer loses target CEO's individual skills and great part of the competitive advantage.

Furthermore, as already explained before, a small high-tech acquisition can be motivated by the desire to obtain specific knowledge based on technologies and capabilities to compete in the global market (Ranft & Lord, 2000). Ahuja & Katila (2001) highlighted how, in acquisitions of small high-tech firms, knowledge and technological capabilities are considerably high and difficult to transfer. So, there might be asymmetric information between acquirer and target (Graebner, 2004), because target has a high knowledge level. Indeed, the main barrier in high-tech acquisition, in which knowledge is involved, is that tacit and socially complex knowledge is difficult to understand for external parts and acquirer may not know where valuable knowledge resides in target (Graebner, 2004). Thus, acquirers could take unproductive decisions in post-acquisition integration.

In addition, external conditions to the acquirer may make difficult for acquirer top management to focus on the target and to play out actions that ensured a successful acquisition. For this reason, Graebner (2004) remarks the fundamental role of target CEO in implementing actions to realize the expected value in an acquisition. First, target CEO accelerates the knowledge transfer between acquirer and target, facilitating the coordination and the interaction between firms. Second, he performs an action of internal stimulation that allows the targets employees team to achieve the goal in a transition period.

Moreover, target CEO retention may be an important signal for the other employees in post-acquisition period (Graebner, 2004). In fact, one of the main problems in an acquisition implementation is the development of negative feelings and demotivation from target employees due to the fear to lose their job (Ahuja & Katila, 2001). Target CEO retention may be helpful for a period of time because provides stability and continuity to the target, even though other employees possess knowledge and technological skills, that are the underlying motivations of the acquisition (Ranft & Lord, 2000). In fact, very often, the real valuable human capital resides in employees: engineering personnel, R&D employees or middle managers (Ranft & Lord, 2000). As mentioned before, if key employees leave their jobs, all their tacit knowledge is lost with their departure and the success of the acquisition become much more difficult. So target CEO retention can be a good way to mitigate post-acquisition replacement of key employees and also encourage key personnel to stay and to be productive in post-acquisition. Graebner (2004) believes that target CEO can mitigate the discomfort of target employees through actions pointed to minimize replacement and disruptions to productivity, allowing to reach the expected value of the acquisition.

Besides, in some acquisitions, acquirers do not intend to manage target (Bargeron et al., 2012). In other cases acquirer top management, although they are often busy with acquirer direction, can offer little direction to target (Graebner, 2004). Thus, considering that post-acquisition implementation is complicated and full of pitfalls, acquirer leadership could waste valuable time for actions that do not produce the expected value. For these reasons, target CEO can be considered a good alternative to drive target in the post-acquisition implementation (Graebner, 2004).

Despite all these studies in favour of the retaining of the target CEO, it is not easy for the acquirer to keep the target CEO after the acquisition of small high-tech firms. Indeed, even though acquirers may want to retain successful target CEO, the decision is not only in their hands. Target CEOs prefer "being the boss", therefore CEOs will not be attracted to work in a firm that does not guarantee the right to make decisions (Wulf & Singh, 2011). In other cases target CEO is considered as inferior from acquirer managers. It is difficult that CEO accustomed to great autonomy remains in a firm that does not grant autonomy.

If acquirers want to retain target CEOs, they must make commitments to protect managerial autonomy and the must provide job security. Hambrick & Cannella (1993) demonstrate how friendly acquisitions led to low CEO replacement rates, in contrast to hostile acquisitions that led to higher CEO replacement rates. In fact, in friendly acquisitions the credibility of commitments by the acquirer is higher, because before the acquisition there is an interaction between firms. If the autonomy and the status of the CEO are not guaranteed, CEO retention is less likely (Hambrick & Cannella, 1993).
Thus, it can happen that the target CEO may be replaced or the target CEO may decide to leave voluntarily the firm. Since that CEO departure or replacement is an eventuality, most of CEO compensation contracts recognize these risks by including golden parachutes or bonuses related on acquisition (Jenter & Lewellen 2011). Sometimes these economic gains are the reasons of the CEOs exit. Target CEO may also exit the firm to establish a new firm or for better job opportunities.

There are also cases in which is not so good to keep target CEO. It is the case of managers with poor performance. Walsh (1988) predicts higher replacement rates among firm with poor performance. Bad firm performance can be motivated by unqualified CEO or a CEO not enough incentivized to work in shareholders' interest. In these events shareholders often use mergers and acquisitions as an opportunity to change target CEO with bad performance (Walsh, 1988). However, this is a mechanism generally used more for larger firms than small high-tech ones.

Furthermore, Matsusaka (1993) demonstrates how the market doesn’t reward acquirers who make acquisitions with the purpose to discipline target CEO, through CEO replacement. Indeed, the market considers acquisitions, in which target CEO is replaced, negatively, while acquisitions in which target CEO is retained positively. The market evaluates positively the intention to reach managerial synergies with the acquisition, thanks to target CEO retention (Matsusaka, 1993).

Accordingly, from the foregoing, we can summarize the intent of the acquirers to retain and attract successful CEO against the dismissal and replacement of bad CEO (Wulf & Sing, 2011). Indeed, the decision related to target CEO retention or replacement made by the acquirer in post-acquisition period is mainly dependent on the acquirer CEO. Thus, acquirer CEO has a key role in determining if target CEO stay or leave and the way that acquirer CEO interacts and behaves also affects target CEO retention or replacement.

2.7. The role of acquirer CEO

Mergers and acquisitions are strategic decisions in which acquirer CEOs play a key role, along with board of directors and target CEOs. The typical main responsibilities of the acquirer CEO in an acquisition are target identification, formulation and implementation of the acquisition strategy, as well as the implementation of a number of actions in post-acquisition period (how it could be target CEO retention or replacement) to make a successful acquisition (Amar et al., 2011).

Since acquirer CEO has a crucial role during an acquisition and in post-acquisition period, many scholars focus on factors that influence acquirer CEO to act in certain way and to take certain decisions (Fama & Jensen, 1983; Hambrick & Mason, 1984; Jensen & Zajac, 2004). In particular, Hambrick & Mason (1984) suggest a relationship between the demographical characteristics of managers and their strategic decisions. Thus, demographical characteristics of the acquirer CEO as age, gender, race, tenure, educational and general background may influence acquirer CEO decisions, among which the decision related to target CEO retention or replacement.

In addition, during the different phases of an acquisition there is a strong interaction between acquirer and target CEOs. As a consequence of this strong interaction, acquirer CEO may also be affected in the decision related to target CEO retention or replacement by the demographical characteristics of target CEO, besides being influenced by his personal characteristics. Social psychology provides an explanation regarding the effect of the interaction of individuals with similar characteristics in the similarity theories, that we will explain later.

Moreover, acquirer CEO cannot make the decision about target CEO retention or replacement alone. There are some sort of corporate governance practices that control and monitor CEO activities and decisions making. This role of monitoring and control is mainly represented by the board of directors (Anderson et al., 2003). Therefore, could be case in which board of directors characteristics may also affect the decision related to target CEO retention or replacement. Also this aspect will be deepened in the following sections.

After mentioning the potential influence that demographical characteristics may have on acquirer CEO decisions, here below we analyse in detail these characteristics to better evaluate what kind of impact they may have on strategic decisions. The only characteristic excluded from the analysis is the race, because in top management teams into an organization there are very little racial differences (Williams & O'Reilly, 1998) and race analysis require an in depth study of the social context.

2.7.1. Age

Age is certainly a relevant factor in the study of an individual because it affects attitudes, beliefs, way of thinking and relating. In fact, the age of the CEO influences his behaviours and his decisions, affecting also the strategic decisions of the firm (Hambrick & Mason, 1984). Thus, different age may lead to different decisions and corporate strategies.

Hambrick & Mason (1984) argue that young CEOs are generally related to growing firms and are more prone to take risks, while older CEOs maintain a more conservative stance. This may be motivated by three aspects. The first is that older CEOs are concerned with the immediate consequences of their decisions, which can make them less prepared to take risks that could change their financial and social situation. Second, older CEOs have greater psychological engagement to the organizational status quo. A third effect is that older CEOs have a lower predisposition to new ideas and to learn new attitudes.

Having said that, even mergers and acquisitions literature has evaluated that acquisitions strategies may be influenced by age. Yim (2013) state that it is more likely an announcement of acquisition when the acquirer CEO is young, because young CEOs are more prone to take risks and thus are more prone also to take acquisitions. Also data confirm the previous statement: a firm with a CEO who is 20 years older is 30% less likely to announce an acquisition (Yim, 2013). So the age of the CEO may also influence a firm engagement to acquisitions.

Although young acquirer CEOs are more likely to engage into acquisitions compared to older CEOs, regarding target CEOs it is valid exactly the opposite. Jenter & Lewellen (2011) show that acquisitions are more common among target CEOs close to age 65, possibly due to an increased predisposition of target CEOs to accept acquisition bids.

Instead, Hambrick & Cannella (1993) demonstrate a correlation between CEO age and CEO retention or replacement. In detail, older CEOs are more likely to leave the firm after an acquisition, probably due to a better predisposition to retirements.

2.7.2. Gender

Gender has an influence on individual decisions and it became a worthy of consideration characteristic as a result of the growing presence, in the last decade, of woman in management positions. Indeed, in the period between 1997 and 2006, women-owned firms in the United States had a rapid growth, especially in the services and retail trade industries (Davis et al., 2010).

Khan & Vieito (2013) demonstrate that firms managed by female CEOs have superior performance and a lower level of firm risk compared to that run by men. According to Khan & Vieito (2013), also Davis et al. (2010) obtain the same results.
Levi et al. (2008) analyse the relation between gender and corporate strategy in cases of mergers and acquisitions, finding that the presence of a woman bidder CEO and the presence of women in the board of directors have a strong influence on acquisitions performance and decisions.

However, there are also negative effects related to women presence in the top management levels. In fact, at the top level of the organization, it must be dominant the communication, the coordination and the merger between all parts; in this context, the sex difference may disrupt the balance bringing tensions and misunderstandings, which complicate the management of the firm (Li & Hambrick, 2005; Pelled, 1996).

2.7.3. Educational Background

The educational background of a person may indicate a great number of information about his past and his present. A person's formal educational background may show information about person knowledge, capabilities and a great number of complex information (Hambrick & Mason, 1984). Most people take seriously the decision affecting their educational path, so we can expect that the educational background can represent a person, in some way (Hambrick & Mason, 1984). We must also say that sometimes people make their educational decision with incomplete information, due in most cases to an early age. But, on average, we expect that a person educated in engineering have a somewhat different from someone educated in history.

Nevertheless, it is difficult to find some correlation between CEO educational background and firm performance. CEO education does not seem to be an appropriate approximation for CEO ability (Bhagat et al., 2010). Bhagat et al. (2010) also show that CEO education does not play a significant role in target CEO retention or replacement.

Instead, Westphal & Zajac (1995) believe that a high level of education may reflect a better ability to manage information and the uncertain situations, even leading to a greater propensity towards innovation and change.

Anyway, the possession of a certain educational background surely affects the fact that the individual has a specific personal identity, knowledge, ideals and points of view that bring him to think and address problems in a certain way (Hambrick & Mason, 1984). For these reasons, different educational background may lead to different decisions.

2.7.4. Tenure

Another characteristic that may influence acquirer CEO decisions and behaviours is tenure. The tenure shows how long the individual works within the firm. Logically, if an individual spends more time in an organization, he will have more power and influence on the strategic decisions. Anderson et al. (2003) demonstrate that more the tenure of CEO is high and more CEO will influence board decisions and also the board ability to control and monitoring will be lower. Even because CEO with high tenure have more power and influence also in the selection of new board directors (Westphal & Zajac, 1995). Indeed, Westphal & Zajac (1995) prove that CEO tenure is directly proportional to the presence of new directors similar to him.

Wiersema & Bantel (1992) analyse top management tenure and their consideration show how top management with a high tenure is less willing to change and risk, indeed they tend to close themselves and always maintain the same standard procedures (Westphal & Zajac, 1995). Also Johnson et al. (1993) believe that there is a relationship of direct proportionality between CEO tenure and the internal inertia. Clearly, more will be the inertia and more the firm will tend to react to external changes in the same way, so there will be hardly innovations or strategic restructuring. Thus, CEO tenure may influence strategic decisions, like the one related to target CEO retention or replacement.

2.8. Similarity theories

Talking about the role of acquirer's CEO, it was found that the similarity between the demographic characteristics of individuals could generate the emergence of relationships that can influence the behaviours and the corporate strategy.

In fact, the attitude of individuals not only depends on personal characteristics but also on the environment and thus on the group to which the subject is engaged. Essential factors to consider when we talk about this topic are the relations arising between the members of the group (Kreitner et al., 2002, pp. 136-157).

Tajfel (1982) studies the social psychology of intergroup relations. He states that the attraction between individuals leads to people aggregation, with the consequent creation of a group with a unique social identity, different from those of other groups. Being part of a group increase individuals' self esteem (Tajfel, 1982). Moreover, a group consider all that is different from the same group with distrust. This mechanism generates the creation of bias from internal members of the group toward external groups, because different from them (Tajfel, 1982).

Ashforth & Mael (1989) study people identification into an organization. This is the key point of the Social Identity Theory (SIT) that is the tendency of individuals to classify themselves and others into categories. Social identification, in other words, is the perception of an individual to belong to a group. The attempt to identify their own individuality in a group is sign of a search of self-definition and of accretion of self-esteem (Gedds & Konrad, 2003).

Thanks to social identification, it is created a fidelity relationship that allows a better diffusion of values and beliefs into an organization.
The social identification also involves a better acceptance of criticism and negative feedback from other members of the group due to a better communication, so reducing the risk of misunderstandings (Gedds & Konrad, 2003).

The tendency of an individual to identify himself in a group with whom shares common attributes and life experiences is explained in the self-categorization theory. Individuals initially will become part of the organization and only after finding people with certain affinities and similarities will begin to create links and subgroups within the team. Indeed, similar individuals will be better perceived and accepted from the group, contrariwise those who are perceived as dissimilar will have integration problem and they will not get help and support from the group (Jackson et al., 1991). In this way, Jackson et al. (1991) think that the group will create internal homogeneity and will grant sharing, communication and better circulation of ideas.

Thus, undoubtedly, from the above can be deducted that group dynamics may be affected by the similarity between individuals.

Murnieks et al. (2011) provide a clear definition of similarity: "the extent to which there is symmetry or resemblance between two objects, persons, or concepts”. So, similarity effect indicates the attraction between individuals with similar characteristics (Murnieks et al., 2011).

Schneider (1987) studied similarity in general proposing a model defined ASA cycle (attraction - selection - attrition). In the ASA cycle, it emerges that individuals are attracted by groups in which they can find common interests and ideals, and in which they can share capabilities, values and experiences increasing the self-esteem. Indeed, in accordance with the self-categorization theory (Jackson et al., 1991), individuals want to gain personal esteem and identity from the group. So, these motivations are driving for individuals that are not casually in a group.

The attraction toward the similarity is not limited to this. Westphal and Zajac (1995) believe that individuals with a similar socio-political background are more likely to recognize themselves into a group, because they share similar values and ideas and thus they have lower probability to be in disagree and to clash between them. Instead, Darr and Kurtzberg (2000) estimate that similarity makes possible a wider circulation of knowledge within the organization. In fact, as we said before, in a group in which there is similarity there is a better sharing of knowledge.

Schneider (1987) also believes that if an individual is integrated in an organization in which he recognizes similarity, it is higher his personal satisfaction and it is longer his permanence within the same organization. Instead, for the attrition principle, individuals leave environments that don't belong to them. Hence, similar individuals remain into the organization because similar between them, while dissimilar leave the group, thus an homogeneous group is created.

Jackson et al. (1991) support that demographically heterogeneous teams will be affected by higher turnover rates than homogeneous ones. The heterogeneity creates a feeling of discomfort between individuals of an organization, reducing the probability of cohesion and integration (Jackson et al., 1991). Dissimilar individuals will feel uncomfortable in the group because they won't be accepted and integrated. Thus, they will leave the group spontaneously or forced by the pressure of other members (Schneider, 1987; Jackson et al., 1991).

Another theory which falls under the social psychological theories is the homophily one, that is studied by McPherson et al. (2001). They believe that homophily is a basic principle in all the interpersonal relationship, because people who try to surround them with similar individuals create a homogeneous group. So, the interaction between similar people happens easier rather than with people perceived as dissimilar for characteristics like age, gender, educational background, race and other factors.

Summarizing, individuals are more willing to collaborate and cooperate with those who share values and beliefs than with others who don't share such values. So, it is generated a group in which there are lower internal conflicts and a better cooperation and sharing, which leads to the creation of greater trust.

Therefore, after providing a general background about similarity, we focus on similarity between two individuals, in particular we analyse the similarity between two parts that have a close interaction in acquisition and post-acquisition period: acquirer CEO and target CEO.

Their characteristics, and so their similarity or not, will influence great part of the decisions during the acquisition and in post-acquisition period.

The same theory explained by Schneider (1987) for the attraction between individuals and organizations can be useful also for the attraction between two individuals. Thus, two similar individuals are more likely to create ties, cooperate and share, making more likely CEO retention and reducing the likelihood of CEO replacement.

In mergers and acquisitions literature, Graebner (2009) showed that the presence of similar characteristics leads to the increase of trust between two individuals and the consequent increase of collaboration and coordination. But, at the same time, as we can see subsequently, the increase of trust can generate opportunistic behaviour.

In cases of dissimilarity, the tie between individuals is reduced and consequently there is ambiguity and lower collaboration, communication and trust (Gedds & Konrad, 2003). If acquirer CEO is dissimilar from target CEO it is possible the estrangement between them and it is higher the probability of target CEO replacement in an acquisition.

Always taking into consideration the studies on mergers and acquisitions, Rogan & Sorenson (2014) estimate that the success of an acquisition may be tied to the relationships that are created between the different parts. They believe that the search for similar subjects can be explained by four motivation. The first motivation is a logic of exposure, which means that actors who have similar interests or characteristics have more opportunities of interaction. The second motivation is based on the concept of homphily. According to McPherson et al. (2001), they state that individuals prefer to interact and share with similar subjects; this is mainly due to the belief that relations with similar people give greater benefits, given the better quality of the interactions and the greater level of confidence reached. Third, the access to the information between similar is facilitated and faster because similarity generate feeling of trust and improve integration. The fourth motivation is based on the assumption that similar share connection and maybe prior relationship that can improve the embeddedness of the part and therefore it reduces the likelihood of opportunistic behaviours.

Also Li & Hambrick (2005) study the interaction between similar and dissimilar. In particular, they analyse the issue of work team and functional groups in their empirical studies based on cases of joint ventures. In particular, they studied the case of joint venture between AOL and Time Warner, that face the difficulties which occur in the event of union of two groups of people with different characteristics. In fact, the two firms was characterized by individuals dissimilar for the majority of the characteristics. For instance, the former have a more engineering educational background, while the latter have a more humanistic and literary background. This substantial difference can only generate a factional faultline.

2.9. The role of the board of directors

The board of directors has, as its main function, the task of monitor, evaluate, oversee and discipline the management and the financial processes of the firm (Anderson et al., 2003). Regularly, the board meets the accounting staff of the firm and external auditors for perform auditing actions about the financial statement, the process and the inner workings.

It is important to have financial control because, through the control carried out, the board of directors can improve the quality of decisions made by firm management and therefore improve overall performance (Anderson et al., 2003).
In addition the work of the board has a strong influence on the accounting statements, very important aspect for creditors because it is used by them for manage lending agreements.

Tuggle et al. (2010) claims that the board has the main task of controlling the managers' interests by reducing the costs arising from the separation of ownership and control. Board of directors is meaningful to monitor the activities of managers because often these can operate in optical opportunistic going against the interests of stockholders.
Ahmed & Duellman (2007) deepen this topic. In fact, they estimate that very often there is conflict of interest between the manager and the rest of the firm, due to the fact that managers do not have significant equity stake in the firm. The only thing that could contain the problem would be to bestow contracts but hardly it will be possible to create a complete version of them and also it will be very expensive. So the solution is that the firm's board of directors applies a strong control over the management in order to mitigate the conflict.

In favour of grater monitoring and a reduction of agency problems, the board of directors can increase its conservatism. Watts (2003) estimates that the adoption of preventive policies, imposing higher controls, limits the discretion of managers in estimating the earnings and the net assets, not allowing them to omit information about low-yield investments or expected losses.

Markarian & Parbonetti (2007) provided different interpretation of the role of the board of directors. Inside the board individuals have different functions, and each member has the duty to share his knowledge, skills and abilities, especially in the field of problem solving, adapting them to the characteristics of the firm and to the external environment.

Independently from the definition of board of directors, several studies have highlighted that there is a link between the board size and the success of the board's actions. Jensen (1993) points the finger on the failure of the firm's internal control mechanisms operated by the board of directors. He believes that assets' control, both human and not, is crucial. Especially, the board of directors must be committed in the CEO's management. They contribute in the hiring, the dismissal and the compensation, and then they make themselves available as advisers for the CEO.

As mentioned, the size of the board is one of the main problems of the failure of the board of directors' control. In this respect, Jensen (1993) states that having a small board brings best skills in controlling and monitoring because there is more ease of management and coordination of the organization, in other words there is more efficiency that otherwise would be lost and would leave more scope for action to CEO. Similarly, also Yermack (1995) considers that a large board would lead to a loss of productivity, as opposed to a small one that would ensure greater effectiveness. On the contrary, Klein (2002) argues that having a wider board generate a better service because it allows having a lot of observers and thus allows for more independence, not having to go to find them externally.
Another aspect that influence the effectiveness of board of directors actions, among which its monitoring function is the board composition, related to the number of internal directors compared to external ones. Indeed, external directors have different characteristics from internal directors and so a board of directors composed by more external directors will act in a different way than a board of directors composed by more internal directors.

Internal directors have a better knowledge of the internal operations of the firm (Johnson et al., 1993) while external directors does not have a daily knowledge of the firm but are bearers of new point of view, having different background and experiences than internal directors (Westphal & Zajac, 1995). Thus, external directors are more prone to undertake innovative strategic actions, especially actions of renovation of the firm, while internal directors are more conservative and they undertake strategic actions generally targeted to the maintenance of the status quo (Ahmed & Duellman, 2007).

In addition, another great difference between external and internal directors is regarding their capability in the monitoring and control. Indeed, very often internal directors must face conflicts of interest, which of course are generated if the director is part of the firm top management. It can happen that internal directors avoid to challenge the CEO and they weaken their control function, as a sign of gratitude towards CEO or simply for economic reason (Johnson et al., 1993). While external directors are more aligned with shareholder interest because they monitor firm performance analysing financial performance of the firm (Johnson et al., 1993). Thus external directors are generally more objective of the internal directors.

However, external directors are not always really independent, but they can be influenced internally, especially from the CEO (Westphal, 1999). Indeed, even if external directors are formally independents, they may weaken their control and monitoring over the firm performance if they share certain characteristics with the CEO or they share friendship ties (Westphal, 1999). The tie that is created between the two parts brings greater loyalty of the board directors towards the CEO, giving higher openings to the swapping of advices, because the friendship affects the fact that individuals seek to create mutuality of benefits. But doing so, the monitoring operated by the board of directors decreases and therefore also reduces the board of directors effectiveness.

Moreover, Westphal (1999) demonstrates that powerful CEO often influence the process of external directors selection, encouraging friends and persons wherewith share social ties. In this occasion, the CEO will propose new members who have demographic characteristics in line with his own person (Westphal & Zajac, 1995). Westphal & Zajac (1995) demonstrate that if there is a powerful CEO in the firm, the new members of the board of directors will be very similar to him, because the board of directors will have little influence in the decision.

3. Hypotheses

Despite the growing in the practice of acquisitions demonstrated by the statistics, literature shows that it is more likely the destruction of value than the creation after an acquisition (Ahuja & Katila, 2001; Datta et al., 1992; Frick & Torres, 2002; Kapoor & Lim, 2007; King et al., 2004). Particularly, high-tech firms have among the highest rates of failure in the improvement of firm performance after an acquisition.

This happens because, as explained previously, most of high-tech acquisitions are motivated by the desire of the acquirer to obtain new technological knowledge (Ranft & Lord, 2000), that very often is situated in the tacit and socially complex knowledge of the human capital of the target. Many times, in small high-tech firms, target CEO is the means thanks to which the knowledge that the acquirer wants to gain can be reached (Wulf & Singh, 2011). Thus, as we evaluated in the previous chapters, target CEO retention or replacement is an important issue in high-tech acquisitions, and many scholars analysed this aspect (Bargeron et al., 2012; Graebner, 2004; Hambrick & Cannella, 1993; Matsusaka, 1993; Wulf & Singh, 2011).

Our study examine target CEO retention or replacement, but with a new approach. Indeed, it is neither of our interest nor the purpose of our thesis to evaluate these two aspects directly, as has already been done by various scholars (Bargeron et al., 2012; Graebner, 2004; Hambrick & Cannella, 1993; Matsusaka, 1993; Wulf & Singh, 2011). We want to analyse whether the decision related to retention or replacement is met and determined before the acquisition implementation and if this decision is changed in a second time in post-acquisition. In other words, assuming it is announced retention or replacement strategy, our aim is to assess whether the decision previously taken is accomplished or if is changed ahead of time. Also we want to evaluate the motivations that lie behind the change of this decision.
The dependent variable that we believe that better explains this difference between what was pronounced and what was executed in the post acquisition period, is the misjudgement.

The misjudgement happens when there is a discrepancy between the announcement of the acquirer CEO that promises to retain target CEO and what happens in reality: target CEO replacement. In particular, we consider when target CEO leave the firm after two years from the acquisition. It can be that acquirer decides to replace target CEO shortly after the

acquisition or it is also possible that target CEO decides to leave following the loss of autonomy and status in the organization (Hambrick & Cannella, 1993).
Misjudgement also happens when acquirer CEO announces the intention to replace target CEO but in reality target CEO remain in the organization. The events in which this form of misjudgement happens are very few and this lack of data is the reason why we do not analyse this form of misjudgement.

We study misjudgement about the decision related to target CEO retention or replacement because it is particularly important in small high-tech firms. Indeed, in small high-tech acquisitions the impact of misjudgement is higher, not because it is more recurrent than in other industries but because it has a great impact.

In the theoretical background we analyse costs and losses related to target CEO replacement in small high-tech firms. Summarizing in brief, target CEO replacement in acquisition implementation can mainly lead to negative feelings and demotivation of the target employees, due to the fear to lose their job and uncertainty about job conditions (Ahuja & Katila, 2001) that may lead into the loss of individuals capabilities. These aspects are particularly relevant in small high-tech firms for the strong presence of tacit and social complex knowledge, as said above.

In case of misjudgement, these consequences are amplified and the costs are rocketing. In fact, if the acquirer announces target CEO retention and then misjudges the decision, it happens a worst replacement for many reasons. First, post-acquisition implementation costs increase because acquirer is not prepared to substitute the target CEO with someone else because initially acquirer was not willing to replace target CEO. Second, the costs related to target CEO integration in the combined firm also increase, because initially acquirer intention was to attract target CEO into the combined organization, while then acquirer misjudges his decision. So, the funds invested in such integration are lost. Third, the demotivation and the uncertainty of target employees increase because after the misjudgement about target CEO retention the intentions of the acquirer are not clear for the employees of the target and thus it is more likely key employees departure and the loss of knowledge.

In addition, there are also costs associated with the reputation of the acquirer. Indeed, acquirer announces in news target CEO retention and if it happens misjudgement the reputation of the acquirer worsens both towards shareholders and towards the market, because acquirer is considered not trustworthy or unaware of what he is doing.

To be able to analyse this phenomenon, it is necessary to assess whether there are some antecedents, such as the similarity between the CEOs involved in the acquisition or the role of the board of directors, all aspects that we have deepened in previous chapters. In fact, these studies allow us to respond to the question: why misjudgement happens?

We said that two CEOs similar to each other will be more willing to create ties, cooperate, collaborate and they will have greater trust among them, according to the similarities theories (Murnieks et al., 2011; Tajfel, 1982; Ashforth & Mael, 1989; Gedds & Konrad, 2003; Schneider, 1987; Jackson et al., 1991; Westphal & Zajac, 1995; Graebner, 2009). However, CEOs similarity have also negative aspects that leads into negative consequences as the false sense of security, target vulnerability and acquirer deceit (Graebner, 2009).

An overestimation of the trust can involve acquirer in a wrong evaluation of certain elements in an acquisition and the relative consequences. For instance, studying mergers and acquisitions in advertising industry in which is common the acquisition between firms that share common clients (clients similarity), Rogan & Sorenson (2014) demonstrate that there are many mechanisms for similarity attraction but only a mechanism that explains the negative consequences in the combined firm. They believe that an increased trust towards firms with clients similarity lead acquirers to a wrong consideration of targets potentiality and reduce the number of the targets considered in the phase of target selection. So, it occurs the false sense of security for the acquirer.

Moreover, studying numerous cases of acquisitions in high-tech industry, Graebner (2009) believes that trust is naturally asymmetrical. This means that there is always a part that has more trust in the other part. Thus, when the trust is high increase the probability of opportunistic behaviours, which lead to target CEO replacement. Graebner (2009) demonstrates how asymmetrical trust involves consequences as target CEO vulnerability or acquirer CEO deceit. In detail, if the acquirer CEO is too trusting of the target CEO increase the likelihood that acquirer CEO gets deceived or misjudges the potential value of target CEO in post-acquisition. Instead, if the target CEO is too trusting of the acquirer CEO increase the likelihood of target vulnerability in post-acquisition. In both cases it is highly likely target CEO replacement.

Consequently, from the above, it can be deduced that similarity, among which CEO style similarity, between acquirer and target CEO brings misjudgement of the decision to retain or not target CEO in post-acquisition. Indeed, such similarity is the basis of the announcement of acquirer CEO that is willing to continue the cooperation and the collaboration with target CEO.

All in all, this work suggests that although similarity between CEOs increases trust, collaboration and cooperation and increases the likelihood of the target CEO retention in post-acquisition, it also has negative consequences on misjudgement caused by either opportunistic behaviour or biases, which results in the target CEO replacement.

Instead, it is equally interesting to analyse the effect of the board of directors on target CEO retention or replacement and misjudgement, because board of directors represents the main monitoring and control system into the acquirer (Anderson et al., 2003). Therefore, board of directors should be monitor and control acquirer CEO actions and decisions, particularly in high-risk form of acquisitions like high-tech ones (Kohers & Kohers, 2001). Consequently, board of directors should prevent a decision that could be very damaging for the firm, like the misjudgement about the decision related to target CEO retention or replacement. Thus, a board of directors that is efficient in the monitoring and control role should be reduce the probability of misjudgement.

However, as mentioned in the theoretical background, the effectiveness of the board of directors actions is related to different characteristics of the board of directors. These characteristics may increase or decrease board of directors power and influence to affect the decisions in the firm, also during an acquisition. For these reasons, during the development of the hypotheses, three main aspects are analysed about board of directors' characteristics. First of all, external directors have different characteristics from internal ones. Thus, since external directors are more objective in the judgements and they represents the main monitoring element of the board (Johnson et al., 1993), a board of directors composed mainly by external directors should be decrease the likelihood of misjudgement. Second, as mentioned in the theoretical background, tenure represents how long a people work within a firm and people with high tenure have generally more power into the organization. Therefore, the comparison between the tenure of acquirer external directors and acquirer CEO should be affect misjudgement. The last aspect analysed is the presence in the board of directors of a CEO with a dual role. Obviously, in this scenario the influence of the board of directors on the strategic decisions will be lower and misjudgement will be more likely.

Our hypotheses depart from these considerations. First, we evaluate the impact of similarity between acquirer and target CEOs on the misjudgement of target CEO retention in post-acquisition period, that we will call similarity effect hypotheses. Secondly, we evaluate the impact of the influence of board of directors towards acquirer CEO on misjudgement, that we will call board effect hypotheses.

3.1. Similarity effect hypotheses

After the analysis of the main characteristics that determine the similarity and therefore the attraction between individuals, seen in earlier chapters, our hypotheses are based on the consideration that in acquisition and post-acquisition there is a strong coordination and collaboration between executives of the acquirer and target, especially between CEOs. Thus, here our attention is focused on the similarity between CEOs and in particular we analyse with a new approach their similarity in management style related to the probability of misjudgement in small high-tech acquisitions.

In acquisitions, CEOs of the acquirer and target can be internal or external to their firms. Internal CEOs are different in the management style compared to external ones. Therefore, CEOs who share similarity in management style have a better probability to interact, cooperate and collaborate among them. We defined similarity in management style as the similarity between acquirer CEO and target CEO when they are, for their status, both internal or both external to their firms. We consider external CEOs those who entered in the firm organization directly with position of CEOs. Instead, we consider internal CEOs those who are promoted to CEO positions directly from the intern of the firm, those who are CEO because they are founders of the firm or those who, although they are external CEOs, spent more than 10 years in the firm (it means that they have more than 10 years of tenure) and consequently they cannot longer be considered external CEOs because they are members of

the firm for too much time (Westphal & Zajac, 1995).
Internal CEOs have different characteristics from external ones. The internal CEOs have the advantage of a better knowledge of firm internal processes (Johnson et al., 1993) and a well-developed knowledge of organization relationships. Moreover, CEOs elected internally gain generally CEO position as recognition for good performance. Thus, they are also legitimated from others members of the firm.
Finally, internal CEOs ensure some continuity with business strategy. Indeed they contributed in the decisions made in the time because they belonged to the firm and thus they are more likely to maintain the status quo (Ahmed & Duellman, 2007).

External CEOs, on the other hand, are bearers of new knowledge and experiences for the organization, because they have different background from internal directors (Westphal & Zajac, 1995). For example, external CEOs can have industry specific knowledge, which allow improvement on the management of industry principles to the firm in a new way, or they can have generic managerial skills, which allow general improvement of the firm operations.
Besides, unlike internal CEOs, external CEOs are not generally guarantors of continuity with business strategy. Rather, they are more willing to introduce innovative strategic actions (Ahmed & Duellman, 2007), especially actions of renovation of the firm.

Therefore, referring by the arguments presented in the previous chapter about similarity attraction, CEOs who share similar characteristics and more in detail similarity in management style will have a better probability to interact and cooperate among them. Consequently, it is natural to expect that the similarity between acquirer and target CEO entail the announcement of extension of the involvement of target CEO in the firm and a consequently target CEO retention after the acquisition. However, in reality very often this does not happen and afterwards the announcement of target CEO retention, target CEO leaves the firm in the two years following the acquisition, materializing the phenomenon of misjudgement.

So, as we explained above, the reason for which the misjudgement occurs is that the similarity brings major attraction among the people who then are able to communicate better and collaborate establishing stronger ties also based on trust. Notwithstanding these positive aspects, the similarity also hides a dark side. Individuals, in fact, in these conditions, tend to

let their guard down, feeling protected by a false sense of security, risking undergoing opportunistic behaviour and deceits (Graebner, 2009).
It is from here that it can be deduced that similarity brings misjudgement of the decision to retain or not target CEO in post-acquisition.

However, only later arise issues related to trust due to similarity like the false sense of security for the acquirer, target CEO vulnerability and acquirer CEO deception (Graebner, 2009). Thus, shortly after an acquisition (we consider a two years interval) acquirer replaces target CEO or target CEO leaves the firm for the hostile environment in post-acquisition (Hambrick & Cannella, 1993).

Hp 1: Similarity in management style between acquirer CEO and target CEO increases the probability of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.

3.2. Board effect hypotheses

The second effect that we want to analyse is the one related to the influence of acquirer CEO and board of directors in the determination of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.

As discussed before in the theoretical background, the board of directors has the task of monitor the firm's actions and in particular the CEO's activities, because very often CEOs operate in an opportunistic optical, against the shareholders interests (Tuggle et al., 2010).
The influence of acquirer CEO on the board, or the opposite case, is determined by three main aspects: the number of external members towards internal ones, the comparison between acquirer CEO and external board directors tenure and finally CEO duality.

A relevant aspect is to evaluate the composition of the board in terms of internal or external directors. In fact, it is critical to determine how many internal or external directors belong to the board of directors and then how to compose such board of directors, because internal directors have, on average, different characteristics than those external. Considering that board of directors decisions are determined through voting, the composition of it can

influence its monitoring and control capabilities (Johnson et al., 1993). So, a board of directors characterized by a higher number of internal directors will act differently from a board of directors characterized by a higher number of external directors.
As previously mentioned, internal directors have a more comprehensive knowledge of the internal processes and more complete information than external directors (Johnson et al., 1993). A better firm knowledge should theoretically increase their capability to monitoring and control. However, in reality very often this does not occur. Indeed, despite a better firm knowledge, internal directors must face conflicts of interest, which of course are generated when the director is internal to the firm. Aspects such as the gratitude towards the CEO for the job position or more simply economic interests are only two elements that can influence internal directors (Johnson et al., 1993). Thus, internal directors often avoid challenging the CEO and they weaken their control and monitoring capabilities.

External directors, on the other hand, don't have a daily knowledge of the firm, therefore they focus on financial performance (in contrast to the internal directors who have more subjective assessments). Since financial performance represents the main monitoring element, they are generally more closely aligned with shareholders' interest and therefore represent protectors of shareholder wealth (Johnson et al., 1993). Thus, external directors are generally the more responsible for the monitoring and control. Moreover, external directors are more willing to perform monitoring and control for their desire to maintain their reputations and to obtain director position in other board of directors (Fama & Jensen, 1983).

Another difference lies in the fact that external directors come from different work environments respect to the firm environment to which they are directors. Thus, external directors are bearers of new points of view, having different background and experiences than internal directors (Westphal & Zajac, 1995). So, they are more willing to introduce innovative strategic actions, instead internal CEO and directors are more conservative and want to maintain the status quo (Ahmed & Duellman, 2007). Consequently, external directors play a key role in board of directors involvement in strategic actions, especially in actions of renovation of the firm, while internal directors are more reluctant to propose changes, especially if this involves conflicts with the CEO (Johnson et al., 1993).

From the foregoing, it can be deduced that a board of directors mainly composed by internal directors will be easily influenced, while a board of directors mainly composed by external directors will be mostly autonomous in judgements (Westphal & Zajac, 1995).

Thus, since external directors have a better control and monitoring power over the CEO and over merger and acquisition activities of the firm for the same reason they have better control power over the decisions in the post-acquisition period. So, it is a logical consequence to believe that a board of directors mainly composed by external directors will have a greater control on the CEO and the strategic decision about the retention or not of the target CEO. Therefore, if the board of directors is mainly composed by external directors will be lower the likelihood of misjudgement.

Hp 2a: The presence of a greater number of external directors in a board of directors decreases the probability of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.

Obviously, all this is valid if external directors are really independents and if they are not influenced internally, in particular from the CEO (Westphal, 1999). Indeed, even if external directors are formally independents, very often they share certain social and psychological characteristics with the top management. Thus, they are in turn influenced and this risk to compromise their control function (Westphal, 1999).

It often happens that the CEO uses his power and influence in the selection process of external directors, encouraging friends and persons wherewith share social ties. Instead, in other cases it is the appointment of the director that creates a bond between the director and the CEO that appointed him. Accordingly, it can happens that also an external director feels morally obligated to support the CEO who have favoured the appointment in the board of directors (Johnson et al., 1993).

Thus, to evaluate which is the real CEO's influence on the board of directors it must be evaluated the board of directors composition in terms of how many internal and external directors, but also if external directors are really independents from the top management. To overcome this possible drawback we decided to analyse the real power of CEO influence on the external directors of the board of directors and vice versa, through the measurement of CEO and external board directors’ tenure.

As stated above, the tenure represents how long the person works for the firm. Obviously, more is the time spent by an individual in a firm and more is his power and his influence in the firm. Thus, if CEO has a high tenure, he will have more power in the firm and particularly in the mergers and acquisitions decisions. For the same reason, CEO will have more power also in post-acquisition decision. Conversely, the power of the board of directors will be lower and also lower is its control capacity when CEO tenure is high (Anderson et al., 2003).

The same reasoning can be done with board of directors tenure, in particular with external board directors' tenure. Higher will be the tenure of the external directors of the board, higher will be their power on corporate strategy and consequently it will be lower the power and the influence of the CEO.

However, although tenure can be considered a good proxy for the power and the influence of CEO or of external directors of the board, it is the comparison between CEO and external directors power (measured by tenure values) that give us the general framework about the power play.

Indeed, it can happen that in a firm there are both CEO and external board directors with high or low tenure, whereby the power is on average equally distributed between the parts. Otherwise, it can happen that in a firm there is a great tenure difference between CEO and external directors, whereby a part has more power than the other in the firm and in corporate strategy.

We want to capture this power difference, so we focus on the difference of tenure between acquirer CEO and the average tenure of external directors of board of directors, which are the main monitoring element (Johnson et al., 1993). From the foregoing, we expect that higher is the difference of tenure and higher will be the power and the influence of the CEO compared to that of external directors of the board in all corporate strategies during and after an acquisition. Therefore, we expect that will be higher also the misjudgement. Instead, when the difference of tenure is lower or negative the power of external board directors is higher compared to CEO and there is a lower probability of misjudgement, because board control is more effective.

Hp 2b: The positive difference between acquirer CEO tenure and the average tenure of external directors of the board of directors increases the probability of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.

Having said that, tenure is not the only element that can be considered as a good proxy for power and influence. Another good proxy of CEO power and influence on the board of directors and vice versa is the CEO duality. CEO duality refers to a situation where the CEO of the firm also holds the position of Chairman of the Board (COB).

If the CEO is also chairman of the board, CEO engagement in the firm increases, having to manage also chairman of the board commitments, among which firm performance control. Consequently, if CEO also holds chairman position increases his decisional power (Yang & Zhao, 2012) and CEO influence on strategic decisions. An increase of CEO decisional power could anyhow bring to advantages or disadvantages. Pros and cons of CEO duality are explained in agency and stewardship theories (Brickley et al., 1997; Donaldson & Davis, 1991; Tuggle et al., 2010; Yang & Zhao, 2012).

The motivations against CEO duality or alternatively in favour of CEO non duality are largely explained in the agency theory. Agency theory is based on the assumption that the separation of the roles of CEO and chairman of the board is necessary to protect shareholders interest and to control the opportunistic behaviour of the CEO.

In fact, CEO has high decisional power in the firm, but not control rights of shareholder capital. Consequently, CEO may act for personal gain at the expense of shareholders. Whereby, if CEO holds also chairman position, that should monitor the CEO's behaviour and should protect shareholders interest (Fama & Jensen, 1983), it is compromised the firm control system and it is expanded the conflict of interest (Yang & Zhao, 2012). Donaldson & Davis (1991) also affirm that the board of directors cannot always properly control the CEO, if the CEO is also chairman of the board of directors. Indeed, when the chairman of the board is independent from the CEO, he can act to protect shareholders interest through incentives to align CEO interests with those of the shareholders (Donaldson & Davis, 1991). Obviously, in cases of CEO duality, this mechanism of control fails.

The separation between CEO and chairman of the board it is also useful because CEO can focus on the management of the firm and on the contrary the chairman of the board in the management of the board of directors. Moreover, the presence of an independent and

experienced chairman of the board can bring benefit to the firm, because the chairman of the board results to be an added valuable resource for the firm (Yang & Zhao, 2012).
Instead, the motivations in favour of CEO duality are greatly investigated in the stewardship theory. Stewardship theory considers the benefits created with a strong stewardship of the firm, thanks to CEO's firm specific knowledge.
In case of CEO duality, the CEO will be able to act faster than in case of CEO non duality (Brickley et al., 1997), because in the former instance CEO can coordinate the board of directors and implement strategic actions at the same time, while in the latter, CEO must refer to another person, precisely the chairman of the board. Brickley et al. (1997) explain how such decisional and implementation rapidity ensure a competitive advantage for the firm. Moreover, the decision of power consolidation guarantees clarity regarding the leadership and the direction of the firm.
Another aspect to be considered in favour of CEO duality is that if different individuals hold the position of CEO and chairman of the board will be additional costs (Brickley et al., 1997). Indeed, Brickley et al. (1997) assert that appointing a chairman of the board different from the CEO can reduce agency costs to control CEO's behaviour, but at the same time arise agency costs to control the chairman of the board. Therefore, overall monitoring costs are higher in case of CEO non duality.
Furthermore, CEO possesses valuable specialized knowledge, in particular in industry like high-tech. Thus, the presence of two different persons in CEO and chairman of the board positions create cost to transfer critical and complex information between the CEO and the chairman of the board. When the CEO and the chairman of the board are the same person there is not the reason of information sharing (Brickley et al., 1997). Finally, if CEO is also chairman of the board gets a series of incentives associated to the second position. Without such incentives, the CEO may not be completely motivated in a full engagement in the firm and may also consider to leave it (Brickley et al., 1997).

Analysing the impact on firm performance, Donaldson & Davis (1991) demonstrate that shareholders profits are improved in cases of CEO duality, rather than in firms in which CEO and chairman of the board are separated. In the same way, Brickley et al. (1997) believe that firm with separated CEO and chairman of the board do not perform better than firm with CEO duality.

Recapping, CEO duality has a strong impact on firm performance and on acquirer CEO power and influence on the board of directors and the firm. Such power allows the CEO a better decisional power all over the firm and consequently in all acquisition and post-acquisition decisions, like target CEO retention or replacement. In fact, in case of CEO duality the role of monitoring and control of the board of directors is lower and weaker and therefore board of directors will hardly oppose the CEO also in the misjudgement about the decision related to target CEO replacement or retention. Thus, in case of CEO duality is more likely misjudgement.

Hp 2c: In case of CEO duality increases the probability of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.

4. Method

4.1. Data collection and statistical description of the sample

The main objective of our work is the identification of the determinants of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period in small high-tech acquisitions. To demonstrate our hypotheses we selected a sample of completed acquisitions of small high-tech firms announced over the period 2001 to 2005. The data related to the acquisitions (name of acquirer and target, size of the firms involved, announcement year, etc) are collected through cross analysis of mergers and acquisitions data provider Zephyr - Bureau van Dijk and the world's foremost financial transactions database provider SDC Platinum - Thomson Reuters. We select a total population of 436 acquisitions according to the following requirements:

- The population includes only acquisitions in which targets operate in high-tech industries. As explained in the theoretical background, there are much taxonomy of acquisitions classified as "high-tech". We considered as "high-tech" those firms that operate in one of the high-tech industries classified by Organisation for Economic Co-operation and Development (OECD) definition (Hatzichronoglou, 1997). OECD identifies high-tech industries through a main criterion: R&D intensity, considered both in the production of the technology (direct intensity) and in its use (indirect intensity). Thanks to R&D intensity criterion, OECD defines 4 different classes of industries: high-technology industries, medium high-technology industries, medium low-technology industries and low-technology industries. According to this classification, we identified as high-tech industries the firms belonging to one of the industries shown in the following table (Table 1), except the firms included in the aerospace industry because in such industry there is a low number of small firms. The firms belonging to these industries can be found through the Standard Industrial Classification (SIC), available at Zephyr - Bureau van Dijk and SDC Platinum - Thomson Reuters.

High-tech industries	SIC
Electronic and other electrical equipment and components except computer equipment	36
Instruments	38
Drugs	283
Computer and office equipment	357
Software programming	737

Table 1: High-tech industries classification

- Since our thesis is based on small high-tech acquisitions, we considered only acquisitions between large acquirers and small high-tech targets. So, it is essential to determine a measure to evaluate firm size. Generally, the most commonly used measures of firm size are five: total sales (or revenues) volume, total assets value, total number of employees, stakeholders equity and market value of the firm (Shalit & Sankar, 1977). According to Puranam et al. (2009), we used the total number of the employees of the firms as a measure to determine the size of the firms. Consequently, we considered only acquirers with more than 1000 employees and targets with less than 500 employees (Puranam et al., 2009). On average, acquirers are much larger than targets with an average number of employees of 25831 compared to 217 of the targets.

- We considered only acquisitions in which at the completion of the deal acquirers hold 100% of the targets equity, because in these acquistions acquirers have the full power to undertake corporate strategy as the retention of the target CEO without the resistance and the influence of other parts or shareholders.

- The acquirers are listed firms headquartered in USA, while targets are headquartered in USA or Europe. Precisely, firms are divided by country as described in Table 2:

Acquirers	Number of firms
United states	436

Targets	Number of firms
United states	324
United Kingdom	42
Germany	18
France	18
Sweden	10
Netherland	4
Italy	3
Norway	3
Denmark	3
Belgium	3
Switzerland	2
Hungary	2
Spain	1
Austria	1
Israel	1
Poland	1

Table 2: Acquirers and targets countries

Since in our work we are collecting information about board of directors, we considered only US listed acquirers because the availability and the reliability of such information in US public firms are higher than other countries. Moreover, since in this thesis we analyse aspects as acquirer CEO duality, we want to avoid the differences between legal issues in corporate governance practices across different countries. For instance, in Germany the chairman of the board is by law different from the CEO of the firm (Fiss, 2006), so if we include in our sample German firms as acquirer, we cannot capture the effect of the acquirer CEO duality. Thus, these motivations lead us to consider only acquirers that are listed firms headquartered in USA.

Instead, the motivation behind the decision to analyse only targets headquartered in USA or Europe is given by the fact that the coverage of acquisitions in the other countries are far less in the databases Zephyr - Bureau van Dijk and SDC Platinum - Thomson Reuters.

- The population includes completed acquisitions announced between 01 January 2001 and 31 December 2005. In detail, acquisitions distribution by year is represented in the chart below (Figure 2):

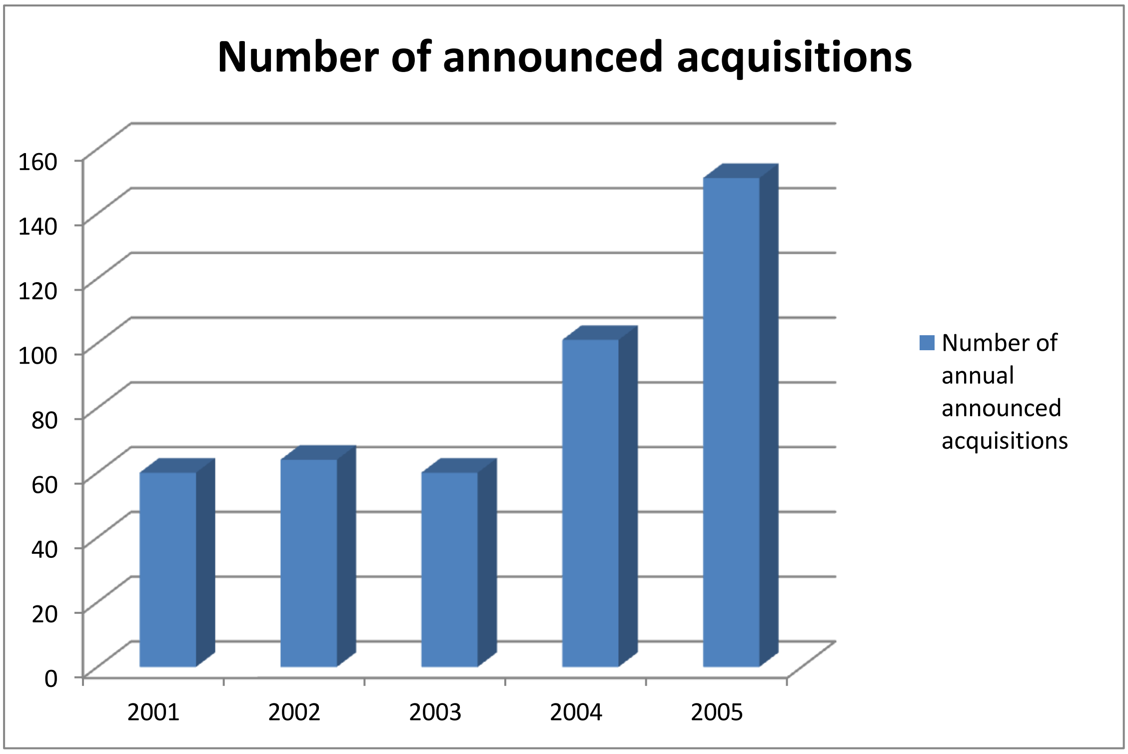

Figure 2: Number of announced acquisitions

Subsequently, information about the previously 436 identified acquisitions are collected from Lexis Nexis Academic. We downloaded news available in major world publications, newspapers, magazines, industry news publications and broadcast transcripts. Thanks to the information available in such documents we better understood the contexts of the deals and we particularly obtain information realted to the acquirers future plans for targets in post-acquisition period, among which the decision related to the retention or the replacement of the target CEO.

In a third step, for each acquisition we collected information about target CEO, acquirer CEO and acquirer board of directors, for the years in which acquisitions took place. We found the information about the names of the target CEOs, the acquirer CEOs and the board directors downloading for each target and acquirer the relative 10-K form, that is the annual report required by the U.S. Securities and Exchange Commission, in the year of the acquisition announcement. We gathered information about 4673 acquirer board directors, 436 acquirer CEOs and the same number of target CEOs. Whereupon, we collected data about their demographic characteristics from Bloomberg Business, Equilar Atlas, Zoom Info, LinkedIn, firm databases and SEC filings. In cases of incomplete information about target CEO, acquirer CEO or acquirer board directors more information was picked from other sources like firms' web pages. The information collected include:

- Personal information: name, surname, middle name (if there is any), gender, age at the time of acquisition;
- Board related information: the year in which the individual joined the relative (target or acquirer) board of directors (such information allows us to calculate tenure), the year in which the individual left the relative board of directors, though it may be that a board director is yet in the board of directors (such information is particularly useful because allows us to evaluate target CEO retention after two years of the acquisition), if the CEOs or the board directors are part of the top management of the firm or they are external; if the CEO is reported as the chairman of the firm (to identify a possible CEO duality);
- Educational information: the education level of the person (bachelor, master, phd, mba), the field of the study of the degree.

Finally, after all these steps we removed all the high-tech acquisitions with missing data and therefore our final sample includes only high-tech acquisitions that had a data completeness enough to assess all the variables of interest in our study. Thus, in the final econometric model, described later in the text, the number of observations is 217.

4.2. Variables description

4.2.1. Dependent variable

4.2.1.1. Misjudgement

As said before, the main goal of our thesis is the identification of the antecedents of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period in small high-tech acquisitions. In order to demonstrate misjudgement determinants, we fixed misjudgement as the dependent variable at the centre of the analysis.

We defined misjudgement as the discrepancy between the promised status of target CEO in the announcement of the deal and what really happens after the acquisition. In order to evaluate the status of target CEO, we considered target CEO replaced if he leave the combined firm in the two years following the acquisition, if acquirers decide to replace target CEO or if target CEO leave the firm for a hostile environment (Hambrick & Cannella, 1993). Essentially, according to Hambrick & Cannella (1993) and Wulf & Singh (2011) whether target CEO does not fulfil any position in the combined firm two years after the acquisition we can assert target CEO replacement, while if target CEO fulfil any position in the combined firm it means that target CEO was retained.

We considered a time frame of two years to explain target CEO retention or replacement because very often in an acquisition acquirers require that target CEO remain into the combined firm for a period which can vary from six months to one year, depending on the type of the deal and the complexity of the acquisition. In this way, acquirers aim to achieve an easier transition period in the post-acquisition phase (Ranft & Lord, 2002).

Misjudgement is a binary variable equal to 1 if there is difference between what is announced, in the news collected, from the acquirers about the future status of the target CEO after the acquisition and what happens in reality about target CEO status after the acquisition. On the contrary, it is equal to 0 if there is no discrepancy between the announcement of target CEO future status and CEO status in the post-acquisition period. For example, if acquirer promises target CEO retention after the acquisition and after two years target CEO does not fulfil any position in the combined firm, *misjudgement* is equal to 1.

To better understand *misjudgement* we can created two dummy variables that well explain relatively the acquirer promises about the future status of the target CEO in the post-acquisition period, that we will call *CEO_promise*, and the real status of the target CEO after the acquisition, that we will call *CEO_reality*.

$$CEO\_promise =$$
$$= \begin{cases} 1 & if\ acquirer\ promises\ target\ CEO\ retention\ after\ the\ acquisition \\ 0 & if\ acquirer\ promises\ target\ CEO\ replacement\ after\ the\ acquisition \end{cases}$$

$$CEO\_reality = \begin{cases} 1 & if\ target\ CEO\ is\ retained\ two\ years\ after\ the\ acquisition \\ 0 & if\ target\ CEO\ is\ replaced\ two\ years\ after\ the\ acquisition \end{cases}$$

Such dummy variables are useful for an easier definition of *misjudgement*:

$$misjudgment = \begin{cases} 1 \begin{cases} if\ CEO\_promise = 0\ and\ CEO\_reality = 1 \\ if\ CEO\_promise = 1\ and\ CEO\_reality = 0 \end{cases} \\ 0 \begin{cases} if\ CEO\_promise = 0\ and\ CEO\_reality = 0 \\ if\ CEO\_promise = 1\ and\ CEO\_reality = 1 \end{cases} \end{cases}$$

As already said, we didn't consider the events where misjudgement happens because the acquirer CEO announces the intention to replace target CEO but in reality target CEO remain in the organization. This form of misjudgement is very rare and the lack of data is the reason why we don't analyse this form of misjudgement.

4.2.2. Independent variables

4.2.2.1. CEO similarity in management style

In order to test the hypotheses connected to the positive effect of CEOs similarity on misjudgement related to the decision of target CEO retention in small high-tech acquisitions, we defined an independent variable that is focused on CEOs similarity in management style (that we will call *CEO style similarity*).

We defined CEO style similarity when acquirer and target CEOs are both external or both internal. We previously discussed about the difference between internal and external CEOs, but it is important to repeat who are the CEOs that in our study are considered internal or external to their firms. We consider external CEOs those that have an entry time in the firms that coincides with the appointment as CEOs of the firm; while internal CEOs those who are CEOs because they have founded the firm and they were always CEOs, those who are promoted internally to CEO positions and those who, although they are external CEOs, spent more than 10 years in the firm (it means that they have more than 10 years of tenure) and consequently, being part of the firm for a long time, they can be considered as internal directors (Westphal & Zajac, 1995).

So, *CEO style similarity* is a binary variable equal to 1 if the acquirer and target CEOs are both internal or both external to their firm. Conversely it is equal to 0 if the acquirer and target CEOs are one internal and the other external. For example if acquirer CEO is internal, while target CEO is external, *CEO style similarity* is equal to 0.

To better understand and define *CEO style similarity* we created two dummy variables that define respectively acquirer CEO status (if the CEO is internal or external) that we will call *acq_CEO_status*, and target CEO status (if the CEO is internal or external), that we will call *tar_CEO_status*:

$$acq\_CEO\_status =$$
$$= \begin{cases} 1 \begin{cases} if\ acquirer\ CEO\ is\ founder\ CEO\ of\ the\ acquirer\ firm \\ if\ acquirer\ CEO\ is\ promoted\ from\ the\ acquirer\ firm \\ if\ acquirer\ CEO\ spent\ more\ than\ 10\ years\ in\ the\ acquirer\ firm \end{cases} \\ 0 \quad if\ acquirer\ CEO\ is\ appointed\ from\ the\ external \end{cases}$$

$$tar\_CEO\_status = \begin{cases} 1 \begin{cases} if\ target\ CEO\ is\ founder\ CEO\ of\ the\ target\ firm \\ if\ target\ CEO\ is\ promoted\ from\ the\ target\ firm \\ if\ target\ CEO\ spent\ more\ than\ 10\ years\ in\ the\ target\ firm \end{cases} \\ 0 \quad if\ target\ CEO\ is\ appointed\ from\ the\ external \end{cases}$$

Consequently, *CEO style similarity* is defined:

$$CEO\ style\ similarity = \begin{cases} 1 \begin{cases} if\ acq\_CEO\_status = 1\ and\ tar\_CEO\_status = 1 \\ if\ acq\_CEO\_status = 0\ and\ tar\_CEO\_status = 0 \end{cases} \\ 0 \begin{cases} if\ acq\_CEO\_status = 1\ and\ tar\_CEO\_status = 0 \\ if\ acq\_CEO\_status = 0\ and\ tar\_CEO\_status = 1 \end{cases} \end{cases}$$

4.2.2.2. Percentage of external directors

External directors, as explained before, have a better monitoring power over the CEO (Johnson et al., 1993); they have a better control over mergers and acquisitions activities of the firm and thus they have a better control over the post-acquisition decisions including the retention or replacement of target CEO.

To verify the positive effect of a higher number of external directors on misjudgement related to the decision about the retention of target CEO after an acquisition, we created an independent variable, which quantifies the percentage of external directors that we will simply call *external*, in a board of directors:

$$external = \frac{number\ of\ external\ directors}{BoD\ size}$$

4.2.2.3. Relative difference between CEO and external directors tenure

Tenure describes how long an individual is employed within a firm. We have not directly collected tenure values in our database anyhow it can be calculated through variables gathered. In particular we calculate tenure as the difference between the announcement year of the acquisition (*ann_yr*) and the year in which the individual joins the firm (*acq_yr_arr*):

$$tenure = ann\_yr - acq\_yr\_arr$$

Logically, individuals with a higher tenure have more influence and power in the firm and over corporate strategies, like the one related to the retention or replacement of target CEO after an acquisition. Thus, tenure can be considered a good proxy of power and influence in the firm and particularly interesting is evaluate the difference of tenure between acquirer CEO and external directors, for the role they play in the firm.

In order to test this difference of power between acquirer CEO and external board directors we defined an independent variables, that we will simply call *tenure difference*, defined as the numerical difference between acquirer CEO tenure and the average of the external directors tenure:

$$tenure\ difference = acquirer\ CEO\ tenure - average\_external\_tenure$$

Where:

$$average\_external\_tenure = \frac{\sum_{for\ all\ external\ directors} external\_director\_tenure^{*}}{number\ of\ external\ directors}$$

*In cases of incomplete data about *external_director_tenure* we removed the single data from the equation and we reduced the denominator by the number of removed items.

4.2.2.4. Acquirer CEO duality

Acquirer CEO duality can be considered a good proxy of CEO power and influence in the firm and in corporate strategies, among which the decision related to target CEO retention in post-acquisition period. Thus, acquirer CEO duality can have a positive effect on misjudgement.

CEO duality, as mentioned before, refers to a situation in which CEO is also appointed as chairman of the board and it is a binary variable equal to 1 if CEO has a dual role, while it is equal to 0 if different individuals serve as the CEO and the chairman of the board:

$$CEO\ duality = \begin{cases} 1 & if\ CEO\ serves\ also\ as\ COB \\ 0 & if\ CEO\ does\ not\ serve\ also\ as\ COB \end{cases}$$

4.2.3. Control variables

Finally, we also test and control other variables that could have an influence in the misjudgement of target CEO retention. Such variables are divided in four categories according to the analysis aspects. The first set of variables is related to acquirer characteristics: board size measured in logarithmic format, acquirer CEO tenure as natural logarithm and acquirer experience in acquisition. The second group of control variables considers target characteristics: target age and target size. The third set of variables is related to the characteristics of the acquisition: cross border acquisitions, product relatedness between acquirer and target. Finally, the last group of control variables considers the relationship between the firms before the acquisition: alliance and minority stake.

4.2.3.1. Board size

As mentioned in the theoretical background, there is a link between board size and the effectiveness of the board actions (Jensen, 1993). Consequently, board size has an effect on the monitoring and control power of the board of directors. For this reason, according to a different board size, board of directors power and influence on the firm and on corporate strategy like CEO retention can vary. So, we expect that board size can influence the probability of target's CEO retention and misjudgement. In detail, as stated by Jensen (1993) smaller board lead to better effectiveness in the board actions and power, so smaller is the board of directors and lower is the probability of misjudgement about the decision related to target CEO retention or replacement.

Thus, we create a variable that considers board size in logarithmic format (*board size*):

$$board\ size = \log\ (BoD\ size)$$

4.2.3.2. Acquirer CEO tenure

Acquirer CEO with high tenure has more power and influence in corporate strategies. Consequently, acquirer CEO has more influence and power on acquisition and post-acquisition actions, like the decision about the retention or the replacement of target CEO. At the same time, acquirer CEO will have more influence in the misjudgement of such decision. Consequently, misjudgement is more likely in case of acquirer CEO with high tenure.

For this reason we tested acquirer CEO tenure with a variable (*tenure CEO*) measured as natural logarithm:

$$tenure\ CEO = ln(CEO\_tenure)$$

4.2.3.3. Acquirer experience in acquisitions

The last control variables related to acquirer characteristics measure the acquirer experience in acquisitions. We defined acquirer experience as acquirer abilities and capabilities in the management of acquisition processes. Consequently, acquirers with a higher experience in acquisitions have a better ability in the management of acquisition phases. Moreover, Zollo & Singh (2004) believe that exists a tie between acquirer experience and post-acquisition implementation. Indeed, as it is logical to think that repeating in time the different phases of an acquisition leads to an improvement of the management ability, alike such improvement happens in the integration period after an acquisition. Thus, acquirers who have gained experience in past acquisitions become better at managing post-acquisition processes.

So, since acquirers with better experience are better in the acquisition and post-acquisition management, we expect that acquirer experience not only reduces the likelihood of target CEO retention, but also reduces the probability of misjudgement.

Following Zollo & Singh (2004), acquirer experience in acquisitions, which from now we will call simply *experience*, is measured as the total number of acquisitions in which the acquirer was engaged into five years prior to the focal acquisition:

$$experience = total\ number\ of\ acquirer\ acquisitions\ 5\ years\ prior\ focal\ acquisition$$

4.2.3.4. Target age

We considered as control variable the age of the target, which can be considered a good proxy of target maturity. CEOs that manage mature firm have different experience and behaviour than those who manage younger firm. Thus, this aspect may influence target CEO retention or replacement and misjudgement. In particular, it is consistent to believe that CEOs who lead mature firms have a better experience and consequently they are attractive for the acquirer. Thus, we expect that in targets with a relative high age there is a higher probability of target CEO retention.

Moreover, as said in the theoretical background, acquirers often entrust the management of the post-acquisition implementation to target CEOs, for a better management of the transition phase (Graebner, 2004). Thus, target CEOs with better experience are more likely to operate well in the post-acquisition implementation and consequently they have more probability to be retained also after the post-acquisition phase. However, target CEOs who leads smaller firm compared to larger acquirers have more chance to be considered as inferior by the acquirer and this results in actions aimed to the reduction of autonomy and status to the target CEOs that in this scenario are more prone to leave the combined firm (Hambrick & Cannella, 1993). Thus, as explained, we also expect that higher is the age of the firm, lower is the likelihood of misjudgement. We tested this aspect, through the variable *target age*, defined as the difference between the announcement year of the acquisition (*ann_yr*) and the year in which target is founded (*found_yr_tar*):

$$target\ age = ann\_yr - found\_yr\_tar$$

4.2.3.5. Target size

Another good proxy for firm maturity is firm size, so we considered also target size as control variable. For the same consideration made before about firms maturity and CEOs experience and capabilities, we expect that higher target size is related to a lower probability of misjudgement.

As explained before, there are many measures used to evaluate firm size (Shalit & Sankar, 1977). We used headcount to evaluate target size, according to Puranam et al. (2009). To test the effect of target size on misjudgement, we created a variable that counts the total number of target employees measured as natural logarithm:

$$target\ size = \ln\ (total\ number\ of\ target\ employees)$$

4.2.3.6. Cross border acquisition

Since our study considers a sample of acquisition in which the acquirers are US listed firms but the target are firm headquartered both in USA and in Europe, we control the consequence of national or international acquisitions. Krug & Hegarty (1997) state that in international acquisitions the great distance between acquirers and targets increases the likelihood that acquirer trusts target CEO regarding the management of the target after the acquisition. Consequently, target CEO retention is more likely in cross border acquisition.

In addition, the distance and the cultural difference in international acquisitions are higher and consequently it exist an asymmetry in the exchange of information that increase the likelihood of misjudgement. For this reason, we created a variable, called *cross border*, equal to 1 if the acquisition is international, otherwise 0:

$$cross\ border = \begin{cases} 1\ if\ the\ target\ is\ headquartered\ in\ Europe \\ 0\ if\ the\ targetr\ is\ headquartered\ in\ USA \end{cases}$$

4.2.3.7. Product relatedness between acquirer and target

Another control variable that we considered is the product relatedness between acquirer and target. That is the overlap between product and services offered by the firms.

In cases of a high product overlapping between firms, the acquirer will have a better knowledge about target performance. Consequently, acquirer will be better able to assess target operations and the capabilities of target CEO. Therefore, in this context target CEO will have a lower probability to stay in the firm after the acquisition and there is also a lower probability of misjudgement.

We defined product relatedness, that from now we will simply call *relatedness*, following Puranam & Srikanth (2007) measure of technological relatedness. We evaluated the common numbers between acquirer and target in the SIC codes taken from SDC Platinum - Thomson Reuters, divided for the SIC codes assigned at the target.

4.2.3.8. Alliance and minority stake

Between the two firms, before the acquisition, there might be some connection, or there could be no link. So we identified two different types of previous relationships.

The acquirer and the target may be previously bound by an alliance (Alliance) or there may be a situation where the target is already a support for the acquirer (Minority Stake).

In both cases, the tie that is created before the acquisition can provide more information to the acquirer for the selection, evaluation and integration of the target (Porrini, 2004).

The detailed and advanced knowledge of the other side, therefore, allows to have close contacts that make it possible to understand how to integrate, in a future, the processes, the knowledge and the human capital. In fact, the integration proves to be a key aspect for the optimal management of an acquisition and for obtaining good results.

These two control variables then assume great importance from the moment that impact on the post-acquisition performance. Indeed, Porrini (2004) states that the fulfilment of a bond, prior to the development of an acquisition, may condition retention or replacement of the target CEO, which, as we saw with Cannella & Hambrick (1993), has strong implications on the performance of the acquisition.

Consequently, any relationship that is generated before the acquisition leads to an increase in the probability of target CEO retention and a reduction of the likelihood of misjudgement.

We decided to represent the first control variable, i.e. *alliance*, through a binary variable that will be equal to 1 in the case where there was an alliance between the two firms five years before the focal acquisition, otherwise 0:

$$alliance = \begin{cases} 1\ if\ there\ was\ an\ alliance\ between\ acquirer\ and\ target \\ 0\ if\ there\ was\ not\ an\ alliance\ between\ acquirer\ and\ target \end{cases}$$

Instead, regarding the second variable, that is the *minority stake*, we entrusted the value 1 of the binary variable to the case in which the acquirer has a toehold with the target, otherwise 0:

$$\text{minority}\ stake = \begin{cases} 1\ if\ the\ acquirer\ has\ a\ toehold\ with\ the\ target \\ 0\ if\ the\ acquirer\ has\ not\ a\ toehold\ with\ the\ target \end{cases}$$

4.3. Econometric specification: the logistic regression

For the dichotomous nature of our dependent variable, the misjudgement, we used for our analysis a regression model for binary data: the logistic regression or also called logit regression/model.
The origins of logistic regression reside in the 19th century, when it was created to describe the demographic growth (Cramer, 2003, pp. 149-158).

Logistic regression is based on the assumption that there is a relation between the binary dependent variable and one or more predictors. It is a model largely used in econometric analysis because the result of the regression is a value that can represent only two dimensions: success or failure, or as in our analysis the presence or the absence of a specific variable (Rodriguez, 2007).

In the logistic regression, given predictors value, the output Y ∈ {0,1} is casual but with law univocally determined by predictors. Moreover, the way in which Y depends from predictors is not random but it occurs only through an affine combination of them, called linear predictor:

$$\eta = a_1 X_1 + .. + a_p X_p + b$$

Where:

p = number of predictors

If we compare logistic regression with multiple linear regression (MLR) we can better understand that in the MLR, given predictors value x_1,..,x_p and given the coefficients a_1,..,$a_{p,}b,$ the output is a Gaussian aleatory variable Y with mean μ = η and variance σ^2, so representable in the form:

$$Y = a_1\, x_1 + .. + a_p x_p + b + \varepsilon$$

Where:

$$\varepsilon \sim N(0, \sigma^2)$$

Instead, in the logistic regression, given predictors value x_1,..,x_p and given the coefficients a_1,..,$a_{p,}b,$ the output is a Bernoulli aleatory variable Y of parameter *p* that depends on η through a certain function.

Being *p* a probability, we cannot consider that the relation between *p* and η is like *p* = η, id est:

$$p = a_1\, x_1 + .. + a_p x_p + b$$

otherwise would be possible *p* value external to [0,1]. Thus, it must be used a model like this:

$$g(p) = a_1\, x_1 + .. + a_p x_p + b$$

where g is a function defined in [0,1] real-value, switchable. So that it is:

$$p = g^{-1}(a_1\, x_1 + .. + a_p x_p + b)$$

A very common choice is the logit function:

$$g(p) = \log\left(\frac{\mathrm{p}}{1-\mathrm{p}}\right)$$

For $p \to 0$, logit function tends towards -∞, instead for p→1 tend towards +∞; it is strictly increasing, as well as regular. Its inverse function is:

$$g^{-1}(\eta) = \frac{\exp(\eta)}{1 + \exp(\eta)}$$

Definitively, the model is:

$$Y \sim B(1,p)\ con\ p = \frac{\exp(\eta)}{1+\exp(\eta)} \text{ where } \eta = a_1 x_1 + .. + a_p x_p + b$$

If p is very high we are pretty sure that Y=1, while if it is very low Y=0; in the middle there is of course a lot of indecision regarding Y value, even if for $p > \frac{1}{2}$ it is more likely Y=1 and vice versa.

In the general theory of linear model, the number $\eta = a_1 x_1 + .. + a_p x_p + b$ is called linear predictor, the g^{-1} function is called link function and g function is called mean function. In the logistic regression the link function is the logistic function, represented in Figure 3.

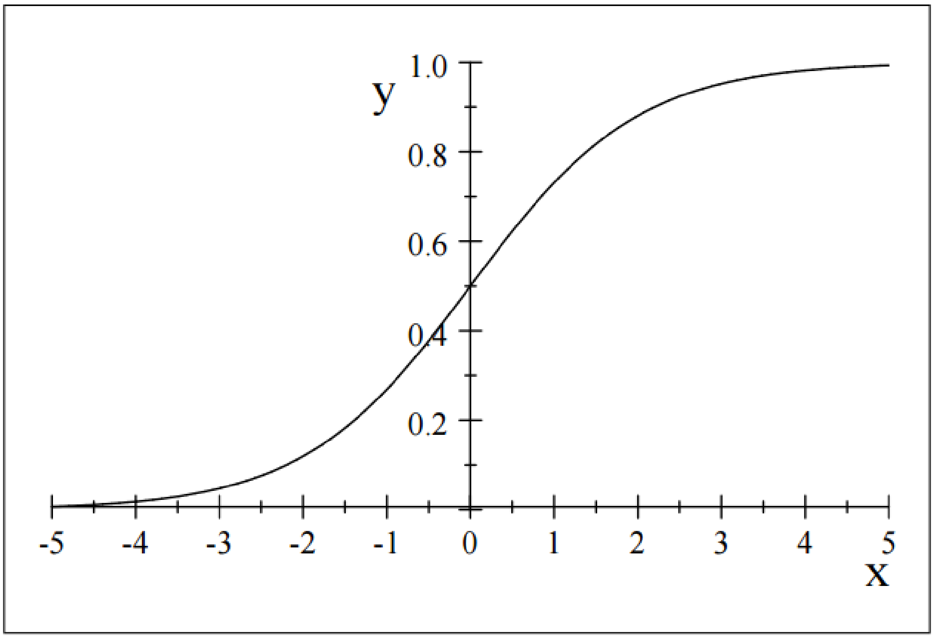

Figure 3: Logistic function $\frac{\exp(\eta)}{1+\exp(\eta)}$

Having defined the theoretical aspects of the logistic regression, it is necessary to verify that the variables included in the model effectively explain the data (p-value) and that the model is efficacious in describing the outcome variable (the model fit).

There are several statistic ways to do the aforesaid verification process. We decided to use a particular set of statistics that are excellent to evaluate the goodness of the model. To assess the significance of the single parameters we referred to Wald Chi-Square, instead to find out how much the estimated model fits the data obtained we used Pseudo R^2 of McFadden.

Wald Chi-Square is given by the square of the ratio between the esteem (A) and the standard error (SE), and is nothing more than the equivalent of the t test of linear regression:

$$Wald\ Chi - Square = \left(\frac{A}{SE(A)}\right)^2$$

It is distributed as a chi-square. The coefficient is significantly different from 0 if the corresponding p-value is small (i.e. rejection of the hypothesis with null coefficient) then the predictor, to which the coefficient is associated, is relevant for the explanation of the phenomenon.

Instead, Pseudo R^2 is a descriptive measure that tries to interpret the values in a manner similar to R^2 in the linear regression. Pseudo R^2 of McFadden is the most common test used to analyse the fitting between the estimated model and the data obtained. This indicator is equal to 0 if the estimates of all coefficients are equal to 0, and can reach the value 1 in the case in which the model is able to precisely explain the observed values. The formula to calculate this indicator is:

$$R^2 = 1 - \frac{\ln(\hat{L}_{full})}{\ln(\hat{L}_{without})}$$

Where:

$$\hat{L}_{full} = Estimated\ likelihood\ for\ the\ model\ with\ predictors$$

$$\hat{L}_{without} = Estimated\ likelihood\ for\ the\ model\ without\ predictors$$

In order to test our hypotheses we developed a model based on logit regression, in which the misjudgement is our binary dependent variable and the variables whereby we want to evaluate if they influence the presence or the absence of misjudgement are represented by the predictors x_1,..,x_p. In addition to these variables, we also include in our model industry and time factors, that are all those dummy variables that are tied to particular events or specific industries. In fact, there may have been macroeconomic shocks, relating to a certain year or an industry, which led to the occurrence of misjudgement, for this reason we decided to include those dummy variables. Finally, all the estimation in our study are also clustered around the acquirers to single out the fix effect of serial acquirers as IBM, Hewlett-Packard and L-3 Communications, that are present in our sample in multiple observations while others acquirers are present just once.

5. Results

Table 3 represents the descriptive statistics of the variables considered in our model.
The number of observation is 217; in the table are reported four columns: the first one represents the mean value (mean), the second one the standard deviation (std. dev.) and the last two are the minimum (min) and maximum (max) values.

Variable	Mean	Std. Dev.	Min	Max
Misjudgement	0.43	0.50	0.00	1.00
CEO style similarity	0.51	0.50	0.00	1.00
Tenure difference	8.31	9.71	-10.67	33.00
External	0.73	0.07	0.43	0.89
CEO Duality	0.28	0.45	0.00	1.00
Board size	11.03	2.54	6.00	20.00
Tenure CEO	1.82	0.74	0.00	3.85
Target age	14.18	14.16	2.00	118.00
Target size	4.86	1.11	1.61	6.88
Cross border	0.22	0.41	0.00	1.00
Relatedness	0.67	0.42	0.00	1.00
Alliance	0.23	0.42	0.00	1.00
Minority stake	0.06	0.23	0.00	1.00
Experience	19.57	23.20	0.00	125.00

Table 3: Variable descriptive statistics

Starting with the first variable, that is a dichotomous variable, we can see that in 43% of cases of our sample occurs misjudgement. This high value suggests that misjudgement is quite common in small high-tech acquisition, given that in about half of the acquisitions analysed afterwards an announcement in news about target CEO retention what really happens is target CEO replacement in post-acquisition period.

Taking a look to the second variable, that is *CEO style similarity*, we can see how in our sample there is CEOs similarity in management style in 51% of cases. This means that in about half of the small high-tech acquisition analysed the acquirer and the target CEOs are both external or both internal. Following this value the similarity theories previously studied, in which it is said that people are attracted and create more easily relationships with individuals similar to themselves (Tajfel, 1982; Schneider, 1987; Westphal & Zajac, 1995; Darr & Kurtzberg, 2000; Jackson et al., 1991; Graebner, 2009), are neither supported nor neglected because just above 50% of the cases there is CEO style similarity while in the remaining there is not.

The third variable is the *tenure difference* with a mean value of 8.31. This independent variable is not represented with an absolute value because we would like to show who has more power in the firm. To better understand, if *tenure difference* is measured as an absolute value it can be possible to evaluate only if in the firm there is a part with more power relative to each other and to what extent but not who between external board directors and CEO has more power. Instead, if *tenure difference* is measured as a subtraction it is also possible to understand if is the CEO that has more power related to the external board directors or otherwise. For example, if the CEO has three years tenure and instead the board has on average ten years tenure, the difference is minus seven and not seven. It is for this reason that we find a negative value of -10.67 in the column of minimum value and a positive value of 33 in the maximum column. Thus, the mean value of 8.31 indicate as in our sample on average CEOs have more power than external board directors.

The descriptive statistics also show that the board of directorss of the acquirers in the sample are composed on average by 73% of external directors, that, as we have said previously, have more capabilities in the monitoring and control, because they are generally more objective in analysing financial performance of the firm than the internal directors (Johnson et al., 1993).
The variable *CEO duality* show how in 28% of the cases acquirer CEO posses a dual role.

In average, the board size in the small high-tech acquisitions analysed is about 11, with a minimum value of 6 and a maximum of 20.
CEO tenure is calculated as a natural logarithm of the tenure of the CEO. So, the mean value of 1,82 means that the average tenure of acquirer CEO is around 6 years.
In average, targets in our sample were 14 years old at the time of the acquisition. Instead the *target size*, measured as the natural logarithm of total number of employees, is about 5 that means an average number of employees of targets around 130, confirming the fact that we analysed acquisitions of small high-tech firms.

Looking at the mean of the control variable, *cross border*, it is clear that in the sample there are more national than international acquisitions. Indeed, 22% of the considered acquisitions are cross border. Thus, most of the acquisitions in our sample took place between firms relatively close.

Moreover, there is an overlap of products and services offered by the acquirer and the target (*relatedness*) in 67% of the cases.

An interesting detail is that only in a reduced percentage of the sample there was prior relationship between acquirers and targets. In particular, in 23% of small high-tech acquisitions cases there was evidence of a previous link between the firms through alliance, instead in 6% of cases targets were support for the acquirer before the acquisition (*minority stake*).

Finally, acquirer experience into prior acquisitions is on average around 20 concluded acquisitions before the focal acquisition, with a minimum of 0 and a maximum of 125.

Table 4 represents the correlation matrix, which shows the pairwise correlations between the variables, with the corresponding p-value in bracket.

Taking a look at the first correlation, CEO style similarity and misjudgement, we find a positive and strongly significant correlation ($0.27, p < 0.01$). This result confirms our argument related to the effects of similarity between CEOs, which impacts on the decision of retention or replacement of the target CEO. Indeed, similarity brings major attraction among the people and stronger ties also based on trust, but it hides a dark side. Individuals, in these conditions, tend to let their guard down, feeling protected by a false sense of security, risking undergoing opportunistic behaviours and deceits (Graebner, 2009), thus increasing the probability misjudgement. So the outcome is in line with our expectations.

According to our expectations, also the correlation between tenure difference and misjudgement is positive and enough significant ($0.15, p < 0.05$). In prior chapters, as a matter of fact, we state that more is the time spent by the CEO in an organization and more is his power and influence, and also lower is the control capacity of the board of directors (Anderson et al., 2003). Therefore, as it emerged from the correlation matrix, higher is the difference of tenure and higher will be the power and the influence of the CEO on the board of directors and hence will be higher the misjudgement.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Misjudgement (1)	1.00													
CEO style similarity (2)	0.27	1.00												
	(0.0001)													
Tenure difference (3)	0.15	-0.02	1.00											
	(0.0302)	*(0.7525)*												
External (4)	0.11	0.15	0.04	1.00										
	(0.1187)	*(0.0232)*	*(0.6081)*											
CEO Duality (5)	0.14	0.10	-0.10	0.08	1.00									
	(0.0453)	*(0.1262)*	*(0.1546)*	*(0.2577)*										
Board size (6)	0.07	0.04	0.24	0.34	0.03	1.00								
	(0.2958)	*(0.5951)*	*(0.0004)*	*(0.0000)*	*(0.6643)*									
Tenure CEO (7)	0.03	0.39	0.05	0.11	0.02	0.09	1.00							
	(0.7012)	*(0.0000)*	*(0.4806)*	*(0.1208)*	*(0.8164)*	*(0.1868)*								
Target age (8)	-0.10	-0.03	-0.02	0.10	-0.13	-0.04	1.47	1.00						
	(0.1258)	*(0.6308)*	*(0.7720)*	*(0.1295)*	*(0.0543)*	*(0.5230)*	*(0.0302)*							
Target size (8)	0.11	-0.05	-0.02	0.02	-0.09	-0.01	-0.06	0.14	1.00					
	(0.1218)	*(0.4281)*	*(0.7737)*	*(0.7820)*	*(0.1902)*	*(0.8403)*	*(0.3791)*	*(0.0358)*						
Cross border (9)	0.08	0.09	0.00	-0.12	0.17	0.02	0.01	-0.01	-0.23	1.00				
	(0.2279)	*(0.1703)*	*(0.9973)*	*(0.0792)*	*(0.0127)*	*(0.8106)*	*(0.9031)*	*(0.9200)*	*(0.0006)*					
Relatedness (10)	-0.02	-0.13	-0.03	-0.05	-0.04	-0.08	-0.24	-0.09	0.02	0.06	1.00			
	(0.7914)	*(0.0592)*	*(0.7111)*	*(0.5056)*	*(0.6073)*	*(0.2611)*	*(0.0030)*	*(0.1748)*	*(0.7889)*	*(0.3739)*				
Alliance (11)	-0.05	-0.08	0.11	0.01	0.10	0.18	-0.12	-0.09	-0.03	0.04	-0.12	1.00		
	(0.4681)	*(0.2144)*	*(0.1191)*	*(0.9056)*	*(0.1281)*	*(0.0090)*	*(0.0896)*	*(0.2078)*	*(0.6263)*	*(0.5866)*	*(0.0807)*			
Minority stake (12)	-0.05	-0.04	0.05	0.06	0.07	0.12	0.03	-0.06	0.03	0.12	-0.05	0.35	1.00	
	(0.4750)	*(0.5222)*	*(0.4829)*	*(0.3801)*	*(0.2846)*	*(0.0859)*	*(0.7049)*	*(0.4120)*	*(0.6879)*	*(0.0841)*	*(0.4535)*	*(0.0000)*		
Experience (13)	-0.03	-0.13	0.18	-0.02	0.02	0.33	-0.11	-0.09	0.02	0.04	0.02	0.25	0.01	1.00
	(0.6534)	*(0.0606)*	*(0.0067)*	*(0.7885)*	*(0.8032)*	*(0.0000)*	*(0.0926)*	*(0.2119)*	*(0.8133)*	*(0.5741)*	*(0.7538)*	*(0.0003)*	*(0.8763)*	

Table 4:Correlation matrix

The same result is also true for the correlation between CEO duality and misjudgement, where the correlation is equal to 0.14 with a $p < 0.05$. This is in line with what we expected in the hypothesis 2c: if CEO also holds chairman position increases his decisional power (Yang & Zhao, 2012) and CEO influence on strategic decisions. Thus, the monitoring power of the board of directors will be lower and weaker and when the monitoring power of the board of directors is lower and weaker, the probability of misjudgement increase.

Rather different story for the expectations about the link between the percentage of external directors in the board of directors and the likelihood of misjudgement. Indeed, although there is a positive correlation between the percentage of external board directors and misjudgement (0.11), however this value is not statistically significant because it has p > 0.1.
Concluding, from this first analysis it seems that the hypotheses 1, 2a and 2c are in agreement with the results obtained from the correlation matrix, while the hypothesis 2b is not in line with our expectations.

Table 5 shows the result of model 1 which only includes the control variables. The table consists of three columns, which represent: the logit coefficient value (coef.), the standard error (std. err.) and the p-value (P > | z |). In the model 1 Wald Chi-Square is equal to 26.000 and it is significant (p < 0.1) and pseudo McFadden R^2 is 9.1%.

The first control variable that is significant is *board size* (p < 0.05). As we expected, the positive relation between board size and misjudgement is confirmed by a positive logit coefficient value (0.128). Thus, the larger is the board size, the likelihood of misjudgement also increases. This is due to the fact that larger board of directors entail longer time for the decision making process, loss of productivity (Yermack, 1995) and generally lower effectiveness in board actions (Jensen, 1993), among which board of directors monitoring and control. Therefore, a lower effectiveness in board actions results in a lower power and influence in the firm decisions, also the ones in the post-acquisition period. For all these motivations the probability of misjudgement increases with the growth of the board size.

The second significant variable is *target age* (p < 0.1), which have a negative association with misjudgement (-0.020). This result is in accordance with our expectations. Indeed, as explained before, target age can be considered as a good proxy of firm maturity and generally mature firms are managed by CEOs with better experience. Thus, such CEOs are more likely to be retained in the post-acquisition period and also later. Accordingly, the likelihood of misjudgement decreases when target age increases.

Misjudgement	Coef.	Std. Err.	P> I z I
Board size	0.128	0.065	0.049
Tenure CEO	0.086	0.227	0.704
Target age	-0.020	0.012	0.095
Target size	0.326	0.150	0.029
Cross border	0.841	0.376	0.025
Relatedness	-0.145	0.355	0.683
Alliance	-0.095	0.372	0.798
Minority stake	-0.890	0.778	0.253
Experience	-0.011	0.008	0.160
Industry & time factors	Included	Included	Included
Constant	-4.176	1.270	0.001
N	217		
Wald Chi-Square	26.500		
Prob > Chi-Square	0.066		
R Square (Pseudo)	0.091		

Table 5: Model 1 - Estimations from the logit model with only control variables

Differently from the previous significant control variables, *target size* have a strange behaviour compared to our expectations. Indeed, we expected that target size behaves in the same way of target age, being also target size a good proxy for firm maturity. Instead, *target size* is a significant variable ($p < 0.05$), which in contrast to our expectation has a positive relation with misjudgement (0.326). This could be motivated by the fact that very often in small high-tech acquisitions target CEOs represent the bearer or most commonly the key to achieve the technological knowledge that the acquirer want to gain (Wulf & Singh, 2011) and consequently smaller is the firm and it is more likely that target CEOs can help the acquirer to reach such knowledge. While in larger firms it is more likely that the knowledge is diffused between more key employees. Thus, smaller is the firm and consequently higher is the probability of CEO retention also after the post-acquisition period and therefore is lower the likelihood of misjudgement.

Cross border is the last significant variable ($p < 0.05$) and as we expected the positive relation between cross border acquisitions and misjudgement is confirmed by a positive logit coefficient value (0.841). Indeed, in cross boarder acquisition information asymmetry is higher due to cultural difference and great geographical distance between acquirer and target; therefore the likelihood of misjudgement increases in cross boarder acquisitions.

The remaining control variable behave in line with our expectation but are not significant ($p > 0.1$). In particular, *relatedness*, *alliance*, *minority stake* and *experience* decrease the probability of misjudgement (-0.145, -0.095, -0.890, -0.011), while *tenure CEO* increase the likelihood of misjudgement (0.086).

In table 6 are represented the results of model 2, that also include independent variable and it is our main estimations to test the hypotheses. Also the estimations in model 2 are robust, with Wald Chi-Square equal to 36.420 and significant ($p < 0.05$) and pseudo McFadden R^2 is 17.3%.

The first strongly significant variable ($p < 0.01$) is the *CEO style similarity* that has a positive logit coefficient value (1.020) that means a growth in the probability of misjudgement in cases of CEO style similarity. This finding is according to our hypothesis 1: CEO style similarity increases the likelihood of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period. Such result is consistent both with the explained similarity theories, according to which similar are more willing to create, cooperate and collaborate among them (Murnieks et al., 2011; Tajfel, 1982; Ashforth & Mael, 1989; Gedds & Konrad, 2003; Schneider, 1987; Jackson et al., 1991). Whereby, target CEO retention is more likely when CEOs are similar in management style. However, similarity in post-acquisition period leads also to negative consequences (Graebner, 2009; Rogan & Sorenson, 2014) that increase the probability of misjudgement.

Also *tenure difference* has a positive (0.060) and strongly significant ($p < 0.01$) relation with misjudgement. The positivity of this logit coefficient confirms even our hypothesis 2a, where we have argued that the positive difference between acquirer CEO tenure and the average tenure of external directors of the board of directors increases the probability of misjudgement in the phase of post-acquisition.[1] Thus, *tenure difference* results as good proxy of power and influence of CEO and external board directors in a firm and over strategic decisions, among which target CEO retention and the misjudgement of such decision.

Instead, the independent variable *external* has a different behaviour respect to our expectation. Indeed, *external* has a positive relation with misjudgement (2.972) while we expected a negative association. This may be motivated by the fact that, although external directors according to their characteristics are more willing to monitoring and control the firm (Johnson et al., 1993; Fama & Jensen, 1983) and all the strategic decisions also during an acquisition and consequently they should prevent an harmful action like misjudgement, the external directors very often have not the real power to influence such decision or they are not really independent from the CEO and thus they will be less likely to challenge his decisions (Johnson et al., 1993, Westphal, 1999), reducing they monitoring role. For these two reasons, the presence of a higher number of external directors in a board of directors does not decrease the likelihood of misjudgement.
However, *external* is not significant ($p > 0.1$) and thus it has not any effect or the expected influence on the probability of misjudgement which cannot support our hypothesis 2b: the presence of a greater number of external directors decreases the likelihood of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.

Finally, CEO duality is the last independent and significant variable ($p < 0.1$) in model 2 and as we expected the positive relation between CEO duality and misjudgement is confirmed by

[1] In the chapter of the hypotheses this assumption has been defined only related with external directors of board of directors that are the main monitoring element in a board of directors. However, all board directors perform this monitoring and control function. Thus, for the same arguments of hypothesis 2b we expect that also the difference between acquirer CEO tenure and the average tenure of all board directors will be a good indicator of the probability of misjudgement in a firm. In particular, the postitve difference between acquirer CEO tenure and the average tenure of all directors of the board of directors increase the probability of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.
This assumption is also confirmed by the results of a previous formulation of model 2 that included also the difference between acquirer CEO tenure and the average tenure of all board directors, but in the final model 2 we have not considered this hypothesis because the positive results of this expectation is strongly affected by the high prevalence in our sample of external director in the board of directors. Indeed, as explained before, the average of external directors in our sample is 0,73%.

a positive logit coefficient value (0.611). Also in this case our prior arguments are supported. In fact in hypothesis 2c we stated that in case of CEO duality increases the probability of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period.

Misjudgement	Coef.	Std. Err.	P> I z I
CEO style similarity	1.020	0.361	0.005
Tenure difference	0.060	0.018	0.001
External	2.972	2.442	0.224
CEO Duality	0.611	0.367	0.096
Board size	0.061	0.080	0.448
Tenure CEO	-0.232	0.228	0.307
Target age	-0.023	0.013	0.072
Target size	0.361	0.148	0.015
Cross border	0.677	0.435	0.119
Relatedness	-0.109	0.384	0.776
Alliance	-0.254	0.421	0.546
Minority stake	-0.893	0.985	0.365
Experience	-0.010	0.008	0.185
Industry & time factors	Included	Included	Included
Constant	-6.825	2.338	0.004
N	217		
Wald Chi-Square	36.420		
Prob > Chi-Square	0.020		
R Square (Pseudo)	0.173		

Table 6: Model 2 - Main estimations from the logit model

In conclusion we can therefore assume that regression model 2 further confirm the hypotheses 1, 2a, 2c supported in the previous chapters, while hypothesis 2b is not confirmed inasmuch in the regression model 2 the variable *external* has not a significant effect ($p > 0.1$) associated to misjudgement.

6. Discussion and conclusion

The objective of this study is to propose a new approach for the analysis of target CEO retention or replacement. Our aim is to enrich the existing literature with the misjudgement assessment, still unexplored variable that provides a new view of the problem of the target CEO retention or replacement in post-acquisition.

We defined the misjudgement as the phenomenon in which there is a discrepancy between the announcement of the acquirer CEO that promises to retain target CEO and what happens in reality: target CEO replacement. This considering, in particular, when target CEO leave the firm after two years from the acquisition. In order to achieve our objective, we created a logistic model that investigates misjudgement and its antecedents.

In the following discussion, we will examine the implications of the findings arising from our study, in order to expand the theories on target CEO retention or replacement.

Our first finding is that CEO similarity in management style, that is when acquirer and target CEOs are both external or both internal, increases the likelihood of misjudgement. So there is a positive association between CEO similarity in management style and the likelihood that acquirer misjudges the decision about the retention of the target CEO in the combined firm.

This confirms our first hypothesis, which stated that the similarity in management style between acquirer CEO and target CEO enhances the probability of misjudgement about the decision related to the retention of the target CEO in the post-acquisition period. This is in line with our hypothesis and confirms prior studies about similarity. Indeed, the similarity theories, previously explained, support that people are attracted and create more easily relationships with individuals similar to themselves (Tajfel, 1982; Schneider, 1987; Westphal & Zajac, 1995; Darr & Kurtzberg, 2000; Jackson et al., 1991; Graebner, 2009). However, although this robust tie, strongly based also on trust, could lead to the reduction of target CEO replacement, it hides a dark side. In fact, individuals, in these conditions, tend to let their guard down, feeling protected by a false sense of security, risking undergoing opportunistic behaviours and deceits (Graebner, 2009). Consequently, the probability that the target CEO, despite previous announcements, moves away from the combined firm just after the acquisition increases.

The second contribution provided from our work is related to the tenure difference. Also in this case there is a positive association between the tenure difference and misjudgement.
Indeed, according to the literature, the more is the time spent by an individual in an organization, the more is his power and influence in the firm. Thus, if the difference between CEO tenure and those related to external directors, that have the task of monitoring and control the firm and CEO decisions (Johnson et al., 1993), is positive the CEO will have more decisional power against external directors, whilst if the difference is negative the external board directors will have more power than the CEO and they will limit misjudgement.
So this finding confirms our hypothesis 2b that stated a positive relation between the difference among acquirer CEO tenure and the average tenure of external directors of the board of directors and the probability of misjudgement in post-acquisition phase.

Another finding of our work is that CEO duality increases the probability of misjudgement.
There are two currents of thought, which tried to determine whether the duality of CEO has positive or negative effects. For the agency theory the separation of roles is necessary to prevent from occurring opportunistic behaviours and to ensure that the CEO can focus on his tasks (Fama & Jensen, 1983; Yang & Zhao, 2012; Donaldson & Davis, 1991). The stewardship theory instead is in favour of the CEO duality (Brickley et al., 1997) because the CEO will be able to act faster, the costs would be lower, also for the transfer of critical and complex information between the CEO and the chairman of the board.
In our study, the findings provide an argument in favour of the agency theory. Indeed, in our results CEO duality increase the likelihood of misjudgement.

More in detail, CEO duality can be considered as a good proxy of CEO power and influence on the board of directors and vice versa. In fact, if the CEO is also chairman of the board, CEO engagement in the firm increases, also having to carry out the activities that should fulfil the chairman of the board, among which firm performance control. Therefore, if CEO holds even the role of chairman of the board his decisional power will be greater (Yang & Zhao, 2012) and will increase CEO influence on strategic decisions. This higher power is also related to decisions during an acquisition and in post-acquisition period, like target CEO retention or replacement. Thus, in case of CEO duality acquirer CEO has a greater decisional power and he will have less oppositions also in risky and potentially harmful decisions, like the misjudgement about the decision related to target CEO retention. The results of our model confirm also this hypothesis and hence misjudgement is more likely in case of CEO duality.

While the results provided considerable support for the three hypotheses mentioned above, there was a hypothesis which did not receive support from the findings of our work and would need more deep studies. Indeed, the effect of external directors on misjudgement is not statistically significant and therefore external directors have not any influence on misjudgement. Moreover, we also found a different behaviour of this aspect from our expectation. In fact, there is a positive association between external directors and misjudgement. The explanation that we have given is that, although external directors are more willing to control the firm (Johnson et al., 1993; Fama & Jensen, 1983) and monitoring strategic decisions also during an acquisition preventing misjudgement, they very often have not the real power to affect these decisions. Alternatively, they are not really independent from the CEO and thus they will be less likely to challenge his decisions (Johnson et al., 1993, Westphal, 1999). In other words, the presence of external directors is not a guarantee about the independence of the board of directors and the influence it has on strategic decisions. Walters et al. (2007) believe that a board of directors is really vigilant and independent when it is composed by independent external directors, that are those who have not business ties with the firm in which they work and those who do not hold positions that might wish carry favour to firm top management. Other cases in which the board of directors is particularly vigilant and independent are when it is composed by directors that hold outstanding shares, whether board directors are internal or external, or by external directors that hold equity of the firm (Walters et al., 2007). Thus, the presence or the absence of external directors in a board of directors does not grant the improvement of the board independence and therefore the board of directors could not have the power and the influence to affect acquirer decisions. For all these reasons, a higher number of external directors does not necessarily implies a decrease in the likelihood of misjudgement.

In addition, we also found newsworthy details regarding aspects not included in the hypotheses focus of our study. In fact, as well as for the assessing of our main findings, we can also say that in the control variables we tracked very interesting results.

We detected values worth mentioning about the target age, that can be considered as an appropriate proxy for target maturity. As explained before, CEOs who lead mature firms have different characteristics and behaviour compared to those who lead young firms. In particular, CEOs that lead mature firms are more likely to be more experienced and also to be more engaged into prior deals like joint venture, partnership and more. Thus, it is logical to think that they are generally more able to assess the acquisition and to manage the post-acquisition phase. In addition, Graebner (2004) states that acquirers often entrust the management of the post-acquisition implementation to target CEOs, for a better management of the transition phase. Consequently, target CEOs who lead mature firms have more experience and they have a higher likelihood to perform better in the post-acquisition implementation, and, from which, it is more likely their retention in the combined firm. Thus, we expected that in target with a relative high age there is a higher probability of target CEO retention after the post-acquisition phase. However, target CEOs who lead small-sized firms compared to acquirer ones have a high probability to be considered as inferior by acquirer top management (Hambrick & Cannella, 1993). For this reason, as a consequence of the hostile environment created against target CEO, it is more likely the departure of the target CEO and as confirmed by our results it is more likely the misjudgement.

Another interesting result is revealed from the study of the target. In detail, we obtain intriguing results between misjudgement and target size that can be considered, such as target age, a good proxy for firm maturity. For the same arguments of the target age, we expected that a higher size was related to a higher probability of misjudgement. However, the result obtained is particularly interesting because, although target size has a significant effect on misjudgement, it behaves in an opposite manner compared to our expectation. We expected that, as for the target age, firms that have bigger size also have greater experience and therefore more probability that misjudgement do not occur. In reality the model showed an opposite behaviour. Indeed, with increasing target size also increases the misjudgement. This could be motivated by the fact that in small high-tech acquisitions, frequently, target CEOs represent the key members to reach the technological knowledge that the acquirers want to gain (Wulf & Singh, 2011) and therefore, the smaller is the firm and the more target CEOs will be crucial to asses this tacit knowledge. Conversely, in larger firms it is more likely that the knowledge is widespread between more key employees. Thus, it follows that smaller is the firm and consequently higher is the probability of CEO retention also after the post-acquisition period and therefore is lower the likelihood of misjudgement.

Finally we want also to mention two other variables that, although gave interesting results, when they are inserted in the model together with independent variables lose of statistical meaning in our sample.

The first of these is board size that according to Jensen (1993) influences the effectiveness of the board actions. From here we deduced that board size has an effect on the monitoring and control power of the board of directors, so we expected that this aspect could influence the probability of target's CEO retention and misjudgement. Board size has a positive association with misjudgement but in our model with the insertion of the independent variables such association loses in significance terms.

In the same way behaves the assessment of the cross border, that represents the consequence of national or international acquisitions. The literature, also in this case, suggests interesting insights. Krug & Hegarty (1997) evaluate that the great distance, which should be managed in the event of international acquisitions between acquirer and target, increases the likelihood that acquirer trusts in the target CEO, regarding the management of the target after the acquisition. From this we deduced that in cross boarder acquisitions asymmetry of information is higher due to cultural difference and geographical distance between acquirer and target, therefore the likelihood of misjudgement increases. However, the effect of cross boarder is not significant in our final model.

6.1. Suggestions for future studies

Although our study has produced interesting and satisfactory results, however it opens more interesting questions for the future because there are so many open topics that is not possible to answer only with our current model but that could be overcome in future studies.

First of all, our sample has limits in two dimensions: in terms of the geographical location of the firms and at the level of acquisitions timing. Regarding the geographical location of the firms, the acquirers are listed firms headquartered in USA, while targets are headquartered in USA or Europe. In future researches could therefore widening the geographic scope, cancelling borders, thus making most significant the cultural differences and bringing in new interesting results. Instead, regarding the acquisitions timing, the sample includes completed acquisitions announced between 01 January 2001 and 31 December 2005, and furthermore, target CEO replacement was analysed only two years after the acquisition. In future studies it could be extended the time period by taking into account not only the acquisitions from 2001 to 2005, but go even further back in time and consider also some more recent mergers and acquisitions. Moreover, it could be also analysed the retention or replacement with a long term effect of about five years as opposed to just two years after the acquisition.

Secondly, it is not negligible even our choice to explore only the acquisitions of small high-tech firm. As we also mentioned above, it is important to retain the human capital of the target, because within this it can be found valuable resources of long-term competitive advantage for the firm. Thus, considering only small high-tech acquisitions inevitably leads us to consider the integration of the two firms and the exchange of knowledge as the key aspects. Knowledge, especially in this industry, is mostly tacit and embedded in human capital; also from here comes the importance of focusing on the individual characteristics. Future studies could then assess whether misjudgement and its antecedents have the same relevance in other industries.

Moreover, an aspect that can be considered both as a limit but at the same time as a chance for future studies is the method used to measure CEOs similarity in our study. Indeed, to determine the similarity between CEOs we used exclusively the similarity in management style, that is when the acquirer and the target CEO are both external or internal. Future studies could deepen and extent new approach to evaluate the effect of similarity on misjudgement. For instance, it can be introduced analysis on similarity based on age, gender, race, education, experiential background or else.

In addition, given that our sample shows strong disparities between the CEOs because the acquirer CEO has more power and influence than the target CEO, since we selected only acquisitions of small high-tech firms, it would be interesting to analyse mergers and acquisitions of equal sized firms, where then would have similar power between the two sides but also a different way to communicate and interact. It could rise two different situations: given the greater similarity, for the theories of attraction, the two CEOs could find advantages in terms of collaboration and coordination; otherwise they could lead rivalry between the parts, who wish to abuse their power to prevaricate the other side, triggering conflicts and higher difficulties in decision-making. So in the future it could be interesting analyse the effect of similarity in firms with similar size.

Our study is focused on the effect of similarity between CEOs and the effect of board of directors on misjudgement. About this, it would be interesting to assess if other individuals will impact on the decision of target CEO replacement. In particular, it should be more complete the analysis with a similarity study where are not taken into account only the points of contact and differentiation between the CEOs but also to other people involved in the process.

Finally, future studies could focus on assessing if in case of misjudgement target CEO leave the firm spontaneously or he is deposed by the acquirer or they could focus on other variables that can influence misjudgement. The former because in our work we have not considered such difference but we only evaluate target CEO replacement; the latter because there are still many elements to be analysed related to misjudgement about the decision related to target CEO retention or replacement in high-tech firms.
In particular, we believe that it would be particularly interesting to study the personality trait of narcissism, which could affect the retention or the replacement of the target CEO.
In fact, narcissism is a complex multidimensional concept, difficult to evaluate, that leads individual to continuous need for admiration and reinforcement, with lack of empathy. Chatterjee & Hambrick (2007) provide evidence that CEO narcissism is important in explaining certain organizational activities and outcomes. Thus, narcissism may also affect misjudgement.

6.2. Practical implications

Definitely, the analyses carried out and the results obtained from our thesis bring an important contribution to the existing literature, because it introduces a new variable, the misjudgement, with which it can innovatively interpreted target CEO retention or replacement. Moreover, our work opens some doors to social psychology, analysing in detail behaviours and characteristics of human capital involved in the acquisitions and also deepening the similarity aspect among individuals.

Although the great number of academic contributions to the existing literature, explained in the previous discussion, our work can also provide interesting contributions to the industries, reflecting on the practical implications of our finding, that should follow the involved members in the acquisition, in particular board directors, acquirer and target CEOs, to better achieve the desired purpose.

The first observation is that both acquirer and target CEO should make assessments on the individual characteristics of the counterparty. In fact, coordination and cooperation between the parts is essential to achieve integration and this may occur especially when working with compatible and similar person. Without this you may run into misunderstandings and conflicts that lead to the failure of the acquisition, with a high probability of target CEO replacement. In other words, whether the individual characteristics of the acquirer CEO are very different from those of the target CEO there will be a high risk of replacement of the latter in the post-acquisition period, either because moved away by the acquirer or because for his own will decides to leave the firm. In particular, it is important that there is similarity in the CEOs management style, because this helps to have the same action strategy and a common vision of the events.

Our researches lead us also to affirm that it is necessary to analyse also the top management team as a whole to have a more complete information about the firm with which one will find to interact.

Summing, certainly the acquirer CEO will carry out strategic, economic, organizational and technological evaluations on the target to determine whether the acquisition can generate value, but above all will then have to dwell on individual characteristics of the CEO and of the top management team, because in absence of affinity the purpose of the acquisition would not be attained. Furthermore, in the case of acquisitions of small high-tech firms, the target CEO can not overlook the consequences which derive from the fact of being acquired by a large firm, which in the majority of instances will impose forcefully, limiting the power and autonomy of the target.

From the above, it can be perceived the essentiality of the presence of acquisitions experience by both sides. In the event that this lack, it is necessary to learn about best practices carried out by the giants of acquisitions or take advantage of external consultants.

Another feature on which we recommend to focus is trust, especially considering mergers and acquisitions. Our advice for the target CEOs is to save their scepticism towards the acquirers. Indeed, they must try to maximally reduce the possibility of running into opportunistic behaviours and deception of the counterparty. The increased confidence in the acquirer makes them more vulnerable because they believed of being protected by a false sense of security. So our suggestion is to be very cautious and to carefully control every aspect of the other organization and the acquisition, trying to conclude written contracts certifying the statements of the acquirer, also using the help of experienced attorneys. On the other hand, the acquirer

CEOs should pay attention to the decisions to be taken, especially regarding the decision of retention or replacement of the target CEO. In fact, in the event that there is no correspondence between what is announced by the CEO and the reality, so when misjudgement occurs, will be incurred very negative consequences.

In case of misjudgement costs grew significantly because all the cost associated to target CEO replacement are amplified and furthermore there are costs associated to the damage of the acquirer reputation. First of all, when misjudgement happens the costs of post-acquisition implementation in general increase even more than the case of announcing it from the very beginning because the acquirer have to assign someone else to the target. Furthermore, the costs related to target CEO integration in the combined firm also increase, because initially acquirer intention was to attract target CEO into the combined organization, while then acquirer misjudges his decision, thus the money invested in the integration is lost. Another aspect is that the demotivation and the uncertainty of target employees increase because after the misjudgement about target CEO retention the intentions of the acquirer are not clear for the employees of the target. The future of the employees becomes more uncertain because they feel deceived and mistrusted and therefore the chance of employees' departure increases, that means a higher risk for the acquirer to lose key knowledge. Finally, there are also costs associated with the reputation of the acquirer. Indeed, acquirer announces in news target CEO retention and if it happens misjudgement the reputation of the acquirer worsens, given the fact that the promises are not honoured, both towards shareholders and towards future targets, therefore towards the market, because acquirer is considered not trustworthy or unaware of what he is doing.

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