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"DISTRESSED ACQUICITIONS: WHO IS TARGETING WHOM?"

MASTER THESIS

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Abstract

The purpose of this is study is to empirically investigate whether financially strong firms acquire financially distressed or bankrupt firms when there is high asset specificity in order to reap the benefits of synergy creation or whether distressed firms acquire growth firms in order to diversify their line of business and revive growth. My research demonstrates that financially strong firms acquire distressed companies when there is high asset specificity generating negative long-term returns. Additionally, companies are more likely to use credit lines in addition to cash when there is high asset specificity in order to finance an acquisition and have access to them even in periods when they didn't execute any acquisitions.

Keywords: *liquidity, financially distressed, liquid, M&A, bankruptcy, synergies, growth*

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List of abbreviations

ICR	Interest Coverage Ratio
M&As	Mergers and Acquisitions
NPV	Net Present Value
OBS	Observations
AR	Abnormal Returns
CAR	Cumulative Abnormal Returns
CAAR	Cumulative Average Abnormal Returns

1. Introduction

Chapter 1 is an introduction in which I provide an insight in the topic that I am going to examine. Past and recent theories in addition with previous distressed transactions are also presented to the reader.

In the aftermath of the financial crisis in 2008, banks in anticipation of uncertainty sharply reduced the supply of credit - liquidity (Antonieades, 2004; Berrospide, 2012). Equity became expensive and companies followed a more conservative approach by hoarding cashflows acting as a "plug" for the company's future needs (Pinkowitz, Stulz & Williamson, 2013). This had as a consequence firms with high exposure to found themselves in a difficult position to repay their debt obligations becoming financially distressed - insolvent. As a result, firms had to find a viable path in order to avoid declaring bankruptcy. One obvious solution for companies is to become more efficient by restructuring their operations. Other ways include companies to come up with an agreement with their creditors in order to restructure their debt or try to sell their assets in companies operating in the same industry (Clark & Ofek, 1994) with a lower premium than a non-distressed acquisition depending on how urgent the company is to liquidate its assets. As a last resort firms can address to the U.S. Bankruptcy code that can protect a company's value during bankruptcy. But this solution can only be temporary, with the company "buying" some time from its creditors in order to reorganize its operations (Deloitte, 2009).

It was December 2012, when the California-based power producer company Edison Mission Energy (EME) declared bankruptcy unable to repay its $1.55 billion debt, followed by the feeling of Chapter 11 one year before. NRG acquired the assets of the bankrupt EME, adding nearly 8000 megawatts of coal, gas and wind generation to its business portfolio. NRG's stock closed up 4,8% at $29.30 following the announcement. EME's assets included four coal-fired plants, ten gas-fired plants and more than thirty wind projects. ***"These aren't great assets, but NRG didn't pay much for them"****, a source close to EME commented.* But the deal nearly quadrable NRG's wind generation capacity making it the third biggest producer of renewable energy in USA. NRG's acquisition of EME was considered as a great acquisition by

NRG executives, as the expertise and technologies deployed by NRG could add great value to the company's current line of business.

Similar transactions like the one of Edison Mission Energy (EME) include the acquisitions of Walter Energy from DIP and Eastman Kodak from a consortium of investors. All these transactions had two common features: First and foremost, before feeling the Chapter 11 bankruptcy form, they tried to restructure their debt obligations with their creditors after finally ended up acquired by strategic companies at a deep discount, seeking to reap the benefits of acquiring a distressed company and create valuable synergies in order to achieve higher growth and increase their market share.

Given that M&As can be considered as one of the most important forms of corporate investment for a company, many researches tried to come up with an answer of whether M&As benefit the shareholders of the acquiring company. The results so far have been ambiguous. Indeed, there has been an extensive research (Alexandridis, Chen & Zeng, 2017; Rahman, Lambking & Hussain, 2016) which demonstrates that through M&As companies can create valuable synergies across different industries, and thus can generate positive abnormal returns for the shareholders of the acquiring firm. In contrast, several researchers tried to shed light in the dark side of M&As, indicating that the shareholders of the target companies are those who benefited more from M&As having paid with high premiums (Schneider & Spalt, 2015; Shah & Arora, 2014; Andrade, Mitchell & Stafford, 2001).

Most importantly, there is a significant distinction between the deals that arise in M&A deals, that of financially distressed and non-distressed firms. This is evident from the fact that a distressed firm can be considered as a **"gamble"** for the acquirer, because of the **high risk** embedded in the acquisition and the **uncertainty** regarding the fundamental value of the distressed firm and the synergies that can bring in the new entity (Bruyland & Maeseneire, 2011). Findings so far showed that buyers tend to have the upper hand when they decide to acquire a distress company. The limited number of buyers willing to take the required risk, the limited available time - time pressure and the complex processes accompanied in these kind of transactions result the buyer to demand a discount or at least a lower premium than that anticipated from the seller (Deloitte, 2009). In this point, it is important to mention the distinction that Schmuck (2013) made between temporary and permanent distressed companies. Temporary

distressed companies are in this situation because of external factors like natural disaster and floodings (factors that are not able to be controlled from a company), while permanent distressed companies are mainly due to internal factors, like inefficient management, inefficient operation lines and excessive leverage - debt. Almeida, Murillo & Hackbarth (2011) also made a distinction between economic and financial distressed firms.

Until now, theory indicates that acquiring distressed firms can have a positive impact in the long-term for a company when there is high asset specificity by creating valuable synergies and by lowering the total operating costs. The knowledge and experience of the acquirer in a specific industry can bring economies of scope from the acquisition of a distressed company, leading to a potential monopoly, lower operating costs and access to lower purchasing prices regardless of the target's performance in the years before the acquisition (Bruton, Oviatt & White, 1994), while acquirers' returns depend on the industry, the type of target and the method of payment (Petmezas, 2009). Nonetheless, Aktas, Bodt & Roll (2007) mention declining cumulative abnormal returns following sequential acquisitions as a result of CEO overconfidence (hubris) and the tendency of CEOs to not learning for their previous mistakes. However, we can safely conclude that there are still value-added synergies when liquid firms acquire distressed targets.

There are several papers in the recent literature trying to capture the long-term effects of acquiring distressed targets (Furfine & Rosen, 2011; Bruyland & Maeseneire, 2016). Healy, Palepu & Ruback (1992), paved the way for the research regarding the post-merger performance with a sample taking into consideration the 50 biggest M&A deals between 1979 – 1984 in USA, finding that merged firms have high asset productivity and operating cash flow returns relative to other industries. Meier & Servaes (2018) with a sample of 428 fire sales between the period 1982 – 2012 they found a two percent higher excess returns in fire sales compared to regular acquisitions, indicating the bargaining power of the buyer to negotiate a lower price as a result of the awkward situation in which the seller is. In the same way, Hotchkiss and Mooradian (1998) found from a sample of 55 acquisitions in Chapter 11 between 1979 - 1992, that bidders for bankrupt firms operating in the same industry have improved operating performance and positive announcement abnormal returns, while non-bankrupt

companies operating in the same industry show no significant improvement in their performance.

In contrast, Clark & Ofek (1994), using five different measures, started discussing about the potential acquisition of distressed companies from liquid firms and the post-merger performance of the combined entity. With a sample of 38 takeovers between 1981 – 1988 classified as distressed, they conclude that bidders had negative post-merger abnormal returns using all five measures.

Thus, I tried to capture the possible explanations for this ambiguity which are either the focus of Clark & Ofek (1994) was mainly in distressed targets or their research has been focused in different firm and deal characteristics.

One of the reasonable questions that arised in the M&A field in recent years is whether liquid firms acquire distressed targets seeking a discount premium in order to create valuable synergies within an industry, increase their market share and lower their operating costs, or distressed firms acquire growth firms in order to decrease bankruptcy risk by capturing external growth opportunities. Zhang (2017) in a recent research with a sample dating between 2010 – 2014 with M&As deals using the distance-to-default Merton's 1974 model came up to the conclusion that firms' pressure to meet their debt obligations and not be characterized as insolvent leads firms to diversify their activities through acquisitions in order to revive growth **(diversifications hypothesis)** rather than capture external opportunities in order to bring growth to the firm **(growth opportunity hypothesis)**. In contrast Almeida, Campello & Hackbarth (2011), with a sample dating between 1980 – 2006 and 1097 M&A deals, found evidence that liquid firms acquire financially distressed firms even in the absence of operational synergies, since the acquirer tends to reallocate liquidity in the distressed firm. However, one potential drawback of this research is that the sample contains deals only for companies operating in the same industry. **This is the main topic where this study focuses.**

The number of distressed acquisitions has been increased rapidly in the last 20 years and since the current research regarding the acquisition of distressed targets by liquid firms or the acquisition of growth companies by distressed firms in order to diversify their operations has been ambiguous, I will try to focus on the motives, the post-acquisition performance of companies involved in distressed acquisitions and whether

companies use lines of credit, equity issuance or internal cashflows in order to finance the acquisition.

The structure of the paper is the following: Chapter 2 provides an overview of the existing literature so far regarding distressed acquisitions, followed by the hypotheses that I am going to examine in my study. Chapter 3 provides an overview of the data sample selection in which I describe the data variables and methodology that I am going to use in my research. Finally, in Chapter 4 and Chapter 5 I present my results and the concluded remarks respectively.

2. Literature review

Chapter 2 provides an overview of the most recent literature regarding distress acquisitions. Post-acquisition performance, the motives behind distressed acquisitions, the methods of financing acquisitions and how theories on how you can identify distressed transactions are also presented to the reader.

2.4.1 Mergers and acquisitions

Takeovers, mergers and acquisitions are frequently used as synonyms, despite the fact that between a merger and a takeover there are different economic connections. A distinction between mergers and acquisitions is that in mergers two or more companies combine their assets and their activities in order to create a single entity while in acquisitions the bidding firm (which most of the times is bigger that the target firm) ends up with more that 50% of equity of the target firm (Piesse, Lee, Lin, Kuo, 2005). M&A transactions are characterized as transactions that allow the interested parties to create valuable synergies, expand their operations in new markets, increase their client base and reduce operating costs. However, so far, we have seen that M&As come in waves. The general economic environment, the world economic progress and the attitude of banks to offer liquidity in the market allows companies whether or not to seek new deals.

As history has shown so far, the first wave is dated in the period between 1985 – 1904 in which companies were seeking for horizontal M&As, followed up by many waves in each of which companies' intentions differ drastically. During the period of 2003 – 2007, a period which is characterized by low interest rates financing and a high

degree of globalization, the number of M&A deals was high enough, but not so high enough indicating that investors follow a more conservative approach having already experienced the previous waves and the outcomes that bring with them.

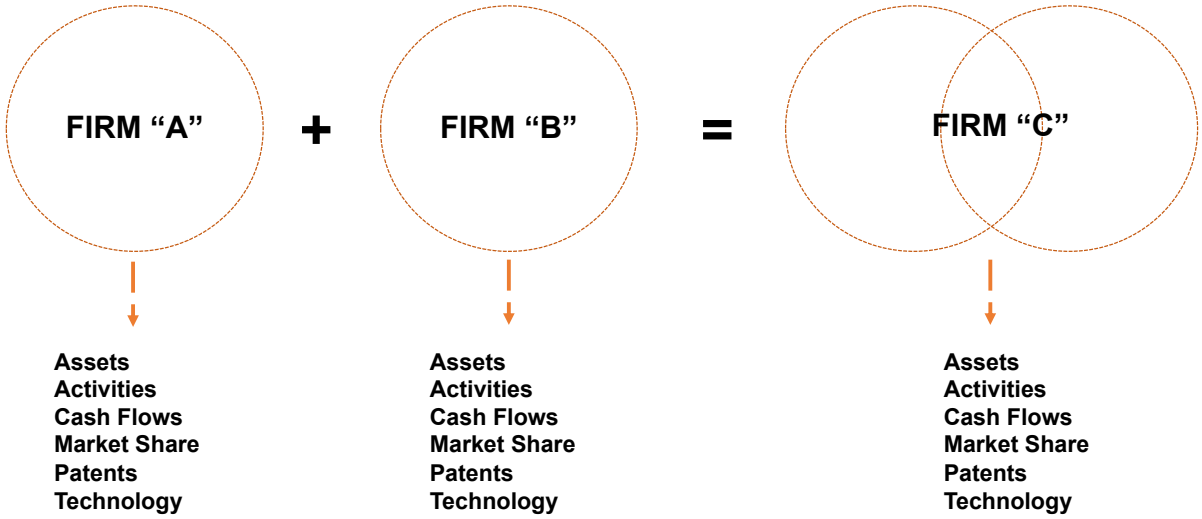


Figure 1: Merger & Acquisition Illustration Outcome

Source: Own Illustration

2.4.2 Post - merge acquisition and potential value creation

Across with the high degree of globalization nowadays, M&A deals have been a topic of major importance within firms. It is fair to say that M&As can be considered as a meaningful way of capturing external growth opportunities for companies. Surprisingly, distressed firms are found to be always the victim, while at the same time there is high uncertainty surrounding how the market will react in these type of acquisitions (Piesse, Lee, Lin & Kuo, 2005). A continuous debate regarding the potential value that M&A deals can create for the acquirer has been deployed in the past twenty years. A debate in which plenty of researchers have been trying to explain leading so far to ambiguous results.

Jensen & Ruback (1983), initially found that M&As generate positive returns for both the shareholders of the target and bidding firm, while these returns do not come as a result of the market power. Seth (1990), found that value is created during acquisitions regardless companies operate in the same industry (horizontal acquisitions) or not (vertical acquisitions). Moreover, Seth (1990) pinpoints the two possible explanations for the M&As occurrence which are the value-maximizing for a firm's shareholders and

non-value-maximizing, which is a common phenomenon between managers who act for their personal interest and not of the shareholders of the company (the bigger the firm, the bigger their compensation). Healy, Palepu & Ruback (1992), in their research they found that merged companies have higher asset productivity, generating higher cash flow returns relative to their industry peers while during the announcement day they have positive abnormal returns. Later research showed that synergies can bring in the combined entity returns in excess of 10.03%, 8.38% of which is attributed to operating synergies with the rest 1.64% attributed to tax savings (Devos, Kadapakkam & Krishnamurthy, 2008).

On the other hand, Agrawal, Jaffe & Mandelker (1992), do not adopt the same opinion as the previous researchers. In contrast, they found that the shareholders of the acquiring firms suffer a 10% loss following a five-year period after the deal. The findings of Shah & Arora (2014) using a ± 2day event study window among the Asia-Pacific region also support a positive CAAR across the event windows in contrast with acquirer's returns which do not show any significant differences across the event windows. The only drawback of this study is the relatively small sample of 37 M&A announcements and the fact that the author takes into account only one year, which is clearly not an adequate timeline period in order to export solid conclusions. Bruyland & Maeseneire (2016) also came up with the same conclusion, indicating an increase on the bidder's default probability after the acquisition of a distressed target.

Finally, Bruton, Oviatt & White (1994), found that distressed acquisitions occurring in related industries perform better than that of unrelated industries. This can be easily explained by the fact that acquirers of a distressed firm who operate in the same industry have the experience and the "know how" of the industry which are necessary requirements in order to implement as quick and smooth as possible the assets of the acquired company. Hence, the "winner's course" is not so common among distressed acquisitions because the bidder has carefully taken into consideration all the necessary parameters required for this kind of transaction. Also, Schneider & Spalt (2015) made a distinction between acquisitions of "risky and safe targets". They found, that indeed, the value of the acquirer declines by 2.8% when it buys a "risky target", but only 0.6% when it acquires a "safe target".

2.4.3 Distressed firms

A distressed firm is referred to the literature as a firm that is not able or it faces difficulties in order to repay its financial obligations (liabilities) to its creditors with most of whom has already a "broken" relationship (KPMG, 2016). Moreover, Meier & Servaes (2014) consider distressed companies as companies that are in process of bankruptcy or liquidation or the companies are under the restructuring process. High operating costs, illiquid assets, revenue sensitivity to economic turmoils, low cashflow capacity and disproportionally over-leveraged capital structure relative to revenues are only a few of the reasons why some companies end up as distressed (Wachtell, Lipton, Rosen & Katz, 2013). As a result, companies engaged in this kind of situation will face some important challenges, such as expensive financing due to the fact that there is high uncertainty surrounding whether or not they will be in a position to repay their debt obligations (low creditworthiness), and opportunity costs since the firm is not in a position to undertake various projects that could be profitable (positive NPV).

Distressed firms can be an attractive investment for "cash-rich" companies seeking to expand their operations and take advantage of the difficult situation the target firm is facing. Their stock price and their difficulties to repay their debt obligations usually mirror the difficulties they face and may end up selling valuable assets at a deep discount in order to repay their debt obligations (Wachtell, Lipton, Rosen & Katz, 2013).

The process of financial distress includes different stages, in each of which there are different characteristics which contribute specifically to corporate bankruptcy. **Figure 1** below mirrors all the stages in which a company faces from being healthy and solvent, ending-up as bankrupt or liquidated by other firms.

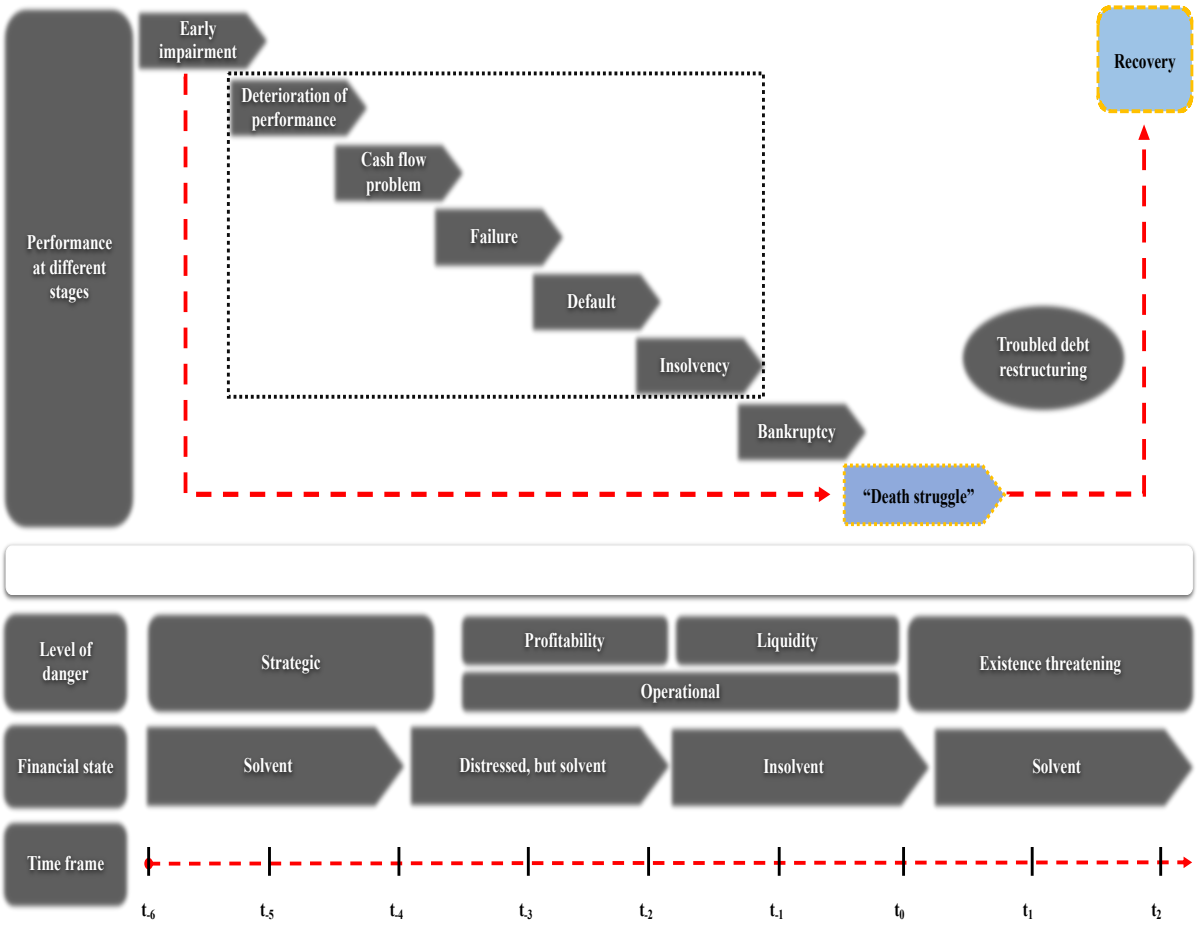


Figure 2: Process integral corporate financial distress

Source: Pranowo, Achsani, Manurung, Nuryartono (2010)

2.4.4 Potential models to identify distressed firms

Through years many researchers tried to locate changes in companies' financial ratios in order to make a distinction between growth-liquid firms and firms who are in need of financial aid. Financial distress prediction models have been developed in order to forecast whether a company will have enough funds to serve its liabilities or it will end-up bankrupt in the following period. Hence, it is easily understood how important are these kind of models and their accuracy to many interested parties, among them the shareholders of the company, the creditors and the entrepreneurs (Sarlija & Jeger, 2011). Therefore, interested parties will have the opportunity to prevent a company form being in a stressful situation and predict a future outcome.

Building an efficient model, it can be challenging, by all means a model like this has to combine multiple financial indicators in order to not create bias. Two models that capture the financial ratios needed in order to define a firm's financial situation are the Altaman's Z score model and Merton's Distance-default-model. Almeida, Campello & Hackbarth (2011) also use a different approach to define distressed firms from liquid ones, using profitability and interest coverage ratio (icr) as proxy variables. This is the approach also that I am going to use in my research in order to define distressed firms and I will detailed deploy later in the paper.

2.4.1 Altman's Z - score model

It was 2007 when credit rating of specific assets has been higher that they should have been in reality. Using Altman's Z-score as a base there was a prediction that companies' risk was increasing significantly, leading to a potential future bankruptcy.

The literature refers to Altman's Z-score, as the result of a credit-strength test which calculates the probability of a public company falling in bankruptcy. Altman's Z-score is calculated on a combination of five key financial ratios: profitability, leverage, liquidity, solvency and the activity that can be used as a measure of the firm's danger for a possible corporate default. Each of these measures has been given a certain weight that contributed to the final calculation based on the importance they have:

$$\mathbf{Z - Score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E}$$

Where:

A = working capital / total assets
B = retained earnings / total assets
C = earnings before interest and tax / total assets
D = market value of equity / total liabilities
E = sales / total assets

After coming up with the final score for each company according to the Altman's Z-score there are three specific thresholds each of which indicates in which zone the company is considered to be. If the final score of a company is bigger than 2.99 points

the company is considered as safe and with a score below 1.81 points indicates that the company is in financial distress.

Distresses / Non-distressed table according to Altman's Z-score

- Z > 2.99, **("Safe" Zone)**
- 1.81 < Z < 2.99, **("Grey" Zone)**
- Z < 1.81, **("Distressed" Zone)**

2.4.2 Merton's distance-to-default model

The literature refers to the Merton's distance-to-default model to access the credit risk of a company by modelling the company's equity as a call option on its assets. Merton's technique model also allows to the Black & Scholes pricing model. Merton's model can also be considered as a "smart" application of financial theory whose results depend on whether reasonable or not are the assumptions you implement in the model. The model makes many assumptions, among of which is the assumption that the value of each firm follows a geometric Brownian motion and that firms have issued only one zero-coupon bond (Bharath & Shumway, 2016).

- **Distance to default:** $\mathbf{DD(t) = \frac{\log\left(\frac{V_A}{D}\right) + (r - \frac{1}{2}\sigma_A^2)(T-t)}{\sigma_A\sqrt{T-t}}}$

- **Probability of default:** $\mathbf{PD(t) = P\,(VA \leq D) = \ldots = \Phi\,(-DD)}$

2.4.5 Acquisition motives for distressed firms

For many years, researchers have been trying to explore the motives behind M&As (Brealey, Myers and Marcus, 2001; Ross, Westerfield & Jaffe, 2002). Unfortunately, no single explanation has been attributed, and this is partially because the motives differ in every time period among different firms in different industries (Piesse, Lee, Lin & Kuo, 2013). Some researchers argue among other reasons, that shareholders' pressure to meet specific financial results leads companies to capture external growth through acquisitions (Zhang, 2017). Below, I will present the main motives I realized

behind distressed acquisitions most of which apply also in acquisitions of not-distressed firms:

2.5.1 Synergy motives

One of the most important reasons a buyer would be interested in acquiring a distressed target is to take advantage on the potential synergies, such as economies of scale and scope, that can be created through this new entity.

With the term synergy, we mean the combination of “healthy” assets of the companies involved in the transaction and the removal of those that are not operationally efficient, then synergy occurs if the combined value of these assets is higher than their value before the transaction (Piesse, Lee, Lin & Kuo, 2013).

In distressed acquisitions, the acquirer can create value by changing the current practices implemented by the previous management team, the business model of the company in which it operates or even a combination of many changes that can revive profitability in the company. However, a bankrupt company can offer unlimited opportunities to the buyer to bring the company back in profitability, making the target seem an attractive opportunity in the business market (Deloitte, 2009).

Finally, Bruyland & De Maeseneire (2011) nicely pinpoint that that in distressed acquisitions there is high possibility of debt restructuring than non-distressed acquisitions making this kind of acquisitions seem attractive.

2.5.2 Discounted premium

We can fairly argue that the bankruptcy market is a unique market because of the complex financial situations that can possibly arise, and the parties involved on each transaction separately. Companies having filed for bankruptcy or face cash flow difficulties are the major sellers of this kind of assets.

A broad dialogue has been arised whether these assets are sold in a deep discount relative to assets sold by non-distressed firms. Some may argue that due to the fact that distressed firms are in urgent need to cover part of their liabilities sacrifice part of the premium that would otherwise demand under normal circumstances. Theodossiou, Kahya, Saidi & Philippatos (1996) argue in their paper that the stock price of the acquired firm increases a few days before the acquisition announcement

day, the increase is bigger for distressed firms. Moreover, they exhibit the “imperfect access to external capital” model which indicates that due to their size large firms have easier access to liquidity, they have lower cost in order to raise capital, hence there is smaller probability of ending-up as distressed.

Ang & Mauck (2011) in their research found that during economic crises, firms sell their assets at deep discounts. At the same time, there is evidence supported that during the crisis periods distressed firms received 30% higher premium than in normal periods, and a higher premium around 34% that non-distressed firms during crisis periods. In additions to this, Clark & Ofek (1994) found that there is a certain probability acquirers to pay higher premium for smaller target firms, hence lower transaction value, because of the lower post-merger performance.

2.5.3 Management inefficiency

One of the possible explanations for a company’s downfall in performance and thus in revenues can be attributed to the inability of the management team to run a business efficiently in order to overachieve its potential. The ripple effects of inefficient management can lead the firm to being acquired, replacing at the same time the inefficient management with a new, talented team fully experienced with the industry trends (Theodossiou, Kahya, Saidi & Philippatos, 1996).

The role of the management is to help a company flourish, to serve the company’s customer needs but most importantly to protect the interests of the company’s shareholders. As a formula, management efficiency can be considered as the ratio of management results divided by management inputs. Hence, with high management efficiency a company is in a position with a small amount of management resources to produce high quality results (Yahagi, 1995).

Because the management of the company is the one who makes decisions regarding the company’s operations and activities, an inefficient management can lead a company in poor decisions which have as a consequence poor organization outcomes, with the firm ending up as financially distressed. Companies with an inefficient management team are the most favorable targets to be acquired by liquid – cash rich firms (Turetsky,2003; Bruton, Oviatt, & White, 1994).

Finally, with a sample of 197 publicly traded firms appeared from Chapter 11, Hotchkiss (1995) found evidence supporting that a company's poor performance can be continued even after a company's bankruptcy in case the management team of the company remains the same, finding support to the findings of Denis (1995) who claim that a company's decline in operating performance has as a consequence the top manager's departure followed by an increase in firm's performance.

2.5.4 Financial and tax issues

M&As take place primary because the acquiring company wants to take advantage of the potential synergies that can be created through the new entity. There is an extensive discussion whether there is an operational improvement after the merge has been completed, but so far there is little evidence proving the factor of tax benefits that potential acquirers take into account.

(Interest subtracted from the tax base leading to lower tax payment, example of tax effect)

Leverage Effect	Non-Levered	Levered
Fiscal Year end: December	2017	2017
Sales	100	100
EBIT	10	10
Margin as sales %	10%	10%
Interest expenses	0	2,4
Assumed debt interest rate %	4%	4%
Tax	3,3	2,5
Tax rate %	33%	33%
Net Income	6,7	5,1
Equity	100%	40%
Debt	0	60%
Return on Equity (ROE)	**6,7%**	**12,7%**

Table 1: Example of tax effect

Source: Own illustration

Early researchers Auerbach & Reishus (1987) and Johnson & Abbott (1991) present some important drivers of M&As, indicating among others tax benefits and agency costs as potential reasons. Clark & Ofek (1994) found that one year before the acquisition the target firm had 50% tax loss carryforwards benefits indicating the importance of tax motives in the decision of a firm to acquire a distressed target.

Later, Belz, Robinson, Ruf & Steffens (2013) found that a target's tax rate decreases between 3 to 8 percentage points after a merger or acquisition, indicating that the acquiring firm is in a position to lower the target's tax rate, allowing tax benefits to be considered as a potential reason for the deal. Piesse, Lee, Lin & Kuo (2013) also refer to the tax considerations as a potential reason to acquire distressed firms, especially in the case of profitable firms which pay a high tax rate might be tempted to acquire a distressed company in order to lower this rate. Finally, Scheuering (2014) points out the possibility of lowering tax costs as a potential reason for firms to engage in distressed acquisitions.

Table 1 above illustrates the returns from two kind of investments and the benefits that can be created from taxes: one in which there are interest expenses paid by the investor and one where there are no interest expenses, hence no tax benefits (investments made by a company are followed by tax benefits). It is clear from the table above that potential interest expenses can lead to lower taxes paid by the investor, despite the fact that the tax rate is the same. For this reason, the acquiring company can use tax benefits as a potential leverage to complete an acquisition – position strategically themselves, and at the same time paying less taxes achieving a higher return from their investments.

2.5.5 Reduced probability of default

It can be generally accepted that large firms due to the huge amount of assets they have - they can be used as collateral, and the high credibility in order to repay their debts, have better access to capital than small firms with no proven track record or history (Beaver, 1996). Hence, the probability of a large firm to end up as distressed is relatively smaller than a small business (Theodossiou, Kahya, Saidi & Philippatos, 1996), while Peel and Whilson (1989) with a sample from the UK corporate sector,

add that the smaller the size of a distressed firm the greater the chances of being acquired.

Clark & Ofek (1994), Bhagat, Moyen & Suh (2005) and Carapeto, Moeller & Faelten (2009) found evidence that usually distressed acquisitions happen within companies operating in the same industry, both the target and the acquirer (SIC code used as a reference point).

Finally, despite the fact that the sample is relatively small, Clark & Ofek (1994) using performance indicators they made two important observations: **(i)** the bigger the size of the bidder relative to the target the higher the probability of the post-merger acquisition of the new entity to be successful, and **(ii)** The premium paid by the acquirer is not correlated to the possible successful or not post-merger transaction, implying by all means that the high premium being paid by the acquirer has as a result the target to not be successfully restructured.

2.5.6 Diversification hypothesis

According to theories, diversification is aligned with both costs and benefits. Zhang (2017) on the research paper “Why do distressed firms acquire” made a distinction between the diversification and growth opportunity hypotheses, finding evidence supporting the diversification hypothesis, stating that the main reason why distressed companies make acquisitions is to diversify their main line of business and reduce the risk of bankruptcy. Such acquisitions tend to be close in the main line of business of the distressed firm, decreasing asset volatility and increasing the leverage ratio, allowing distressed firms to consider financing projects with positive NPV, projects that under normal circumstances wouldn’t be able to finance.

The diversification hypothesis can be considered as a rational explanation for distressed acquisitions. The diversification of a company’s main line of business can provide a company with reduced bankruptcy risk, smooth future cash flows and growth. More importantly, diversified firms can prevent the entry of new competitors in the industry using their financial dominance (Piesse, Lee, Lin & Kuo, 2013).

In line, Krivokapic, Njegomir & Stojic (2016) and Castaldi & Giarratana (2018) found that diversified companies in the insurance industry outperform undiversified ones. Finally, Chen (2016) studies the diversification effects of the top 500 Taiwanese

companies founding that diversified business with big firm scale have subsequently high business performance.

2.5.7 Growth opportunity hypothesis

Zhang (2017) states that firms explore growth opportunities when they are at the point of no further internal improvements and hence find new ways to bring growth to the company. Moreover, the author states that firms which underperform are the main candidates to acquire a target that is not currently related to the main line business of the company.

Next to that, Fatmasari (2011) and Rahimian, Ghalandari and Jogh (2012), found evidence between the capital structure of a firm and growth opportunities, indicating that companies with high growth opportunities make lower use of leverage and instead they use their internal cash flows to finance their needs, and they tend to use short periods of debt maturity, which is a clear sign that companies with growth opportunities rely mostly on their internal funds.

Finally, Warghana, Tjahjadi & Permatasari (2017) present evidence supporting that a positive impact on the stock price of the company can be made by a firms' growth opportunities and the corporate governance of a firm does not have s direct impact on the firm's growth opportunities.

2.5.8 Market power hypothesis

Market power refers to the literature as the ability of one company to control at a high degree the price of its products in the market by controlling the level of supply, demand or both. A company aiming to determine the price in the market would consider acquiring a distressed company, gaining market share, lowering its operating costs and hence try to manipulate the market price.

Piesse, Lee, Lin & Kuo (2013) in their paper perceive market power as a company's effort to control the price and the supply of its products in the market. It can be considered as a strategy from a company to dictate its price rules in the market and create a monopoly in order to avoid other competitors to enter the market with a lower price.

2.4.6 Acquisition premium

One possible question that arises frequently in any kind of M&A deals is the premium the shareholders of the target company will demand in order to sell their company. With the term "premium" we denote the difference between the price paid by the target and the value of the target, and it is often recorded as goodwill on the acquirer's balance sheet.

$$\textbf{Acquisition premium} = \frac{Purchase\ price - Stock\ price}{Stock\ price} * 100$$

The last motive and probably the most important one for acquiring a distressed target instead of a healthy, is the potential reduced price the acquirer's shareholders have to pay. A possible assumption about financially distressed firms is that the acquirer can purchase the company at a relatively lower price (premium) than in normal circumstances, this can be translated as a "fire sale acquisition". This kind of acquisitions occur when a distressed company is unable to find buyers at a short time period and at the same time there is time pressure for the company in order to avoid declaring bankruptcy (Gilson, 1997).

Kelly & Leroy (2004) also mention quick sales as possible reason for lower prices. The lower price being offered outweighs the higher price due to the possible investigation the acquirer is going to make in order to find the "dark" points of the transaction. More time means lower probability for the acquirer to overpay.

Dinc, Erel & Liao (2016) study the discount that target firms are willing to accept. They found evidence that target firms accept around 8% – 14% sale discount depending on the number of stocks purchased on the transaction. Ang & Mauck (2010) also report that during financial crisis periods distressed firms were able to receive a 30% higher premium than firms being distressed in normal periods, and 34% premium than non-distressed firms in crisis periods.

In contrast, Weitzel & Kling (2016) with a US sample ranging from 1995 to 2011 found evidence supporting that 8.4% of all M&As deals from 1995 to 2011 demonstrate negative premiums to the shareholders of the target company reaching a peak of 14.1% in 2014. Their analysis demonstrates three potential reasons for this tendency:

(i) *hidden earnouts*, because the bidding firm offers to the shareholders of the target firms ownership of the new entity that will came up and hence potential positive gains from the synergies' effects **(ii)** *overvaluation* of the target company and as a result the value of the target company will be lower than the current market valuation, and from fear that this overvaluation will be a public event the shareholders of the target firm accept a negative premium **(iii)** *market liquidity* in which the company operates can has a dramatic impact on the need of a distressed firm or a firm which faces liquidity difficulties to accept a negative acquisition premium in order to declare bankruptcy.

To conclude, from all the aforementioned the acquisition of a distressed firm can be attractive when there is a high potential for the acquiring firm to incorporate the assets of the distressed target, increase the market share, lower the operating costs, increase the profit margins and expand its client database. Otherwise, the acquiring firm can be in a trouble in its effort to restructure a flawed company, adding additional debt on its balance sheet.

2.4.7 Methods of financing

One of the key issues the shareholders of the acquiring firm have to face during an M&A transaction is to determine the payment method, in other words how there are going to pay the shareholders of the target firm. It is obvious that in this kind of situations the buyer (acquirer) wants to pay the lowest possible price, while the seller (target) will try to take the highest possible value in order to sell the firm.

The literature includes three main methods of payment: cash, equity or a combination of both (Piesse, Lee, Lin & Kuo, 2013). Each method has profound ramifications for the shareholders of both acquiring and target company in the new ownership "map", and the subsequent financing decisions of the new firm. With the term cash we refer to the internal and external cash flows of the company, as external cash flows is considered the debt[1] a company can issue in order to finance the acquisition, with the term equity we mean the new shares, common or preferred the acquired company has to issue in order to pay to the shareholders of the target company. Finally, the combination of both refers to the mix of debt and equity the acquirer is offering to the target company.

[1] Debt issuance include corporate loans, credit lines and bonds the company can issue in order to finance the acquisitions

A recent acquisition that includes a combination of both debt and equity as a method of payment is the acquisition of Celgene by Bristol-Myers Squibb for a total value of $74 billion in the healthcare industry, mirroring a premium of 53.7%. The deal is the largest ever in the history of the industry. The method of payment proposed by Bristol-Myers Squibb and accepted by the shareholders of Celgene includes $50 in cash for each share of Celgene and one share of Bristol-Myers Squibb.

There are several corporate finance theories trying to capture the differences between the financing methods (Zhang, 2001; Heron & Lie, 2002; Andre & Amar, 2009; Piesse, Lee, Lin & Kuo, 2013; Boone, Lie & Liu ,2014; Kalinowska & Mielcarz, 2014; Sankar & Leepsa, 2018;). Indeed, the payment method decision is crucial for the future of the acquirer and hence whether or not the acquisition will be successful.

Static tradeoff theory and the pecking order theory are the most prominent theories related to the payment method. According to static tradeoff theory, which takes into consideration the effects between debt finance and equity finance, a firm has to find an optimal capital structure between the benefits that tax shields offer to the acquirer and the costs of financial distress (Abel, 2018). One of the payment methods for a company is to issue equity. Equity is considered expensive and can give the wrong signals to the market. The stock price of the acquirer who finances the acquisition with equity can be considered as overvalued, leading to negative post-abnormal returns (Piesse, Lee, Lin & Kuo, 2013). In contrast, issuing debt for a company signals an optimistic future because the acquirer projects increase in the internal cashflows in order to repay the debt. It makes sense to say that profitable firms will prefer to issue debt that equity. In contrast, pecking order theory's main point is firms to make use of their internal cash flows to finance their needs. If internal cash flows are inadequate, then the firm can issue debt and as a last resort issue equity.

Many researchers have studied the relationship between the method of financing and the impact that has on the firm's future. Heron & Lie (2002) and Zhang (2001) using a sample from UK found evidence that the payment method a firm will choose has no effect on the firms operating performance. In contrast, Travlos (1987) found that equity financed deals are followed by negative abnormal returns compared to deals financed with debt which followed by positive returns. Similarly, Dude & Glascock (2006) with a sample of 255 merge deals from companies listed in different indices found the post-merge underperformance of deals paid with equity while deals financed with debt

didn't show any relative anomalies in their performance. Kalinowska & Mielcarz (2014) reveal that equity payments lead on average to higher returns after the post transaction period and the mix payment between debt and equity leads to lower returns. Finally, Sankar & Leepsa (2018) found that a mix between debt and equity is usually used by companies nowadays.

But the real question is what type of payment distressed firms use to finance acquisitions. Piesse, Lee, Lin & Kuo (2013) mention that distressed firms face difficulties to issue debt. The low credit profile acts as an obstacle for institutions to provide them with debt. Hence, the only ways to finance the acquisitions is to sell part of their assets or issue equity in extremely discount prices with the expectation to revive the company's growth. Although, the scenario of a distressed firm issuing equity is rare because as we already mentioned before: equity is expensive.

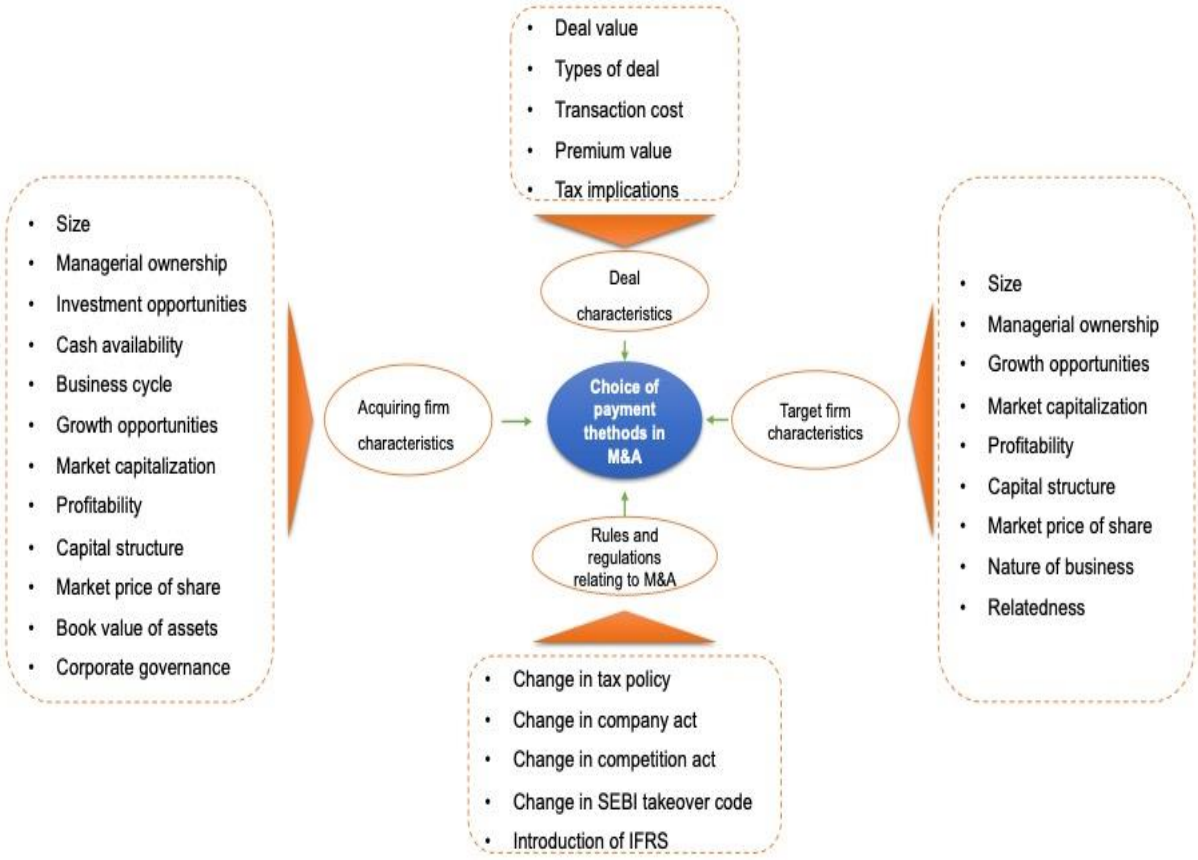


Figure 3: Conceptual model

Source: Sankar & Leepsa (2018)

2.4.8 Hypotheses

At this point I will present the main research questions that I am going to examine in my research, and hence my contribution to the existing research. As I have already mentioned before in the introduction chapter the main motive of my research is to answer the following question: *"Does liquid firms acquire distressed targets to reap the benefits of potential synergies' creation when* there is high asset specificity *or distressed firms acquire growth targets in order to lower the probability of bankruptcy?".* Following the main research question, I will state the main hypotheses of my research which are aligned with the structure of my research.

Hypothesis 1: Financially distressed firms are more likely acquired by liquid firms in industries when there is high asset specificity

The first hypothesis of my research is based on the findings of Almeida, Campello & Hackbarth (2011) and Zhang (2017). The findings of these two papers contradict each other, and this is where the main motivation of my research lies. With the following research I want to shed light in this intriguing topic. Indeed, there is an extensive debate regarding the acquisitions of distresses targets by liquid firms and the acquisitions of growth firms by distressed firms, little evidence has been provided whether or not these acquisitions occurred in industries where there is high asset specificity. The assumptions are reasonable, and an extensive research will provide a solid basis for further research. Liquid firms will try to acquire a company at the brink of bankruptcy at a deep discount in order to create synergies benefiting from the same tangible or non-tangible assets of the industry and distressed firms will try to revive growth through an acquisition. At this point after having explore all the possible opportunities for organic growth distressed firms will try to acquire growth targets in order to boost their profits and reduce their costs. But the real reason behind this kind of acquisitions is for distressed companies to diversify their activities.

Hypothesis 2: *Firms that buy financially distressed or bankrupt companies earn higher excess returns than those firms who make regular acquisitions when* there is high asset specificity.

In my effort to further explore the long-term effects of destressed acquisitions, I will explore the acquirer's stock price before and after fire-sale transactions through an event study approach. In this effort I will take as a base the findings of Maier & Servaes (2014), the findings of whom are exactly on the same research question as mine. Moreover, in order to have a broader view based on the findings so far, I will also take the findings of Bruyland & Maeseneire (2016) which contradict that of Maier & Servaes (2014). Similar findings on the same topic and research question like these of Jory & Madura (2009) and Carapeto, Moeller & Faelten (2015) will also be taken into consideration.

Hypothesis 3: *Firms are often more likely to use credit lines relative to their internal cash flows as a way of payment method when industry asset-specificity is high*

Finally, one of the biggest issues in M&As generally is the method of payment. How the acquirer plans to finance the acquisitions, whether is distressed or non-distressed. Interestingly, in distressed acquisitions it seems that acquirers follow a different approach in their payment methods. According to Almeida, Campello & Hackbarth (2011), acquirers of distressed targets rely more on the use of credit lines in order to finance the acquisition when there is high asset specificity. The reason relies on the risk impact of the deal on the acquirer's future activity. In contrast, Lee, Lin & Kuo (2013) mention that distressed firms face difficulties to issue debt. Hence, the only ways to finance the acquisitions is to sell part of their assets or issue equity. Finally, Sankar & Leepsa (2018) found that a mix between debt and equity is usually used by companies nowadays.

With the completion of this chapter I wanted to make an extensive reference to the literature regarding distressed acquisitions. Both recent and previous research papers were taken into consideration in order to see how the literature, the research results and market trends change around distressed acquisitions and acquisitions more generally over the pass of the years. In the following chapter I will describe how I collect the data, the limitations that I took into consideration based on the aforementioned research papers and most importantly the methodology that I use in order to come up with concrete conclusions.

3. Data

In this chapter I provide a detailed view of the data collection, the sources and the final sample selection. Moreover, I also present the chosen criteria on which I will build the final sample and the limitations I enact in order to not create any bias that can alter the final result of my sample.

3.1 Sample structure

In this research paper I cover M&As deals announced in the period of January 1, 2012 till December 31, 2016 globally (Europe, North America, Asia and Oceania). In order to avoid any potential bias in the final sample I exclude the global financial crisis M&A deals occurred between 2008 – 2011 and years 2017 – 2018 due to incomplete data records. One potential future research it will be to cover the pre, during and post financial crisis M&As deals in order to extract more concrete results.

Data are collected from various sources, ranging between what piece of information I wanted to collect. The main sources I used in my research are Thompson ONE (1) and Compustat Capital IQ (WRDS). M&As deals are obtained from Thompson ONE (T1) database while stock returns are obtained from CRSP database (WRDS). For the collection of data regarding the payment method I relied again on Thompson ONE (T1). Bloomberg terminal and public companies' financial reports are used to find any missing firm data. Finally, due to the inefficiency of Thompson ONE (1) to provide me with the respective ISIN codes of each company related to the deal, I obtained all the ISIN codes from Datastream by implementing the Datastream codes for each company provided by Thompson ONE (1) to Datastream. In ***Table 2*** below I describe the filters that I put in order to collect the final sample following Almeida, Campello & Hackbarth (2011), Zhang (2017) and Meier & Servaes (2014) relative researches. Additionally, one pitfall that came up to my research was regarding the North America and Global Index CUSIP and ISIN codes respectively. Hence, for companies headquartered in North America I used the CUSIP code of each company which Thompson ONE (1) provided me in order to obtain the necessary data though Compustat Capital IQ (WRDS).

Additionally, Compustat Capital IQ (WRDS) provides data for each company in local currency. For this reason, I converted[2][3] the financial data for each company in Euro (€) using as data the last day of the year the deal was occurred in order to make an apple-to-apples comparison.

In my pursuance to construct a concrete sample without any bias I decided to not focus only in one a specific industry or in one specific region. This gives me the opportunity to compare different deals occurring at the same period in different industries and regions.

The initial sample of M&A deals announced between 2012 till 2016 accounts to 566.523 deals in total (for both public and non-public companies). The time period is long enough in order to provide me with a sufficient number of deals. The next step in my research is to implement all the necessary parameters required in order to avoid any potential outliers that can alter the sample's robustness. From the criteria implemented in ***Table 2*** one hard requirement is both the target and the acquirer to be public companies, this automatically eliminates the initial sample to 93.864 M&A deals. The reason i want only public companies in my sample is profound and can be explained by the fact that I want to collect data public available in order to build the final sample. Following the public companies' criteria, I want also the deal to be completed because "pending" or "announced" deals is possible to not be finally completed and adding these deals in the sample can be misleading and affect the results. The sample this time is eliminated to 61.659 M&A deals. Additionally, the percentage of shares owned after the completion of the transaction must be minimum 51% (majority acquisition) to 100%. Minority acquisitions of less than 51% are not taken into consideration, thus eliminating the initial sample to 34.985. Moreover, the percentage of stocks acquired during the transaction must be higher than 51% of a company's total shares, eliminating the number of M&A deals to 20.656.

Companies operating in the finance and regulated industries with SIC header 6, 48 and 49 are eliminated, totaling the number of M&A deals to 14.256. At this point it is

[2] In order to convert the local currencies from each country to Euro (€) as a base I relied as a source on Bloomberg and European Central Bank: https://www.ecb.europa.eu/stats/policy_and_exchange_rates/euro_reference_exchange_rates/html/index.en.html

[3] See Appendix for the relevant information

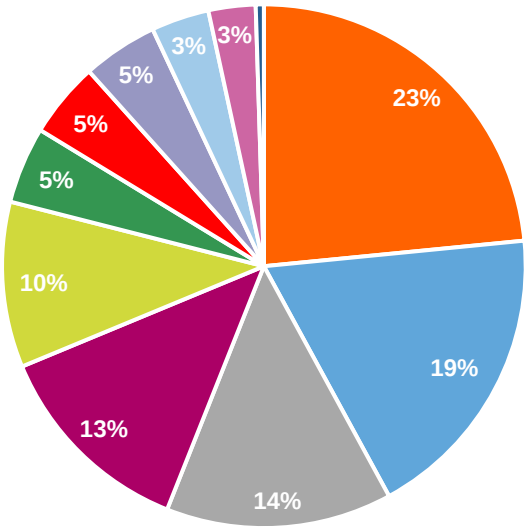
reasonable someone to assume why I remove from the final sample companies operating in the aforementioned industries. The reason is because these companies have high leverage ratios compared to other industries and it is difficult to define, based in all methodologies, whether they are distressed or not. As a result, it is very possible to have bias in the final results if i implement these companies in the sample. This has as a result the sample to further decreased to 5.367 M&A deals. Finally, in order to have meaningful deals, deals that can have a real impact in a company's operations the deal must be more than $1 million in value, having a final sample that it will be the base in my research totaling **1198** M&A deals between 2012 to 2016. In **Tables 3 and 4** I exhibit a detailed overview of the M&As deals announced between 2012 to 2016 both distressed[4] and non-distressed among different industries and regions.

Table 2: Data sample criteria selected

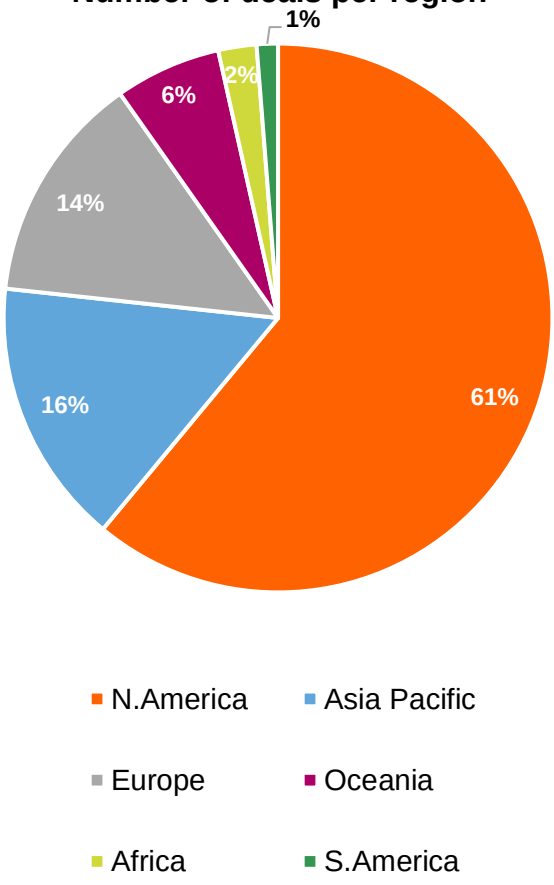
#	Criteria	Operator	Description
1	Database (Thompson ONE, T1)	Include	All Mergers & Acquisitions
2	Acquirer Public Status (Code)	Include	Public
3	Target Public Status (Code)	Include	Public
4	Region	Include	N.America, Europe, Asia, Oceania
5	Date Announced	Between	01/01/2012 to 12/31/2016
6	Percent of Shares Owned after Transaction	Between	51 to HI
7	Percent of Shares Acquired in Transaction	Between	51 to HI
8	Deal Type (Code)	Include	Disclosed Value
9	Deal Status (Code)	Include	Completed
10	Deal Value ($ Mil)	Between	1 to HI

[4] In the upcoming chapters I will make a clear distinction on how I identify distressed and non-distressed firms

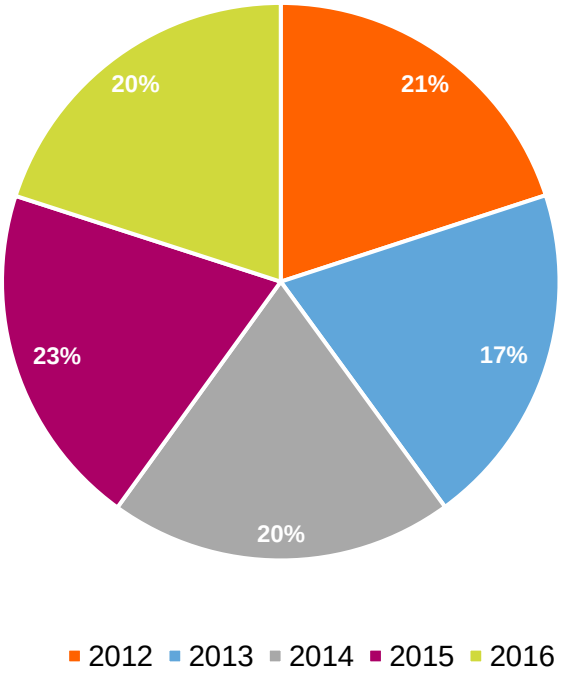
Sample Macro Industry



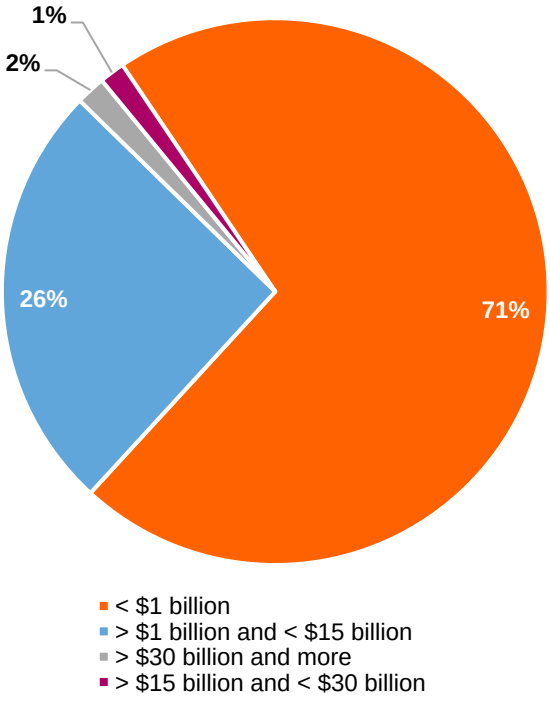
Number of deals per region



Deal volume by year



Range of Transaction Value



3.2 Credit line sample construction

For the credit line sample, I relied on the Loan Pricing Corporation (LPC) Deal Scan. In order to come up with a conclusion whether firms use credit lines to finance their acquisitions or not I made use of one sample following Almeida, Campello & Hackbarth (2011). My sample consists of deals occurred in the period 2012 – 2016 obtained by the Loan Pricing Corporation (LPC). In my pursuit to collect data from LPC I realized that using data obtained from LPC can has as a result to:

i) Include only syndicated loans, thus deals by large firms
ii) Not sufficient information for the purpose - use of these credit lines

Also, I didn't take into consideration firms operating in the finance and regulated industries with SIC header 6, 48 and 49 because of their high leverage ratios compared to other industries.

Starting to construct the sample criteria the first step is to identify the unique **gvkey** (proxy to identify a firm) that every company has in order to match it with Compustat. Moreover, I include in my sample both short and long-term credit lines defined by the "loan type" equal to following characteristics:

i) "364 - day facility"
ii) "revolver / line < 1 year"
iii) "revolver / line > = 1 year"
iv) "revolver / line"

At this point it is important to mention that in order to not create any bias in my sample I include only credit lines used to finance potential M&A deals or any other investments, eliminating credit lines used for LBOs, Spin-offs, Restructuring etc. Hence credit lines defined in LPC as:

i) Acquisition line
ii) Capital expenditures (CAPEX)
iii) Corporate purposes
iv) Takeover

3.3 Exclusion criteria

Following Almeida, Campello & Hackbarth (2011), Zhang (2017) and Meier & Servaes (2014) I excluded from my sample: **(i)** companies in the finance and regulated industries with SIC header 6, 48 and 49 because of their high leverage ratios compared to other industries **(ii)** deals worth less than 1% of firm's total assets **(iii)** acquirers or targets with missing accounting data (interest coverage ratio) or negative interest coverage ratio **(iv)** acquisitions when the acquirer purchases less than 50% of the target company **(v)** deals where the difference between announcement data and completion date exceed 1.000 days **(vi)** deals worth less than USD1 million.

Moreover, I drop all the deals that either the acquirer or the target have missing data, ranging from the ISIN and CUSIP codes to accounting and financial data that are necessary in order to construct my proxy variables for distressed acquisitions. Additionally, acquirers or targets with negative interest coverage ratio were also dropped out of the final sample due to the fact that these companies might be economic and not financial distressed. These deals account to 45 in total.

Finally, I didn't include deals that have been occurred in Africa and South America. The reason is there were a lot of missing data in the companies of these two regions and hence I wasn't able to collect all the necessary data required. The number of deals occurred in these two regions during 2012 – 2016 based on the criteria that I implemented in my sample is 54 in total.

3.4 Sample summary

After all filters and exclusions implied, I end-up with a sample of 1198 M&A deals globally for the period 2012-2016.

Table 3 below provides a descriptive summary statistic between distresses and non-distressed deals between different industries – industry classification has been with the three-digit SIC code of each company. From the table below it is evident that most of the distressed acquisitions occurred are within three industries: **Materials, Healthcare and Energy & Power**. Notable deals in each of these industries include the acquisition of Kinder Morgan Management LLC from Kinder Morgan Inc in 2014 for $36,6 billion **(Energy & Power)**[5]**,** the acquisition of Inhibitex Inc from Bristol-Myers

5 https://www.forbes.com/sites/petertchir/2015/12/05/kinder-morgan-the-debt-story/#13a510054e5c

Squibb Co in 2012 for $7.1 billion **(Healthcare)**[6] and the acquisition of Lumina Copper Corp from First Quantum Minerals Ltd in 2014 for $5 billion **(Materials)**. No distressed acquisition had been occurred in Consumer Products and Services, Financial (I haven't included in my sample companies with SIC codes starting with 6, 48 and 49) and Industrials

Industry	Non-Distressed Deals		Distressed Deals		Total obs.
	Obs.	%	Obs.	%	
Consumer Products and Services	53	100	0	0	53
Consumer Staples	43	98	1	2	44
Energy and Power	145	95	8	**5**	153
Financials	6	100	0	0	6
Healthcare	155	93	12	**7**	167
High Technology	214	97	7	3	221
Industrials	123	99	0	0	124
Materials	217	77.7	64	**25.2**	280
Media and Entertainment	54	96	2	4	56
Retail	56	99	1	1	57
Telecommunications	36	99	1	1	37
Total	**1101**	**92**	**97**	**8**	**1198**

Table 3: Sample breakdown by industry

Table 4 below provides a descriptive summary statistic between distresses and non-distressed deals between within regions. It is evident that most of the deals during the period 2012 – 2016 took place in USA and most of the distressed acquisitions occurred also in USA. Surprisingly, no distressed acquisitions have been occurred in Africa, Europe and South America

Region	Non-Distressed Deals		Distressed Deals		Total obs
	Obs.	%	Obs.	%	
Africa	26	99	0	0	27
Asia Pacific	182	97	6	3	188
Europe	159	98	0	0	162
North America	664	91	67	**9**	731
South America	15	100	0	0	15
Oceania	55	73	24	**36**	75

6 https://www.moodys.com/research/Moodys-Bristols-Inhibitex-deal-credit-negative-no-rating-impact--PR_234887

Total	**1101**	**92**	**97**	**8**	**1198**

Table 4: Sample breakdown by geographic region

4. Methodology

In this chapter I provide a detailed overview of the chosen methodology. Moreover, I also present the regression models and dependent and independent variables implemented.

4.1 Methodology motivation

The purpose of this thesis is to answer a fundamental question related to M&As: *"Does liquid firms acquire distressed targets to reap the benefits of potential synergies' creation when there is high asset specificity or distressed firms acquire growth targets in order to lower the probability of bankruptcy?".* In order to define which companies can be considered distressed or not, a financial measure is considered which will be deployed in the upcoming chapters. Moreover, after the measure for categorizing distressed and non-distressed firms I will explore the long-term effects of these acquisitions in the acquirer's performance. In other words, what is the impact of these kind of acquisitions in the acquirer's stock price. Does acquisitions create value when there is high asset specificity mirrored in the stock price of the acquirer and hence to the shareholders of the company? Additionally, I will explore the payment method acquirers usually prefer in these kind of acquisitions. The method of payment is really interesting. On the one hand, a non-distressed firm will need to have access in capital in order to finance the acquisition and on the other hand it is quite difficult for the distressed firm to find the required cash-flow in order to finance the acquisition. All three questions will be explained in detail in the upcoming chapters. At this point it is important to mention that I avoid taking only deals with companies operating in the same industry[7]. Finally, with the use of stata tool I will make all necessary calculations in order to extract the results and make meaningful conclusions in all Hypotheses 1, 2 and 3.

[7] We can easily realise which companies operate in the same industry by the SIC code of each company which indicates in which industry a company operates

4.2 Identifying distressed and Non-Distressed firms

As I already mentioned, the first and most important step in my research is to identify which companies can be considered as distressed or not. With a sample of 1198 deals occurred during the period 2012-2016 globally I will identify companies that are distressed using a measure of financial distress. Following Asquith, Gertner & Scharfstein (1994), Adrade & Kaplan (1998), Damodaran (2009) and Almeida, Campello & Hackbarth (2011) I will use interest coverage ratio as a measure of a company being in financial distress. In order to identify which companies – target or acquirer, is being considered as financially distressed I will use two definitions: **Definition A** and **Definition B**.

Definition A:

i. Interest coverage ratio **below the median** interest coverage ratio in Compustat in my sample period

$$\textit{Interst coverage ratio} = \frac{oibdp}{xint} = \frac{\textit{Operating Income Before Depreciation}}{\textit{Interest Expense}-\textit{Long Term Debt}} \quad \textbf{(1)}$$

ii. Profitability **above the median** profitability in Compustat in my sample period

$$\textbf{Profitability} = \frac{\textbf{oibdp}}{\textbf{at}} = \frac{\textit{Operating Income Before Depreciation}}{\textit{Total Assets}} \quad \textbf{(2)}$$

Definition B:

i. Interest coverage ratio **in the bottom tercile** of Compustat for my sample period

$$\textit{Interst coverage ratio} = \frac{oibdp}{xint} = \frac{\textit{Operating Income Before Depreciation}}{\textit{Interest Expense}-\textit{Long Term Debt}} \quad \textbf{(3)}$$

ii. Profitability **above the median** Compustat profitability for my sample period

$$\textbf{Profitability} = \frac{\textbf{oibdp}}{\textbf{at}} = \frac{\textit{Operating Income Before Depreciation}}{\textit{Total Assets}} \quad \textbf{(4)}$$

The reason why I chose to use two definitions in my sample in order to identify distressed firms is that, **Definition A** captures firms that are financially but not economically distressed, hence does not captures firms that are not truly financially distressed. In order to capture firms that are fully distressed I will use **Definition B** which captures firms that belong to the bottom tercile of my sample and have a profitability above the sample's median.

Table 5 illustrates the number of distressed and non-distressed deals, according to Definition A and Definition B, occurring between 2012 – 2016. Of the 1198 deals in my sample, 97 are identified as potentially distressed (9% of the total sample) with a below median and interest coverage and above median profitability criteria that I enact **(Definition A)**. It is evident from the results that the number of deals identified as distressed in my sample increases through 2014 and then falls. More specifically, in 2012 I identified 17 distressed acquisitions, with this numbers increasing by almost 15% until 2014, for years 2015 and 2016 the number of distressed acquisitions decreased. Moreover, we can see from **Tables 3 and 4** that most of distressed deals occurred in the Materials Industry (25%), followed by the Healthcare sector (7%) and Energy and Power (5%). Additionally, most of the distressed acquisitions by volume occurred in America (67) and Oceanian (20), but if we see it as a percentage Oceania (27%) had the biggest in an analogy with the total number occurred in this period. Looking at these three industries we can realize that in these industries most synergies can occur. Employing **Definition A and Definition B** I end up with 97 and 97 deals respectively characterized as distressed in my sample. At this point, it is important to mention that the number of distressed deals between the two definitions it doesn't mean that it has to be the same nor that the same deal must be characterized as distressed by both definitions.

The sample described in Section 4.2 is based on all M&A deals globally in all industries with announcement dates between the period January 1, 2012 and December 31, 2012. A distressed merge is defined as a merger or acquisition in which the target has interest coverage ratio below the sample median and profitability above the sample median in Compustat (Definition A), or as a merger or acquisition on which the target has interest coverage below the sample 33rd percentile and profitability above the sample median in Compustat (Definition B). Interest coverage is computed as Compustat's oibdp divided by xint and profitability is the ratio of oibdp over at.

Announcement year	Liquidity merger (Def. A)		Liquidity merger (Def. B)		Total (#) of deals per year
	Yes	No	Yes	No	
2012	17	231	17	231	248
2013	22	180	**24**	178	202
2014	**25**	216	**24**	217	241
2015	20	**250**	19	**251**	**270**
2016	13	224	13	224	237
Total	**97**	**1101**	**97**	**1101**	**1198**

Table 5: Descriptive statistics

Table 6 illustrates summary statistics (mean and median) as empirical proxies for the deal for both target and acquiring firms in my sample. Moreover, I represent characteristics (mean and median) for distresses and non-distressed firms and the combined mean and medians. In Panel A, I present the characteristics on my sample's deals. It is noted that distressed acquisitions take more time to be completed – perhaps due to the extensive due diligence and complexity embedded in the transaction. Additionally, we observe from the findings that there is not a significant difference in the value of transaction between distressed and non-distressed acquisitions. Panel B presents acquirers' characteristics. It shows – as it was expected, that acquirers of both distressed and non – distressed targets have a big number of assets and relatively close EBIT/Assets value. Finally, Panel C demonstrates targets' characteristics. Here, we can see that distressed targets have higher assets – given ground to the findings that acquirers want to take advance of the synergies embedded in the transaction. Moreover, we observe a relatively small EBIT and Cash of distressed targets, further denoting the shortage of liquidity that distressed targets face before they end bankrupt or acquired.

Table 6 reports means and medians for empirical proxies related to deal, acquiring and target firm characteristics. The sample described in Section 3.1 is based on all global M&As with announcement dates between January 1, 2012 and December 31, 2016. A distressed merger or acquisition is defined as an acquirer or target firm has interest coverage ratio below the sample media and profitability above the sample median in Compustat. Transaction value ($ million) is the total value of consideration paid by the acquirer, excluding fees and expenses. Assets is defined as total book value of assets. Days to completion is measured as the number of calendar days

between the announcement and effective dates. Cash includes cash and marketable securities. EBIT equals cash flows minus depreciation. Return on assets is defined as cash flow minus depreciation. Return on assets is defined as cash flow scaled by assets. PPE is property, plant and equipment. Q is defined as a cash-adjusted, market-to-book assets ratio

	Liquidity merger		
	Yes Mean (Median)	**No Mean (Median)**	**All Mean (Median)**
Panel A: Deal characteristics			
Transaction value (TV)	3.190	4.442	3.835
	(493.7)	(544.9)	(545.8)
TV/Assets	1.11	2.18	1.98
	(0.41)	(0.87)	(1.03)
Days to completion	133.2	108.1	127
	(115.4)	(99.2)	(93)
Panel B: Acquirer characteristics			
Assets	6.584	9.179	8.227
	(4.002)	(4.620)	(6.240)
Cash/Assets (%)	4.58	8.35	7.11
	(3.17)	(5.25)	(6.74)
EBIT/Assets (%)	6.11	6.35	5.28
	(3.78)	(4.34)	(4.78)
Return on Assets (%)	12.88	10.21	9.28
	(8.78)	(9.31)	(8.76)
PPE/Assets (%)	13.24	10.42	9.89
	(7.62)	(9.28)	(8.28)
Q	1.65	1.99	2.04
	(1.36)	(1.72)	(1.74)
Panel C: Target characteristics			
Assets	779	428	494
	(319)	(267.1)	(205.7)
Cash/Assets (%)	2.33	8.12	5.13
	(1.67)	(5.98)	(3.08)
EBIT/Assets (%)	4.2	6.05	5.02
	(2.1)	(4.06)	(3.65)
Return on Assets (%)	6.1	4.3	6.5
	(5.7)	(4.8)	(6.1)
PPE/Assets (%)	15.4	12.31	13.32
	(9.1)	(9.26)	(8.26)
Q	3,7	2,5	3
	(1.6)	(1.7)	(1.7)

Table 6: Summary statistics Hypothesis 1

4.3 Abnormal returns

It has always been a controversial question if M&As can possibly create along term value value for the shareholders of the acquiring company. But the main argument around this question relies on how we can measure whether or not the shareholders of the acquiring company become benefited in the long-term after these kind of transactions. Someone can argue that through synergies (revenue or cost) or though economies of scale someone can measure whether or not an acquisition is value-added. But all these measures cannot be calculated in real numbers. Examining the stock price response of the acquirer is a measure tangible and concrete because it reflects the overall market perception around the acquirer's performance. Calculating the abnormal returns through an event study method provides comparable arguments when a buyer (distressed or not) acquires a target (distressed or not). The purpose is to compare the long-term effects in the stock price of distressed acquisitions compared to the non-distressed acquisitions when there is high asset specificity obtaining some certainty about the acquirer's performance after the acquisition has been occurred.

A relative paper that examines these effects is by Meier & Servaes (2014) who try to measure the long-term effects of distressed acquisition in the acquirer's returns. A sample consisting of 21.849 M&A deals in US during the 1982 – 2012 period they found that acquirers' of distressed targets earn approximately 2% higher returns than that of regular acquisitions. Acquirers' returns are even higher when there are not many liquid firms capable to cover the necessary liquidity required for the transaction, hence leaving distressed firm's management with few options left over. Additionally, they found that acquirers' returns are even greater when the target's company assets have industry specific purposes.

This is where the second motivation of my research arises. One of the potential drawbacks in the research of Meier & Servaes (2014) in addition to the fact that they don't take into consideration asset specificity, is the use of one specific country and the time period which can create bias in the final result of the sample. Incorporating two financial crisis in the sample can be a hard subject for discussion. My sample dates despite the lower number of years is more recent and cannot affected my bias. Moreover, the used method in order to define whether a firm is distressed or not differs from that of the other authors.

4.3.1 Acquirer's stock reaction around the announcement day and the effective day

In order to estimate the excess returns on the acquirer in each **event study** I will follow a specific order of steps. Firstly, I define the event date for each company and then the day of the transaction's announcement, I obtained the required data from Thompson One (T1) and WRDS. A significant aspect of an event study method is that the market must be efficient and hence you are able to capture immediately any changes that come from the announcement transaction. Then following the approach of Elad and Bongbee (2017), Shah & Arora (2014) and Ziobrowski, Cheng, Boyd & Ziobrowski (2004) I captured the normal or expected returns of my stocks using an almost three-month estimation period starting **-100 and -10** trading days before the deal announcement and an event window of **±3** trading days after the deal has been announced. Having available the historical daily close prices from the stocks and the relative general index (I converted them in returns) I run an Ordinary Least Squares (OLS) regression in Stata for each company and I calculated the constant term or alphas(a) and the betas(b) which depict the sensitivity of the firm to the market and the correlation they have. Below in Figure 4 I present the event study period that I am going to use for my sample.

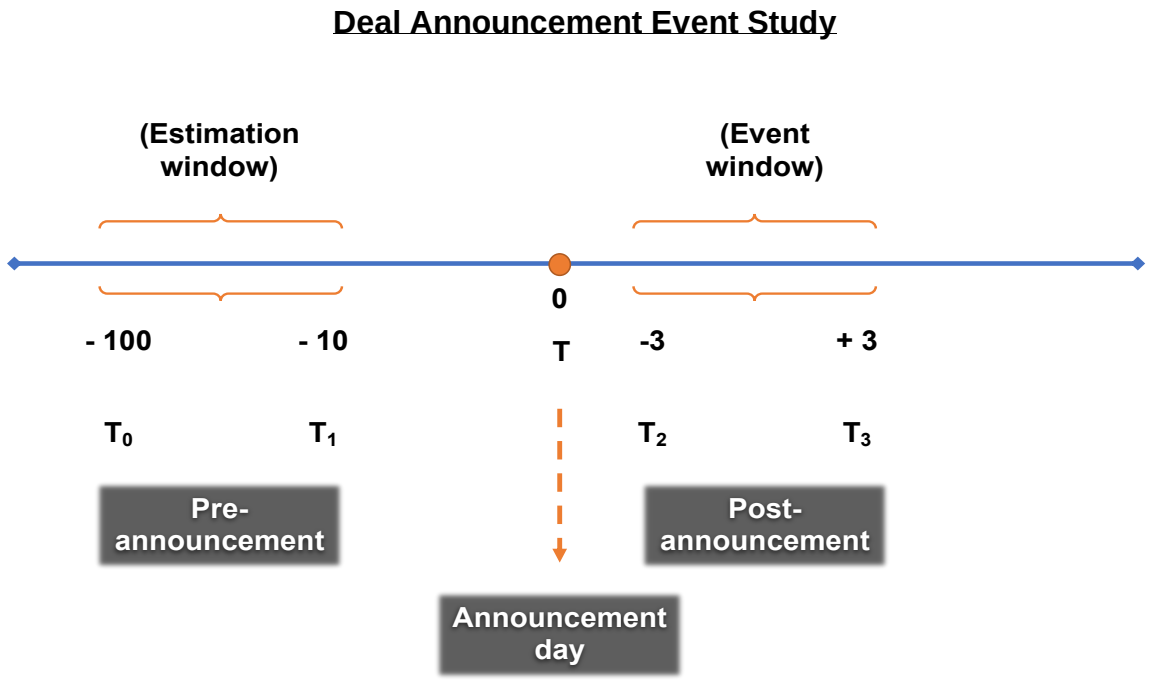


Figure 4: Announcement day event study period

Additionally, in order to capture the total returns and the impact the acquisition has on the acquirer I will also examine with the same method defined above the returns of the acquirer after the acquisition has been successfully in effect. In order to do this i will have an event study period of **-100 and -10** days before the effective date of the deal and **±3** days before and after the acquisition has been in effect. The difference between the announcement date and the effective date of the deal can be substantial, in some case even to one year. This is the reason why I wanted in the first place to see the difference between the two event periods, because it can be considered that during the announcement date the market reacted instinctively not capturing the real benefits of the acquisition. Hence, the event study before and after the effective date will demonstrate the real impact of the deal in the acquirer and how the market respond to this impact.

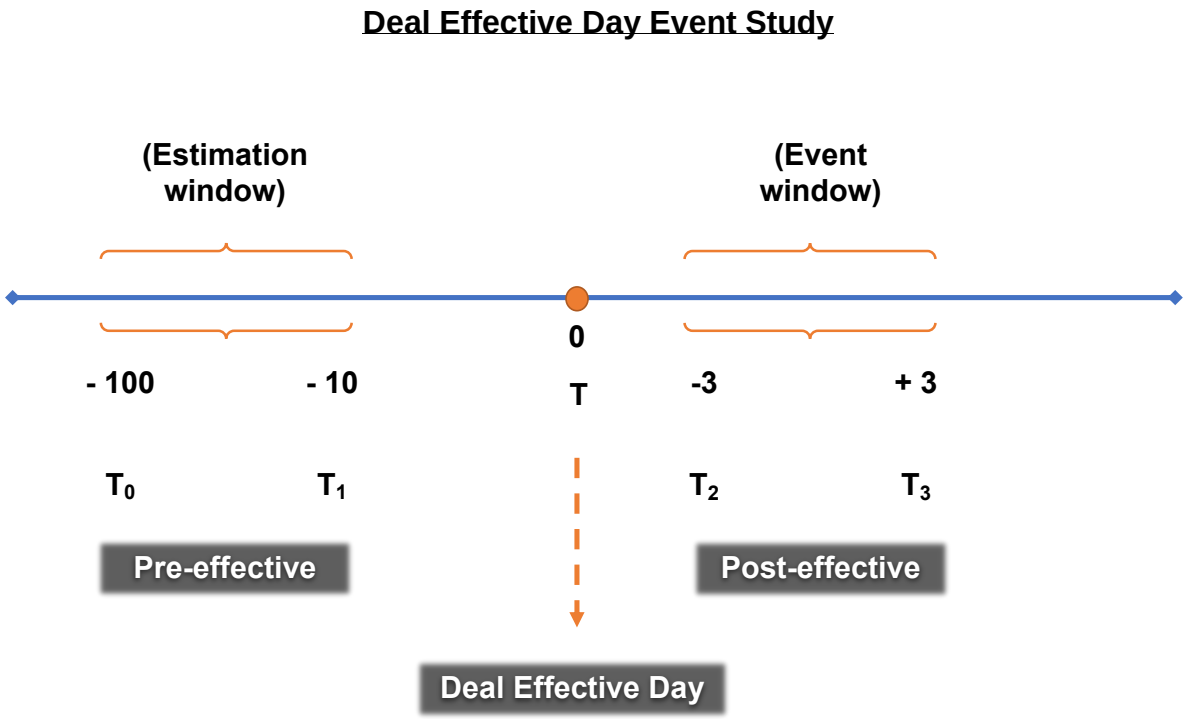


Figure 5: Effective day event study period

Finally, the most important issue that came across during the event studies is to use a common benchmark. Because my samples consist of deals with companies enlisted in different indexes, I had used a common benchmark that captures the exposure of

each country in my sample. For this reason, I used the MSCI World Index instead of FTSE Global Equity Index a common benchmark. The reason entails in the fact that MSCI World Index consists of countries and industries in which also my sample consists of relative to the FTSE Global Equity Index[8].

- The **market model approach** is given by the equation:

$$(E)Ri,t = ait+\beta i, jRmt \quad (5)$$

Where: $(E)Ri_{,t}$ is the expected return at time (t), a_i and β_i are considered as inputs of the regression's equation, (β_i) is the Beta of the stock price and (R_{mt}) is a stock's price daily return on the index (m) at time (t).

I started the estimation period almost three months (-100 trading days) before the announcement day because I wanted to capture through a relatively short period the returns in the acquirer's stock price. A more prolong period like that used in the research paper of Meier and Servaes (2014) would create a bias in my sample because of the extensive period taken into consideration and the multiple uncorrelated events that could happen in a company. Furthermore, in my effort to capture as close as possible the differences occurred in the stock price of the acquirer a period of 10 (-10 days of trading) days before the announcement of the transaction's , a period which can clearly capture without any bias the acquirer's returns occurred around the announcement day, like Elad and Bongbee (2017) also did in their research paper. I personally attribute any significant abnormal return in this period examined to this event.

The next step in my research includes the estimation of Abnormal Returns (AR). Using the **market model approach**, abnormal return is the actual difference of the return and the normal return coming from the prediction of the return using the previous model where now alphas, betas and market return are known.

- The **abnormal return of a stock (i) at time (t)** is given by the equation:

[8] In the Appendix i demonstrate the composition of MSCI World Index – in countries and industries, and the returns from 2008 – 2019 period compares with that of FTSE Global Equity Index. The returns are similar to each other through all this time period

$$ARi,t = Ri,t – E(Ri,t) \quad (6)$$

Where: *ARi,t is considered as the abnormal return, Ri,t is the return of the stock i and E(Ri,t) is the expected return*

With the assistance of Stata, I calculated the abnormal returns for each day starting the day -10 days before the event till four months prior to the event. The reason why I took in total almost four months of event period is to cover the entire effect of an event and to test the permanence of any abnormal observation. Additionally, I will not calculate the abnormal returns for industries or countries with less than ten observation-deals – this mostly apples for distressed acquisitions where there is a limited number of this kind of deals, and any results will not be truly representative.

Finally, for each day and each firm I had a significance t-test for a confidence level of 95% (critical value = 1,96). $\boldsymbol{T\text{-}stat} = \frac{\boldsymbol{ARj}}{\boldsymbol{S(ARj)}}$ where S(ARj) denotes the standard deviation of abnormal returns during the estimation period. In case t-stat is bigger than 1,96 (>1,96) then the observation is considered as significant and below 1,96 (<1,96) the observation is not considered as significant.

Additionally, at this point it is important to mention that the above measurements require returns to be independently and identically normally distributed. Specifically, my sample contains observations that are centered around zero and other that deviate a lot beyond the normal distribution (outliers).

4.3.2 Estimation of Cumulative Abnormal Returns (CAR)

The effect calculation of the transaction on the acquirer's stock price I will calculate the Cumulative Abnormal returns (CAR) of each acquirer. The Cumulative Abnormal Returns over T days ($T = t_2 - t_1$) is estimated with the formula below:

$$CAR_{it,;t+k} = \Sigma_k AR_{i,t+k} \quad (7)$$

4.3.3 Estimation of Cumulative Average Abnormal Returns (CAAR)

The Cumulative Average Abnormal Returns (CAAR) across all observations from time **t** to **t+k** are calculated with the equation:

$$\mathbf{CAAR} = \frac{1}{N} \Sigma_{i=1}^{N} \mathbf{CAR}_{i,k,l} \qquad (8)$$

4.3.4 Cumulative Average Abnormal Returns

After all, I calculated my samples Cumulative Average Abnormal Returns (CAAR) is then according to the following formula by summarizing the average abnormal returns:

$$\overline{\mathbf{CAR}}_{(T1,\,T2)} = \sum_{t=\tau 1}^{\tau} \overline{\mathbf{AR}}\,\tau \qquad (9)$$

4.3.5 T - test

Finally, in order to identify whether or not the abnormal returns in my sample are important I will run a t-test with the use of the formula below:

$$\mathbf{T} = \frac{\overline{CAR}(T1,T2)}{\sqrt{VAR(\overline{CAR}\,T1,T2))}} \qquad (10)$$

4.4 Credit lines

My research also adds to the current literature one important aspect of distressed and non-distressed acquisitions, that of the way financing a transaction. How the acquiring firm is going to finance the transaction? The three ways to finance a transaction is through cash, equity or a combination of both. But cash can come in the form of internal cash the company might has or in the form of debt, through a bond, corporate loan or a credit line the company has from a bank. Credit line is considered as a form of debt from a lender to a borrower. In other words, the bank sets an amount that the company can has access anytime, upon agreement based on the credit profile of the borrower. The company is not obliged to immediately use the capital provided by the bank, but most companies has it as a buffer in cases where they and find new investment opportunities and hence face urgent need for cash.

One of these urgent situations is that of an acquisition. The buyer may opt to use the money provided by the bank to finance the acquisition. The critical question arises when the acquisition is considered as distressed, because the buyer will need not only to finance the acquisition but also the acquired company. In case the company faces liquidity difficulties and has not obtain a credit line from a bank it would be extremely difficult to have access to cash when it truly needs it, because as it is reasonable institutions will be unwilling to borrow them. For cash-rich firms one option it to hoard cash from previous periods, but nowadays keeping cash for a potential future event-transaction is considered as an expensive strategy. One potential problem with credit lines is the possibility for the borrower to become unable to access them when there is urgent need to use them (Almeida, Campello & Hackbarth, 2011).

Following Sufi (2009), I will use the following formula in order to demonstrate the available credit line that each firm obtained in a specific year-period:

$$\textbf{Total Acq LCj,s} = \sum_{t \leq s} Acq\ LC\textbf{jtΓ (Maturityj,t≧s-t)} \qquad \textbf{(11)}$$

Where AcqLCj,t represents the future investment's total value – acquisitions related credit lines initiated in quarter (t) by firm (i), Γ(.) is an indicator function and $\text{Maturity}_{i,t}$ represents the average maturity of these lines (in quarters)[9], following the same approach as Safi (2009) in its random sample.

$$\textbf{Acq LC-to-Cashj,t} = \frac{Total\ Acq\ LCjt}{Total\ Acq\ LCjt + Cashjt} \qquad \textbf{(12)}$$

Equation (13) measures the proportion of the total credit lines provided to a company for investment purposes relative to tis available cash.

Looking more closely, Equation (13) is closely related to equation (11) with the important difference that distinguishes these two equations is that equation (13) includes credit lines **only** dedicated for acquisition purposes. Table 7 below represents

9 During 2012 – 2016, 191591 unique credit lines for different purposes initiated. 56627 were in line with LPC's acquisition definition

detailed statistics from 56627 credit lines observations that occurred during the period 2012 – 2016 and were dedicated for investment-acquisition purposes.

Current findings like these of Safi (2009) and Campello, Giambona, Graham and Harvey (2011) found evidence that indeed there is a range between 20% - 25% of credit lines obtained from financial institutions relative to the firms' total assets, this translates to 30% - 35% usage of credit line for each firm. Their findings give further evidence to the current ample perception that firms liquid enough, with a lot of assets and a big number of available cash in their balance sheet have access to further liquidity when an investment opportunity comes up – and the higher the demand from a company for cash liquidity the bigger the provided credit line from financial institutions.

This table reports basic summary statistics for time-variant proxies of firm characteristics during the 1987–2008 period. Acq LC-to-cash is defined as the fraction of corporate liquidity that is provided by investment-related lines of credit. Assets are firm assets net of cash, measured in millions of dollars. Tangibility is PPE over assets. Q is defined as a cash-adjusted, market-to-book assets ratio. NetWorth is the book value of equity minus cash over total assets. Profitability is the ratio of EBITDA over net assets. Industry sales volatility (IndSaleVol) is the (three-digit SIC) industry median value of the within- year standard deviation of quarterly changes in firm sales, scaled by the average quarterly gross asset value in the year. ProfitVol is the firm-level standard deviation of annual changes in the level of EBITDA, calculated using four lags, and scaled by average gross assets in the lagged period. Firm Age is measured as the difference between the current year and the first year in which the firm appeared in Compustat. Unused LC-to-cash and Total LC-to-cash measure the fraction of total corporate liquidity that is provided by credit lines using unused and total credit lines

LPC sample 2012 - 2016	Mean	Median	Std Dev.	25th Pct.	75th Pct	Obs.
Acq LC-to-Cash	0,354	0,326	0,344	0,278	0,421	***56627***
Tangibility	0,311	0,204	0,293	0,062	0,522	
Assets	1564.54	177.51	50,18	16.04	102.57	
Q	2,456	1,380	1,953	1,670	2,620	
NetWorth	0,419	0,378	0,356	0,274	0,465	
Profitaility	0,144	0,081	0,311	0,017	0,129	
IndsalVol	0,055	0,046	0,048	0,036	0,061	
ProfitVol	0,074	0,054	0,063	0,044	0,089	
Age	14,775	11,000	6,964	11,000	18,000	

Table 7: Summary statistics Hypothesis 3

In order to make my results even more robust, I looked in my original sample and I found that five acquisitions were partially financed with credit lines. The acquisition of Viterra Inc from Glencore International in 2012 for $6.08 billion was financed in 100% cash in addition to its outstanding debt - Glencore had a credit line access of $3.1 billion. Elsewhere, Tornier Inc had a total access of €34.5 million to finance the acquisition of Wright Medical Group Inc. Tables 8 (non-distressed deals) and 9 (distressed deals) presents a list of the deals found in my original sample of 2012 – 2016 in which acquirers had access to lines of credit in order to finance the acquisition. The duration of the credit line for most of the below deals is **one year**, with an exception of two deals of which the duration was five years.

Facility Start Date	Facility End Date	Company	Target Company	Loan Type	Facility Amt ($mil)	Currency
14/12/2012	14/12/2017	Chicago Bridge & Iron	Shaw Group Inc	Revolver/Line >= 1 Yr.	650.000.000	USD
17/04/2012	17/04/2013	Glencore International	Viterra Inc	Revolver/Line >= 1 Yr.	3.100.000.000	USD
02/11/2012	02/11/2016	Macdonald Dettwiler & Associates	Space Systems/Loral Inc	Revolver/Line >= 1 Yr.	600.000.000	USD
17/12/2012	16/12/2013	Precision Castparts Corp	Titanium Metals Corp	364-Day Facility	1.000.000.000	USD
04/10/2012	04/10/2017	Tornier Inc	Wright Medical Group Inc	Revolver/Line >= 1 Yr.	34.525.500	EUR

Table 8: Summary statistics (Hypothesis 3)

Facility Start Date	Facility End Date	Company	Target Company	Loan Type	Facility Amt	Currency
21/03/2013	21/03/2014	Cubist Pharmaceuticals Inc	Optimer Pharmaceuticals Inc	Revolver/Line >= 1 Yr.	313.320.000	USD

10/04/2014	10/04/2015	New Gold Inc	Bayfield Ventures Corp	Revolver/ Line >= 1 Yr.	124.000.000	USD
13/05/2015	13/05/2016	Galaxy Resources Ltd	General Mining Corp	Revolver/ Line >= 1 Yr.	56.560.000	USD

Table 9: Summary statistics (Hypothesis 3)

4.5 Defining proxy variables

Distressed acquisitions and asset specificity

One important aspect of my research is the focus not only on distressed acquisitions but also whether these acquisitions occurred in industries where companies operate in the same or highly correlated industry. This correlation has as an outcome companies to transfer tangibles assets like machines and equipment from one company to another reaping the synergies' benefits. In this effort I will follow the considerations of Almeida, Campello and Hackbarth (2011), Ronen and Sorter (1972), and Berger, Ofek and Swary (1996) using Compustat as a tool to construct my proxy variables, who consider as Asset specificity the sum of a firm's real estate assets (FATB), machinery and equipment (FATE) and natural resources (FATN) dividing it with the book value of a firm's total assets (AT), as Industry interest coverage the three-digit SIC code average firm coverage ratio (OIBDP divided by XINT) and as Industry Q as the three-digit industry average Q.

I will use as dependent variable the ratio of distressed acquisitions to the total number of acquisitions occurred within an industry. Additionally, I predict that distressed acquisitions are more likely to occur in industries where there is heavy transfer of assets and equipment available (asset specificity) – strong relation between distressed acquisitions and assets transferred within an industry. For this reason, I include many industry variables that can affect this relation. The model that I will use to empirically test my hypothesis has the following form:

Distressed Acquisitions$_j$ = a + b_1 Asset specificity$_j$ + b_2 Industry interest coverage$_j$ + b_3 Industry Q$_j$ + ε_j **(13)**

Index j is considered as the three-digit SIC industry code. Ordinary least squares (OLS) model estimates the model, Tobit estimations are also conducted because the dependent variable is censored between zero and one.

Credit lines and asset specificity

Finally, one more aspect that I will touch upon in my research is the assumption that the use lines of credit is more likely to be made when there is high asset correlation between companies and low firm asset-specificity. I will exam this assumption following the technique of Almeida, Campello & Hackbarth (2011), taking into consideration the different credit line variables (equations 12, 13 and 15) relative to the Transferable assets proxy that they constructed. Besides the variables that I use in formula 17 I added the variables included by Safi (2009) in order to construct the following formula:

ACQ-to-cash$_{i,t}$ = α + β_1 Assets specificity$_j$ + β_2 ln(Age)$_{i,t}$ + β_3 (Profitability)$_{i,t-1}$ + β_4 Size$_{i,t-1}$ + b_5 Q$_{i,t-1}$ + β_6 NetWorth$_{i,t-1}$ + β_7 IndSalVol$_{j,t}$ + β_8 ProfitVol$_{i,t}$ + β_9 Industry interest coverage$_j$ + β_{11} Industry Q$_j$ + $\varepsilon_{j,t}$ **(14)**

Index j is the three-digit SIC industry code and index i denotes the firms and index t denotes the year – the model predicts β1 should be positive. Tobit estimations are also conducted because the dependent variable is censored between zero and one. Industry classification is considered to most variables, hence I group companies with the same three SIC digit code when in the regression industry variables are included - standard errors clustered in firm-level.

5. Results overview

This chapter provides a detailed overview of my sample's findings. Presentation of distressed and non-distressed acquisitions is demonstrated accompanied with graphs and tables in addition to the acquirers' post announcement performance and use of credit lines as a method of payment.

The results in Tables 3, 4 and 5 summarize in great detail the statistical data of the first Hypothesis that I examined in my research. From the findings it is clear that healthy firms acquire firms financially troubled firms - firms that are not able repay their debt obligations or have filled to be included in Chapter 11 of bankruptcy. Most of the distressed acquisitions – defined by both Definition A and Definition B, occurred in 2014 (24) with the biggest number of normal and distressed deals by volume to be occurred in 2015. Most of distressed acquisitions, as the current finding have already found, occurred in industries when the acquirers can create synergies through the acquired assets, these synergies can be characterized by assets or machinery equipment. Materials, Healthcare and Energy & Power are the industries in which most of distressed acquisitions occurred, further confirming the potential synergies that can be created from the implementation of the acquired assets. Finally, 45% of the distressed acquisition occurred in USA and Oceania – the final sample consists of 61% of deals occurred in USA.

As was initially observed there is a positive statistically significant effect of Asset specificity on the number of Liquidity mergers as the p-value of the coefficient b1 is in all OLS, median and Tobit models lower than a=0.05 for definition A and B. Moreover average industry interest coverage is not significant in all cases as $p<0.05$ for definition A, but negative and statistically significant for definition B, which shows that as industry interest coverage increases, the number of Liquidity mergers decreases and vice versa. Also the effect of Industry Q on number of Liquidity mergers is also negative both for definition A and B. As it is observed, the coefficient of determination is lower for definition A regressions (6.4% to 12.0%) compared to definition B regressions (15.0% to 14.3%).

Distressed Acquisitions and transferable assets

The dependent variable Liquidity mergers is the fraction of liquidity mergers by three-digit SIC industry as a fraction of the total number of mergers in that industry between

January 1, 1980 and December 31, 2006 for the sample described in Section 6.1. A liquidity merger is defined as a merger or acquisition in which the target has interest coverage below the sample median and profitability above the sample median in Compustat (Panel A), or as a merger or acquisition in which the target has interest coverage below the sample 33rd percentile and profitability above the sample median in Compustat (Panel B). Asset specificity as the sum of a firm's real estate assets, machinery and equipment and natural resources dividing it by the book value of a firm's total assets. Industry interest coverage is defined as the three-digit SIC industry's average interest coverage. Industry Q is defined as the three-digit SIC industry's average Q. All variables are time-invariant industry-level averages and winsorized at the 5% level. *, **, and *** denote statistical significance at the 10%, 5% and 1% level, and t-statistics based on robust standard errors are in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Definition A						
Asset specificity	0.395**	0.324***	0.392***	0.299***	0.198**	0.258***
	(2.181)	(2.730)	(3.541)	(2.755)	(2.118)	(2.930)
Indust int. cov.		-0.009		-0.004	-0.005	-0.005
		(-1.053)		(-0.958)	(-1.157)	(-0.886)
Industry Q			-0.017**	-0.020***	-0.020***	-0.010***
			(-2.000)	(-2.859)	(-3.543)	(-3.054)
Constant	0.258***	0.286***	0.242***	0.252***	0.288***	0.241***
	(22.199)	(4.266)	(8.295)	(4.823)	(15.853)	(10.628)
Specification	OLS	OLS	OLS	OLS	Median	Tobit
R_2	0.064	0.070	0.111	0.120	0.087	0.091
Panel B: Definition B						
Asset specificity	0.187***	0.177***	0.295***	0.211***	0.259***	0.247***
	(3.517)	(3.177)	(3.574)	(3.851)	(3.100)	(3.447)
Industry int. cov.		-0.002***		-0.002***	-0.003***	-0.003***
		(-3.571)		(-2.998)	(-3.455)	(-3.850)
Industry Q			-0.007***	-0.015***	-0.007***	-0.009***
			(-2.841)	(-2.566)	(-2.548)	(-2.744)
Constant	0.636***	0.654***	0.571***	0.695***	0.644***	0.570***
	(9.215)	(8.625)	(7.520)	(7.429)	(7.655)	(7.059)
Specification	OLS	OLS	OLS	OLS	Median	Tobit
R_2	0.150	0.158	0.156	0.168	0.143	0.147

Table 10: Results Hypothesis 1

Next to the first Hypothesis, the next topic that I examined is whether firms which acquire non-distressed targets generate higher long-term returns than firms who acquire distressed targets when there is high asset specificity. In order to obtain a better understanding of the effects in the acquiring company I used two event study periods: one at the announcement of the acquisition and the other when the deal is actually in effect (effective date). My results demonstrate that companies acquiring non-distressed targets generate greater returns over the long-term in the range of 14,5% after the effective date of the acquisition and almost close to -5,6% returns around the announcement of the deal. In contrast, companies who acquire distressed targets generate negative returns during the announcement of the deal -27,9%, but also after the effective date of the deal -23,7%. From the results above it can be concluded that in the case when companies acquire non-distressed targets the market does not consider these deals as a non “good match” for the acquiring company and over the long-term they can potentially create value for the shareholders of the company. This can be confirmed by the fact that there are close to 0% returns around the announcement date and positive returns around the effective date of the deal. This is also the most important reason why I made two event study periods, in order to have a clearer view how actually the market respond to these kind of deals over a long-term period. On the other hand, it is evident that companies who acquire distressed targets have been perceived by the market as a risk that can end to a bargain purchase and possible synergies but also as deals than can affect the performance of the company in the long-term. Both the announcement and the effective dates – where the gap between the two events can sometimes be up to one year, indicate that distressed acquisitions indeed do not create positive long-term returns for the shareholders of the acquiring company.

Additionally, the results of the study demonstrate differences across the different industries and regions in both pre and post acquisitions announcements. While a number of industries has seen considerably positive CAARs during the announcement and the effective date like Healthcare (15,6%), Energy (13,6%), Industrials (18,5%) and Consumer Staples (9,7%) denoting the fact that the market was expeting synergy creation and consilidation in the industry because of the many “players” in the market,

in industries like TMT (-14,5%, -17,5%) – consistent with the literature, Materials (-8,4%) and Retail (-4,1%) the market perceived these deals as probably non value added driven by overvaluations and market sentiment.

In regions like Asia, North America and Oceania we saw positive and statistically significant CAARs in the range of 17,3%, 23,7%, 7,4% respectively. In contrast, in Europe and Africa we observe consistently negative CAARs during the announcement and the effective date.

In Distressed acquisitions we observe negative CAARs during the whole timeline of the acquisition in both Healthcare (-18,3%) and Materials (27,7%) industries, which is a clear indication from the market they are not in favour of the deal neither in the synergies that can be created through a combined entity neither that the excessive leverage can be managed. The results demonstrate the same negative outcome in both regions they tested, North America (-21,5%) and Oceania (-30,1%). In Oceania the number of the deals is much smaller than this of North America but still significantly negative.

	Distressed	**Non Distressed**
	Cumulative Average Abnormal Returns (CAAR)	
Announcement	-0,279	-0,056***[10]
Effective	-0,237	0,145***

Table 11: Results Hypothesis 2

	Distressed	**Non distressed**

[10] *, **, *** significantly different from zero at the 10%, 5% and 1% levels, respectively

	Cumulative Average Abnormal Returns (CAAR)			
	Announcemen	Effective	Announcement	Effective
Industry				
Consumer Products & Services	-	-	-0,059	0,023
Consumer Staples	-	-	0,025	0,097
Energy & Power	-	-	0,047**	0,136
Healthcare	-0,201	-0,183	0,081**	0,156
High Technology	-	-	-0,078***	-0,041
Industrials	-	-	0,132	0,185**
Materials	-0,329	-0,277	-0,151	-0,084***
Media & Entertainment	-	-	-0,212	-0,175
Retail	-	-	-0,088	-0,041
Telecommunications	-	-	-0,187	-0,145
Region				
Africa	-	-	-0,185	-0,156
Asia Pacific	-	-	0,082*	0,173
Europe	-	-	-0,124	-0,041*
North America	-0,228	-0,215	0,085***	0,237
South America	-	-	-0,052	0,023
Oceania	-0,373	-0,301	0,043	0,074

Table 12: Results by Industry & Region Hypothesis 2

The final topic that I examine, is how acquirers finance the acquisition. With the examination of this topic I would like to confirm whether or not acquirers have access to credit lines which they possibly use or not use in order to finance their acquisitions, a topic that has not heavily covered by the current literature. From my original sample 55,2% of the transactions were wholly financed with stock – this is partially explained because that period was characterized by overpriced equity prices, and companies reap the benefit by paying in stock, 28,6% was partially financed by both stock and cash (50% - 50%), and the remaining 16,2% was wholly financed by cash. 56627 credit lines were found during 2012-2016, 56,3% of the total number of lines found in LPC Deal scan were dedicated only for acquisition lines, capital expenditures (CAPEX), corporate purposes or takeovers. Hence, it is safe to conclude that there is a significant number of credit lines dedicated for acquisition purposes. Most of the companies that have access to credit lines were companies operating in Metals & Mining and Oil & Gas industries – another proof that companies operating in volatile

industries use their assets as collateral to get access in liquidity and finance their acquisitions which from the nature of the industry must have a lot of assets to operate efficiently. The paradox that came up from my results is that many of the acquirers that financed their acquisitions through stock, the same period had also dedicated credit lines for the aforementioned purposes – eventually, not used at the end to finance the acquisition, and also companies financed their acquisitions through cash had also access to credit lines with different amounts thought the 2012 – 2016 period which they probably use to finance their acquisitions. I found evidence of five acquisitions (non-distressed) from my sample that acquirers had available credit lines and used them in order to finance their acquisitions, and three acquisitions (distressed) that acquirers had access to credit lines and eventually used to finance the transaction. Additionally, using the results from Table 6 I found evidence that the amount of credit lines dedicated to acquisitions is close to 16,2%-18,45% of their total assets. Given these figures we can conclude that the amount of credit lines given to the firms is a considerable amount of a firm's size. Of course, we are not able to know beforehand whether firms used the full amount of credit lines they had available, we can safely say that besides cash they had another buffer to finance the acquisition.

On the following table, it is observed that for the LPC sample asset specificity and the number of assets affect positively LC-to-cash as the corresponding coefficient is statistically significant ($p<0.001$). On the other hand Q shows a negative sign, an thus as Q increases LC-to-cash decreases, while similar is the effect of the variable profitvol, age and Indust int. Cov.

Line of credit availability and transferable assets: LPC sample

The dependent variable is Acq LC-to-cash, the fraction of corporate liquidity that is provided by investment-related lines of credit. The data for lines of credit come from LPC Deal Scan, for the period of 1987–2008. Profitability is the ratio of EBITDA over net assets. Tangibility is PPE over assets. Assets are firm assets net of cash, measured in millions of dollars. NetWorth is the book value of equity minus cash over total assets. Q is defined as a cash-adjusted, market-to-book assets ratio. Industry sales volatility (IndSaleVol) is the (thee-digit SIC) industry median value of the within-year standard deviation of quarterly changes in firm sales, scaled by the average quarterly gross asset value in the year. ProfitVol is the firm-level standard deviation of

annual changes in the level of EBITDA, calculated using four lags, and scaled by average gross assets in the lagged period. Firm Age is measured as the difference between the current year and the first year in which the firm appeared in Compustat. Asset specificity as the sum of a firm's real estate assets, machinery and equipment and natural resources dividing it by the book value of a firm's total assets. Industry interest coverage is defined as the three-digit SIC industry's average interest coverage. Industry Q is defined as the three-digit SIC industry's average Q. All variables are time-invariant industry-level averages and winsorized at the 5% level. *, **, and *** denote statistical significance at the 10%, 5% and 1% level, and t-statistics based on robust standard errors are in parentheses.

	(1)	(2)	(3)	(4)	(5)
Dep. Var.: Acq LC-to-cash					
Asset specificity		0.291***	0.203***	0.385***	0.278***
		(8.520)	(10.638)	(6.841)	(7.592)
Profitability	0.852		0.692*	0.501	0.624
	(1.036)		(1.781)	(1.006)	(1.284)
Tagibility	0.017		0.014	0.028	0.021
	(0.841)		(0.254)	(0.856)	(0.579)
Assets	0.089***		0.213***	0.157***	0.108***
	(6.582)		(4.494)	(4.047)	(6.170)
Q	-0.192***		-0.162***	-0.188***	-0.716***
	(-3.880)		(-3.890)	(-2.892)	(-2.547)
IndSalVol	0.524		0.148**	0.269	0.181
	(1.154)		(1.986)	(0.920)	(0.826)
ProfitVol	-0.287***		-0.207***	-0.328***	-0.489***
	(-6.842)		(-6.551)	(-4.981)	(-5.502)
Age	-0.015***		-0.092***	-0.035***	-0.009***
	(-5.927)		(-3.864)	(-4.995)	(-2.759)
Indust int. cov.				-0.002**	-0.002**
				(-2.074)	(-2.119)
Industry Q				-0.107	-0.194
				(0.583)	(0.992)
Constant	0.588***	0.811***	0.616***	0.851***	0.862***
	(10.658)	(12.884)	(10.440)	(8.517)	(9.053)
Cluster	Firm	Industry	Industry	Industry	Industry
Industry dummies?	Yes	No	No	No	No
Year dummies?	Yes	Yes	Yes	Yes	Yes
Specification	OLS	OLS	OLS	OLS	Tobit
R_2	0.136	0.103	0.157	0.152	0.133

Table 13: Results Hypothesis 3

6. Conclusion

This chapter provides a discussion about the empirical results of my findings. Comparisons and focus on the identification of distressed and non-distressed acquisitions among different industries around the world is also discussed. Furthermore, the long-term effects in the acquirers' shareholders is discussed as well.

Studying the existed research, it came to my attention that findings regarding distressed deals are not extensive. With my research I would like to add a small addition from my point of view. In order to cover transactions from different aspects I took a sample with deals all over the world. This sample includes deals during the period 2012-2016 across fifty-five countries, with forty-one different currencies, covering 11 industries in total. The main difference of my research from the current findings is the fact that I didn't consider acquirers as not financially distressed and the fact that I take asset specificity into consideration. Instead, with data collected from public sources I examine whether both acquirers and targets are financially distressed in order to answer the main question of this research which is whether financially healthy companies acquire financially distressed companies when there is high asset specificity in order to reap the benefits of synergies creation at a potential discounted value, or financially constrained firms acquire growth and financially solid firms in order to revive growth and avoid declaring bankruptcy.

The results from a sample of 1198 deals are aligned and confirm the findings of Almeida, Campello and Hackbarth (2011) that strong financially firms with cash available for investments acquire distressed firms when there is high asset specificity, targeting potential synergies at a discounted price. In contrast, my findings do not confirm the findings of Zhang (2017) which states that financially distressed firms acquire healthy companies in an effort to not declare bankruptcy and diversify their main line of business. Hence, I found no evidence that problematic firms facing bankruptcy try to revive growth by acquiring potentially growth firms.

In addition to the aforementioned, my findings provide evidence that financially strong firms achieve better long-term returns in the region of 14,5% when they acquire healthy firms in contrast with those firms which acquire financially troubled companies having 23,7% negative returns, supporting numerous findings like that of Zakaria and Kamaludin (2018) who found from a sample with deals occurred in Saudi Arabia the positive and significant abnormal returns occurred for the acquirers of non-distressed companies over the long-term period. Ma, Pagán and Chuc (2009) from a sample of 1477 deals occurred in Asia found that acquirers have experienced positive cumulative abnormal returns over three different event windows, while Ziobrowski, Cheng, Boyd and Ziobrowski from a sample of deals occurred in USA found 25% cumulative abnormal returns rise in the acquirers' performance one year after the announcement date. Additionally, the findings of Adnan and Hossain (2016) from a sample of 100 US listed companies acquisitions during 2015 period demonstrate that both the target and the acquirer experienced positive cumulative average abnormal returns ±5 days of the deal announcement and slightly higher after the effective date of the deal. With that said, many research papers demonstrate that companies who acquire non-distressed targets generate positive returns over the long-term period and come in contrast with this of Meier and Servaes (2014) who found that acquirers who buy distressed or bankrupt companies generate at least 1,6% higher returns that those of non-distressed firms.

Finally, one critical aspect that I touched upon in my research is the payment method acquirers choose to use. There is a huge debate surrounding this topic, whether acquirers use equity, cash or a combination of both to finance the acquisitions. Little have been said about the potential access to corporate credit lines that companies have in case an investment opportunity arise. My findings demonstrate that companies relly heavily in credit lines in order to finance their investments. The amount of the credit line is proportionally high to the company's assets and most of the companies have available credit lines even though they don't pursue acquisitions-investments during the period of the credit line was available. Hence, we see that companies want to have as a "buffer" access to capital in case they decide to make an acquisition and credit lines provide a considerable source of access liquidity, especially when acquirers decide to pay partially or exclusively with cash. Additionally, the use of credit

lines is more pronounced when there is high asset specificity as the results of Table 13 demonstrate in great detail.

Summarizing, my findings demonstrate that indeed financially strong firms interested in investment opportunities or acquisitions acquire companies financially constrained when there is high asset specificity, that potentially seem to add value to their current line of business through synergy creation. Additionally, using two event study period one before and after the announcement of the acquisitions and one before and after the effective date of the acquisition it has been proved that companies who acquire non-distressed targets have better cumulative average abnormal returns (CAARs) in the long-term than companies who bought distressed targets who face negative cumulative average abnormal returns, both during the announcement and the effective date periods. My findings also prove that corporations use lines of credit instead of cash to finance the acquisition when there is high asset specificity. This also proves that companies seeking for investment opportunities, besides their available cash flows, rely on credit lines and is more likely to use them when there is high asset specificity in order to partially finance their acquisitions. Even in periods in which companies didn't make an acquisition they had secured access to credit lines which in some cases equal 18,45% of their total assets.

7. Limitations and Future research

This chapter provides the limitations of this research and proposes meaningful considerations that can add value to the current literature regarding distressed acquisitions. The different methodology used in order to identify distressed firms and the size of the sample provide a solid basis for future research; this research can be considered as a basis for future findings.

Although my research includes a recent period of M&As deals (2012 – 2016), among different industries and regions, one of the constrains in my research is the possibility that more years can be added for future research hence more distressed acquisitions can be found in order to have a bigger sample.

For example, it would be a really good idea to make a group of three periods. Splitting the sample between **2004 - 2008, 2008 - 2012, 2012 - 2016** among all the industries around the world. The purpose of this research would be twofold: One the one hand you will have the opportunity to have a pre, post and after financial crisis conclusion and on the other to make assumptions and comparisons on how the different industries react during the different financial periods.

Moreover, it will be meaningful if we can also include in for a future research Buy-and-hold abnormal returns (BHAR) in order to see whether investors purchase the stock of a company for speculative reasons or as a long term investment, the premium acquirers pay to the targets, the payment method and weather these acquisitions occur between companies operating in the same industry or not. Most importantly, one particular limitation of my research is the limited number of distressed acquisitions and hence the long-term growth that acquirers have or not from the acquisition, this is also the reason why particularly in Hypothesis 2 cumulative average abnormal returns (CAAR) are not statistically significant in contrast with non-distressed acquisitions where the sample was big enough to provide robust and statistically significant results – because of the limited number of distressed acquisitions in my sample I didn't calculate the CAARs in industries and regions with less than fifteenn deals, otherwise the results will not be representative. Are indeed acquirers of distresses firms pay lower premiums benefiting from the difficult situation a company is and the urgent need for cash flows within a limited group of potential buyers? Does distressed firms acquire growth paying a higher premium than a non-distressed firm would pay?

Finally, one more consideration for future research would be to explore the activities of firms before filling in the Chapter 11 Bankruptcy Code ending up as distressed. Did they make acquisitions of growth firms in order to diversify their activities, increase their cash-flows and avoid bankruptcy before the Chapter 11 feeling?

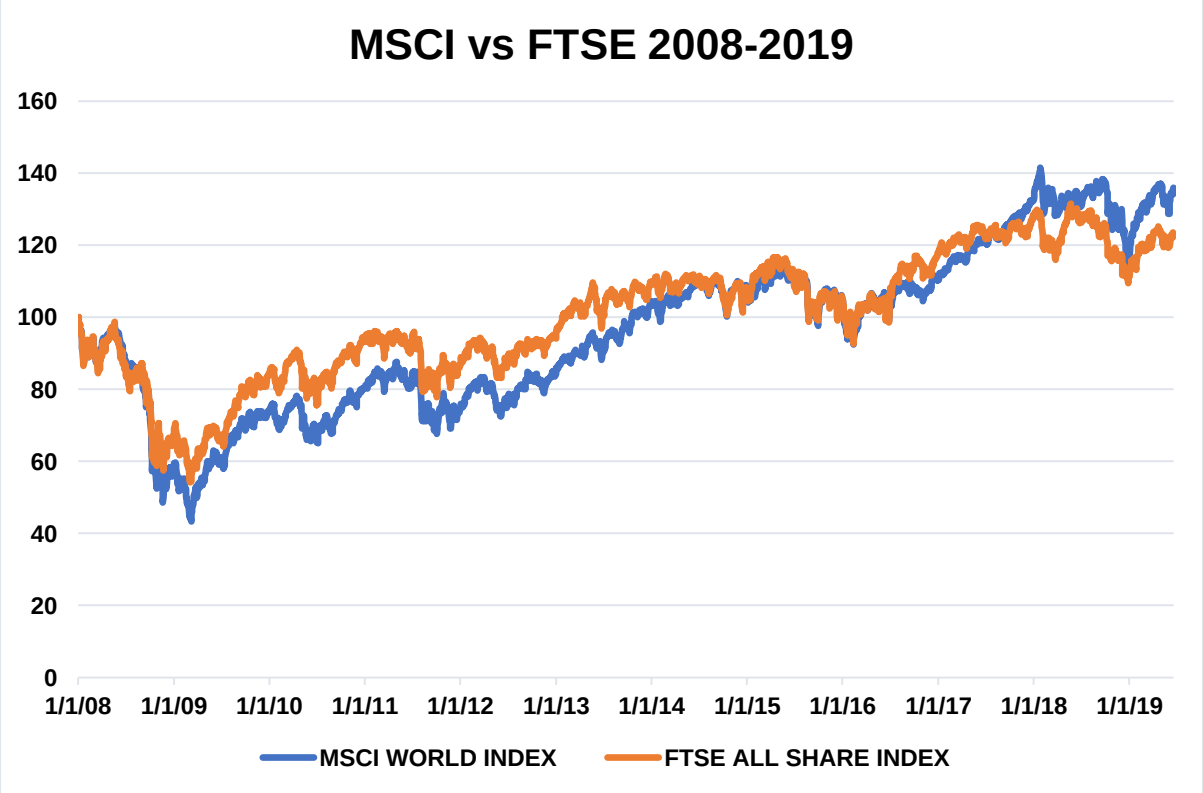
Appendices

#	Country	Currency	ISO 4217 code	Number of deals
1	Argentina	Argentinian Peso	ARS	2
2	Australia	Australian Dollar	AUD	75
3	Austria	Euro	EUR	2

4	Bahamas	Bahamian Dollar	BSD	1
5	Bahrain	Bahraini dinar	BHD	1
6	Belgium	Euro	EUR	2
7	Brazil	Brazil Real	BRL	1
8	Canada	Canadian Dollar	CAD	247
9	Chile	Chile Peso	CLP	1
10	China	Chinese Yuan Renminbi	CNY	10
11	Croatia	Euro	EUR	1
12	Denmark	Danish Krone	DKK	3
13	Equador	United States dollar	USD	1
14	Egypt	Egypt Pound	EGP	1
15	Finland	Euro	EUR	5
16	France	Euro	EUR	22
17	Germany	Euro	EUR	5
18	Giblartar	Euro	EUR	1
19	Hong Kong	Hong Kong Dollar	HKD	4
20	India	Indian Rupee	INR	12
21	Indonesia	Indonesian Rupiah	IDR	2
22	Ireland-Rep	British Pound	GBP	4
23	Israel	Israeli New Shekel	ILS	10
24	Italy	Euro	EUR	6
25	Jamaica	Jamaica Dollar	JMD	1
26	Japan	Japanese Yen	JPY	92
27	Jersey	British Pound	GBP	1
28	Kazakhstan	Kazakhstani Tenge	KZT	1
29	Kuwait	Kuwait Dinar	KWD	1
30	Luxembourg	Euro	EUR	3
31	Malaysia	Malaysian Ringgit	MYR	6
32	Malta	Euro	EUR	1
33	Mexico	Mexico Peso	MX	3
34	Morocco	Moroccan Dirham	MAD	1

35	Neth Antilles	Euro	EUR	1
36	Netherlands	Euro	EUR	6
37	Nigeria	Nigeria Naira	NGN	2
38	Norway	Norwegian Krone	NOK	4
39	Pakistan	Pakistani Rupee	PKR	2
40	Peru	Peru Sol	PEN	4
41	Philippines	Philippine peso	PHP	2
42	Poland	Polish Zloty	PLN	8
43	Singapore	Singapore Dollar	SGD	7
44	Slovenia	Euro	EUR	2
45	South Africa	South Africa Rand	ZAR	10
46	South Korea	South Korean Won	KRW	28
47	Spain	Euro	EUR	1
48	Sri Lanka	Sri Lankan Rupee	LKR	3
49	Sweden	Swedish Krona	SEK	12
50	Switzerland	Swiss Franc	CHF	6
51	Taiwan	New Taiwan Dollar	TWD	16
52	Thailand	Thai Baht	THB	3
53	Trinidad&Tob	Trinidadian Dollar	TTD	1
54	Tunisia	Tunisian Dinar	TND	1
55	Turkey	Turkish lira	TRY	5
56	United Kingdom	British Pound	GBP	62
57	United States	United States dollar	USD	483
Total number of deals				**1198**

Table 14: Summary breakdown by industry


MSCI vs FTSE 2008-2019
160
140
120
100
80
60
40
20
0
1/1/08
1/1/09
1/1/10
1/1/11
1/1/12
1/1/13
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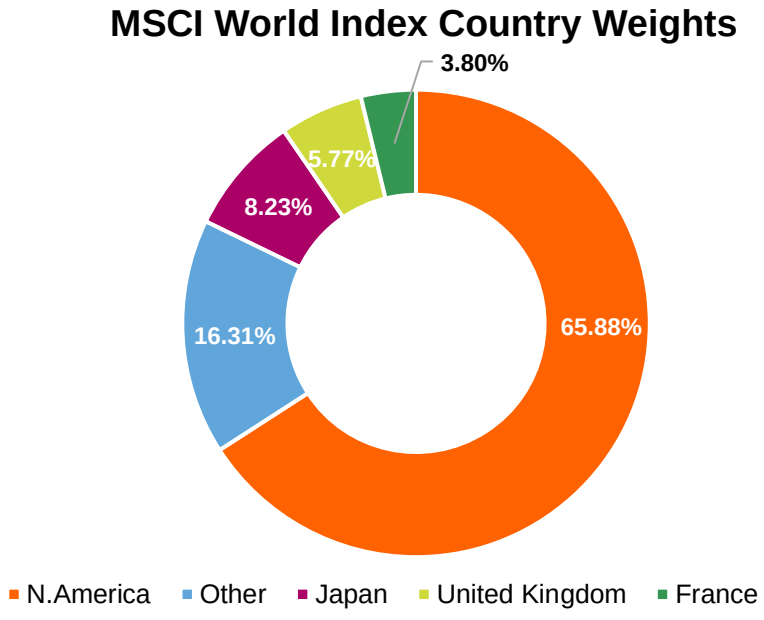
1/1/16
1/1/17
1/1/18
1/1/19
MSCI WORLD INDEX
FTSE ALL SHARE INDEX


MSCI World Index Country Weights
3.80%
5.77%
8.23%
16.31%
65.88%
N.America
Other
Japan
United Kingdom
France

Appendix A

	Non-Distressed Deals						Distressed Deals				
	OIBDP_TAR	XINT_TAR	AT_TAR	OIBDP/XINT_TAR	OIBDP/AT_TAR		OIBDP_TAR	XINT_TAR	AT_TAR	OIBDP/XINT_TAR	OIBDP/AT_TAR
	(1)	(2)	(3)	(4)	(5)		(1)	(2)	(3)	(4)	(5)
Mean	4,88	2,10	4,05	2,04	1,12		4,52	3,06	3,27	4,40	2,44
Median	2,10	1,40	3,04	1,18	0,11		2,41	2,40	2,36	2,01	1,13
St.Dev	5,00	2,65	4,51	4,75	1,99		5,44	3,27	4,26	4,56	3,11
p25	2,08	1,24	1,08	2,08	0,07		1,13	1,50	1,15	1,39	0,25
p75	6,75	3,52	2,45	3,00	2,16		4,85	3,50	6,97	2,96	3,35

Table 15: Descriptive statistics Hypothesis 1

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