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STOCK PRICE REACTIONS OF ACQUIRING FIRMS TO MERGERS AND ACQUISITIONS IN TURKEY

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STOCK PRICE REACTIONS OF ACQUIRING FIRMS TO MERGERS AND ACQUISITIONS IN TURKEY

TÜRKİYE'DEKİ ALICI FİRMA HİSSE SENETLERİNİN SATIN ALMA VE BİRLEŞMELERE TEPKİSİ

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ABSTRACT

In this study, impact of merger and acquisition announcement on share prices of acquiring firms was examined. First theoretical framework was clarified by giving definitions, explaining the types of integrations with advantages and disadvantages. Second the most outstanding motives for entering a merger and acquisition deal such as economies of scale, hubris, synergy, tax advantages, transfer of know-how etc. laid out in detail. Then merger waves were described through the events causing and terminating them, fundamental outcomes. Event study methodology conducted throughout the research. Sample is made up of 80 observations for the period of 1994-2014. Apart from full sample analysis, three comparison groups which are “form of transaction”, “industry relatedness”, “target public status” were formed and their impact on the share prices were measured separately. Consequently, it is proved that M&A disclosures have a very insignificant impact on acquiring companies’ share prices.

Key Words: Mergers, acquisitions, merger waves, event-study, cumulative abnormal return

ÖZET

Bu çalışmada şirket satın alma ve birleşme haberlerinin alıcı fırmanın hisse senetleri üzerindeki etkileri incelenmiştir. İlk olarak tanımlamalar yapılarak, birleşme şekilleri avantaj ve dez avantajlarıyla açıklanarak çalışmanın teorik çerçevesi sunulmuştur. İkinci olarak fırmaları birleşme ve satın alma kararlarına yönlendiren sinerji, ölçek ekonomilerinden yararlanma, yöneticilerin kibirleri (hubris), vergi avantajları, know-how transferi gibi öne çıkan sebeler detayları ile açıklanmıştır. Sonrasında birleşme dalgaları başlangıç ve bitiş sebepleri, sonuçları ile birlikte anlatılmışır. Analiz kısmında olay etüdü yöntemi benmsenmiştir. Örneklem 1994-2014 yılları arasında gerçekleşen 80 birleşme ve devralmayı içermektedir. Bütün olarak örneklem incelemesine ek olarak örneklemden "birleşme türü", "endüstriyel ilişki (aynı ya da farklı endüstriye ait olma)" ve "satın alınan firmanın halka açık ya da özel" olmasına göre alt gruplar oluşturup bunların alıcı firmanın hisse senetleri üzerindeki etkileri ayrı ayrı incelenmiştir. Sonuç olarak satın alma ve birleşme haberlerinin alıcı firmanın hisse senetleri üzerinde istatistiki olarak anlamsız bir etkiye sahip olduğu tespit edilmiştir.

Anahtar Kelimeler: Birleşme, satın alma, birleşme dalgaları, olay etüdü, kümülatif olağan dışı getiri

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INTRODUCTION

In today's dynamic business environment, in consequence of globalization phenomenon national markets started to be replaced by global markets. Almost all the countries realized that to national markets are not enough to compete in a global market. New competition rules resulting from globalization led companies to concentrate more on technological investments, exploring methods to decrease costs, intensive R&D activities. Companies need to be in the adequate size to keep pace with the new business environment with extreme competition and proceed with their operations.

Nowadays, companies are more emboldened to grow continuously with more efficiency in the work processes. There are various reasons behind growth decisions of companies such as benefiting from economies of scales, decreasing costs, expanding production capacities in case of inadequate demand, entering new markets or controlling the market by increasing the market share and eventually making a profit. After a growth decision companies face an important choice: "internal or external growth?" Due to considerable uncertainty and necessity for a long time of implementation, instead of internal growth, commonly external growth is adopted by authorities. The most favored external growth method is growing via mergers and acquisitions.

Stock returns based on M&A disclosures became a popular research subject in literature especially in the second half of 1970s in countries where merger and acquisition operations were prevailing and capital markets were efficient, so as in US and UK. Documentation in the finance literature exhibits that stock price performances generally actualized above the market (abnormal return) around the M&A announcement day, however, these ARs were predominately formed in target share price returns.

In Turkey from the beginning of 1990s, there is an observed upsurge in the numbers of M&As. In this alteration, Turkish economy being more open to international expansions, formation of stock markets and fast progress of the secondary equity market after 1980 resolutions played a significant role. In the period after 1990s, factors like increase in privatization, improvements in the relationship with EU and great interest of foreign capital in sectors like financial services and telecommunication had a considerable influence on the rise of transaction volumes. Despite these improvements and the rise especially in 2005, Turkish literature regarding impacts of the mergers and acquisition on the publicly-traded parties' stock returns are still limited.

Main historic data was retrieved from the database of Thompson Reuter's Securities Data Corporation (SDC) and research conducted for the duration of 1993-2014. However, this date set was filtered like the others in the literature to determine the real sample that serves the purpose of the research. As a result, 80-observation sample was obtained.

Filtering criteria is as below:

i. "The transaction is listed as completed with an announcement date in the sample period;
ii. The acquirer firm is a publicly traded company on the Turkish Stock Exchange (Borsa Istanbul);
iii. The transaction is identified as a "merger", "acquisition of majority interest";
iv. The acquiring firm is a non-financial firm;

v. The acquirer does not own more than 20% of the target firm prior to the event date and owns at least 50% after the event date" (Reis, 2015)

In the first chapter of 3-chapter research, comprehensive definitions were made regarding basic merger and acquisition terms, structural forms of M&As, advantages and disadvantages of them were explained in details in the light of examples, motives for merger and acquisition were exemplified and supported with literature view conducted regarding these motives.

Second chapter covers the timeline of the merger waves in details. How these waves started and ended, what are the main characteristics, which distinguished deal types and payment methods come front and what kind of the outcomes they brought are explained.

Third chapter is the coverage of literature review. Empirical evidence on "the impact of mergers and acquisitions announcements on stock prices of acquirers" was presented in two main groups as developed and emerging markets. Lastly, Turkish literature regarding this topic was examined and outstanding examples were explained.

Fourth and final chapter is the research analysis part. In this part event study methodology was described with the steps to follow in the light of brief history. Capital asset pricing model, daily returns, abnormal and cumulative abnormal returns were shortly clarified with formulas. Event windows and sample description was defined through a series of criteria. Finally, results are presented and supported with regarding tables.

CHAPTER 1

MERGER AND ACQUISTIONS

1.1 Fundamental Definitions

"Merger", "acquisition" and "takeover" terms are generally used interchangeably in the terminology. (Singh, 1971) However, there are clear distinctions among them and it would be beneficial to clarify them from the beginning for further understanding.

A *merger* can be simply described as "complete absorption of one company by another, wherein the acquiring firm retains its name and identity whereas the acquired firm ceases to exist as a separate entity." In merger, bidder (acquirer) acquires everything that the target has such as assets and liabilities. (Sherman & Hart, 2006)

A *consolidation* is like a merger but this time a completely new company is established. Separate existence of acquirer and target terminates at this point. Differences between parties (acquirer & target) becomes trivial and they combine their power; assets and liabilities to function as one. (Ross, et al., 2005)

An *acquisition* can be described as buying an asset (a section, a product line) or stocks of another company in a way that give the controlling right to the acquirer on the acquired company. Sometimes it can be an entire purchase of another entity. (Snow, 2011)

A *takeover* does not carry a precise meaning and more like general term to show that control of the entity under discussion changed hands. It may refer any transaction that transfer the rights of control. (Ross, et al., 2016)

1.2 Structural Forms of Mergers and Acquisition

As a result of various merger waves occurred throughout history, three distinctive integration types have been developed. Companies should choose the correct form of integration which suits their philosophy on growth. The decision of structural integration must be settled during the planning process. They can be listed as below:

- Horizontal M&As
- Vertical M&As
- Conglomerate M&As

Table 1.1. *Structural Forms of Mergers and Acquisitions*

Form	Feature	Example
Horizontal M&A	Firms compete in identical line of business, generally competitors	Facebook buys Instagram (2012)
Vertical M&A	Firms have the identical manufacturing line (e.g. Suppliers-Retailers)	Exxon merged with Mobil (1998)
Conglomerate M&A	Firms are in distinct business lines	Amazon purchased Whole Foods (2017)

Source: Moskovicz, 2018

1.2.1 Horizontal M&As

Horizontal mergers or acquisitions happens with the integration of the parties within the similar branch of business, producing identically same or similar products or services regardless of their geographic location. (Robert et al., 2010) For instance, a merger of two automobile companies one located Germany, the other one located in US can be great example of horizontal mergers.

Horizontal M&As can be a great opportunity for wealth accumulation and have the talent to attract the attention of media and authorities. Advantages of horizontal integration can be counted as below:

- Benefiting from economies of scale (resource combination)
- Cost reduction (e.g. elimination of excess usage of resources, allocation of source efficiently)
- Market domination
- Efficient usage of distribution opportunities
- Possession of more adept and skillful labor force
- Possible working capital and CAPEX expenditure reduction. (Dringoli, 2016)

On the other hand, additional costs coming along with the horizontal M&As should not be ignored. Some of them can be exemplified as below:

- Reorganization of fundamental and supplementary activities and removal of excessive and unnecessary assets
- Integration of disparate corporate culture, particularly in marketing and production areas

- ❖ Coordination and controlling complications of a more intricate organization
- ❖ Extra attention on the demand projections, as soon as the market feels satisfied, the organization may be affected negatively. (Kudełko, *et al*., 2015)
- ❖ Integration with the aim of increasing market share and subsequently preventing market competition will be subjected to law enforcement. Because such M&As can generate monopoly[1] in the market and can damage market structure and pricing mechanism. (Ülgen &Mirza, 2004)

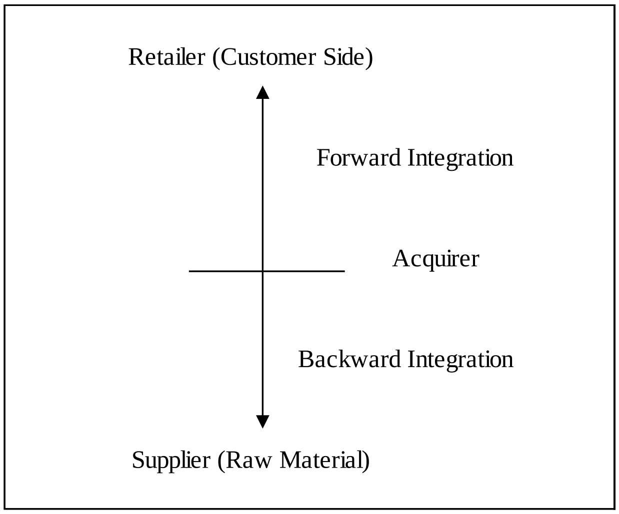
1.2.2 Vertical M&As

Vertical integration occurs by a manufacturer merging with suppliers or retailers which are functioning in the identical business industry. It is the easiest and most preferable form of M&As. Manufacturers have collaboration with several suppliers for raw material or goods and with a retailer for the sales of the finished goods. The principal aim of vertical integration is to decrease the risk against suppliers and retailers (Robert et al., 2010).

Vertical integration can occur in two different ways: forward integration and backward integration. In forward integration acquired company take part in the later levels of the process. It heads towards to retailer (customer side). In backward integration process flows in the opposite direction, this time acquirer takes place in the earlier levels of production and the whole process heads towards the supplier side.

[1]"A monopoly is where there is just one firm in the industry, and hence no competition from within the industry." (Sloman, 2006)

Figure 1.1. *Vertical Integration Schema*



Source: Robert, Wallace, Moles, 2010

Some of the leverages gain by vertical integration can be listed as below (Dringoli, 2016):

- Cost reduction in the production cycles due to combined phases (transactional costs)
- Reduction of costs of raw materials by benefiting from economies of scales
- CAPEX reduction as the specialize companies takes the control of related phases such as resources
- Reduction of risk and/or improvement in risk management
- Assurance in the quality of the product in the early phases via backward integration and of output, distribution via forward integration
- Ability to monitor inventory cycles closely in the case of acquisition of the supplier
- Elimination of the intermediaries or mediators, subsequently reduction of related costs

Nonetheless, potential disadvantages should also be taken into consideration. They can be listed as below (Ross *et al.*, 2016):

- Entering into a new line of business
- Problems regarding managing the new more complex business operations
- Direct elimination of rivalry in the supply market (via backward integration)
- Loss of flexibility in the combined corporation
- While the elimination of mediators decreasing the cost, it may also cause the elimination of profit generation by the acquired company for the acquirer

1.2.3 Conglomerate M&As

Conglomerate integration is relatively rare compared to the other two methods. In conglomerate integration, acquiring company decides to seek opportunities in different sectors/ industries, unrelated to its core operations. (Felton, 1971)

- Chance to diversify provides compensation for the business side that is underperforming
- Entrance to the new markets and to be introduced to new customers
- Great tool for business risk diversification
- Can be used as a marketing tool in case complementary products and services (e.g. acquisition of the financial subsidiaries by car retailers to enabling or fastening the car purchases)

Risks conglomerate integration can be listed as below (Jeon & Kim, 2004)

- Administrating problems arising from the fact that company is operating in separate industries
- Risks caused by resource and capability shortage of the company
- Requires strong managerial skills

- May require the establishment of a new corporate culture
- Focal point alteration in business activities

Conglomerate M&As can be separated into two category which are "*pure conglomerate mergers*" and "*mixed conglomerate merger*". Pure conglomerate mergers occur between companies that are totally separate and unrelated to each other. On the other hand, parties enter mixed conglomerate mergers to pursue either product or market extension. (Spivack, 1970)

1.3 Motives for Mergers and Acquisitions

There is a vast sort of motives considered valid for M&As such as financial support, tax advantages provided by capital markets and synergy. Basically, no matter how many and complicated the reasons for companies entering into M&A agreements are, the main aim behind every pace is the net present value increase and the maximization of company profitabilities. As companies pursue value-creating opportunities, they grow in the process. (Watson & Head, 2007) Especially, during the recent years in which structural changes occurring in the economy, the growth process of the businesses accelerated in parallel.

There are many reasons behind companies struggling to grow, choose mergers and acquisitions to fulfill this purpose. These motives vary regarding the socioeconomic factors of the country in which the company maintains the business activities, characteristics of the businesses and time. (Piesse *et al.*, 2007) After all the explanations, motives for M&As can be listed as below.

1.3.1 Synergy

Synergy is a fundamental motive behind companies enters into M&A agreements. In the broadest sense, it means the totality of the fragments is worth more than the whole. (Gaughan, 2015) The relation among the pieces creates extra value. In M&A concept it indicates that after merging company value becomes greater than it being single and separate.

Moreover, it may also mean the gains purely coming from totally separate fields as a result of the combination. For instance, one personnel in company A may be highly qualified to lead X department in company B or another personnel in company B may be perfectly suited to sell the products of company A. (Pike & Neale, 2009)

To illustrate, a company that has two machines that allow producing 600 and 900 units respectively. Through merger they could achieve production of 1,800 units per day, doubling or tripling the number of machines used in both processes.

$$\boxed{V_{(AB)} > V_{(A)} + V_{(B)}}$$

Synergic impacts emerge from five sources (Ehrhardt & Brigham, 2011):

- **Operating impact** arises from managerial economies of scale such as in marketing, administration, manufacturing and distribution.
- **Financial impact** is the increase in stock prices despite low transaction costs.
- **Tax impact** suggests that joint organizations carry less tax burden than single ones.
- **Diversification impact** refers that after merges party with weak management becomes more powerful and the party with the strong management grows into a more efficient system. Consequently, assets of weak management are used more effectively.

- **Market power** increases as the competition decreases in the market. However, in today's markets, such kind of mergers are neither desirable nor allowed.

1.3.2 Economies of Scale

Economies of scale denote that by increasing production, the average fixed cost can be decreased. So the more products produced, the less average total cost will be. (Megginson *et al*., 2008) However, every production facility has limits and these limits can be extended via M&As. Same is applicable to fixed cost, they can be decreased even more in case of an M&aA (DePamphilis, 2014) Economies of scale provide leverage to businesses for reducing costs by broadening their scope of production. The main aim is to decrease the unit cost of a product. Economies of scale are the genuine purpose of horizontal integrations: merged companies can accomplish cost reduction by sharing administrative services, executives and general management. (Watson & Head, 2007)

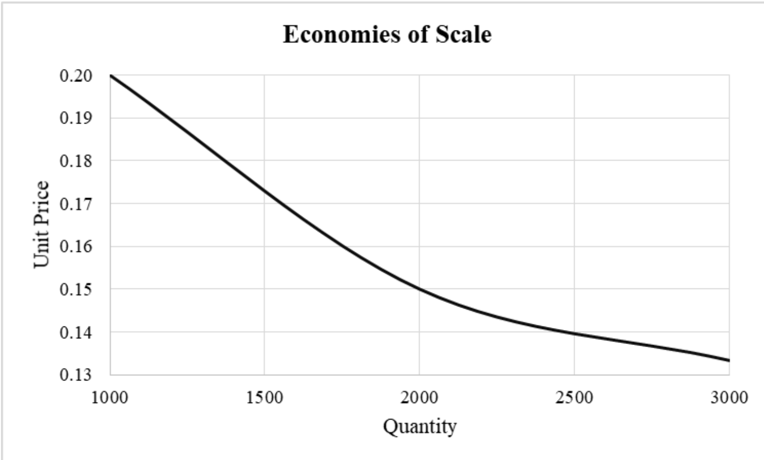
Mergers can also enable technical economies of scale. For instance, if a high quantity of production requiring a great amount of funds case arises, large-scale companies can fund such kind of investment rather than small-scale ones. For instance, if you want to print out flyers, offer you get is generally like this:

Table 1.2. *Economies of Scale Sample*

Unit	Total Price	Unit Price
1000	TRL 200	TRL 0.20
2000	TRL 300	TRL 0.15
3000	TRL 400	TRL 0.13

As can be seen in this simple example as the quantity produced increases unit price is decreasing.

Figure 1.2. *Economies of Scale Graph*



1.3.3 Diversification

As mentioned before companies have two alternatives to pursue their growth target: internal or external growth. Since the application of internal growth is time-consuming, more difficult and costly, external growth becomes more favorable. Entering into mergers and acquisition agreements is the most basic version of growth. Diversification in this concept means business growth outside its main activity area. The central pillar of this theory relied upon modern portfolio theory suggested by Harry Markowitz (1952).It is next to impossible to attain a perfect investment in the real world which is achieving high returns with low risks but the theory asserts that it is possible to accomplish a perfect investment by creating an optimal portfolio. That means a portfolio generated with various unrelated instruments can reduce the risk with diversification and create an optimal portfolio. This hypothesis sustains the idea of M&As motive via diversification. (Motis, 2007)

As it was mentioned before, such kind of growth provides financial support. If one segment performs under the expectation, the other one provides financial leverage. Additionally, another reason for the acquirer side is that they may want to operate in a more profitable and with better growth potential industry. The fact that the main industry reached its maturity, high competition in market decreasing profitability, slow-down in the growth targets can lead a business to grow via diversification. (Elmas, 2007)

On the other hand, there are some researches proving that diversification has a downward effect on the worthiness on the overall company value. Berger and Ofek (1995) to measure the effect of diversification, compared the aggregate values with the individual ones for the period 1986-1991 and found 13-15% loss in the value owing to diversification. Lang and Stulz (1994) findings support the previous study. They compared Tobin's-q[2] value with diversification and found a negative relationship between them. Firms choose to diversify performed poorer compared to non-diversified opponents. Moreover, Akbulut and Matsusaka (2010) also had similar results with their research which financial results were affected negatively due to diversification and according to them agency problems are the reason. However, unlike the previous researches, they also found that throughout their observation, the combination of bidder and target returns are meaningfully positive and significant

1.3.4 Hubris Hypothesis

This theory suggested by Richard Roll (1986) helps to explain the effect of overconfidence of management in M&A process. Basically, it assumes that in a takeover manager overestimate the benefits of synergy or their abilities to estimate, in other words,

[2] "The q-ratio is the ratio of the market value of the acquirer's stock to the replacement cost of its assets. Firms can choose to invest in new plant and equipment or obtain the assets by buying a company with a market value of less than what it would cost to replace the assets" (DePamphilis, 2014)

they become arrogant. Their individual motives are the priority for them rather than putting the benefit of the company as first.

The research conducted by Hayward and Hambrick (1997) supports the findings of Roll. They found a positive correlation between hubris indicators and premiums payments. They examined 106 acquisitions and four of their indicators were heavily correlated with the hubris of CEO. Moreover, it was detected that bidding firms' shareholders had suffered from the losses and as the premiums of acquisitions and CEO hubris increment, losses for shareholders were also increasing.

Furthermore, another study carried out by Seth, Song and Pettit (2000) had similar outcomes and findings were parallel with the previous researches. Their study consists of 100 U.S. overseas deals for the period 1980s. However, they have measured not only the impact of the hubris hypothesis but also synergy and managerialism which is very much alike to hubris. All in all, in the light of these empirical shreds of evidence, the hubris hypothesis is a valid motive for M&A deals.

1.3.5 Financial Reasons

Growth decision is obscurity for companies, should it be internal or external? That becomes a greater concern for small and middle-size businesses. They generally face the difficulty of growing with internal resources. In such cases merging offer coming from large-size businesses are accepted (Wild & Rapinet, 2007) and payment regarding purchase is generally asked to be made via acquirer's common stocks. On the other hand, since there will not be any cash outflow from the acquirer side, the need for additional funds significantly decreases. (Ceylan & Korkmaz, 2018)

In most cases, it is more alluring for managers to merge with another business, which has an established system (production, marketing, administration, distribution, etc.), by paying via their stocks rather than gathering funds by selling the stocks publicly to obtain new capacity. Financial reasons can be explained under two categories (Özden, 2006):

- **Excessive free-cash-flow:** Companies with excess funds may use these funds to purchase fixed-income securities, to pay dividends, to repurchase their own securities or to merge with/acquire another company. Among these, “acquiring a company” option does not generate an immediate tax impact for acquiring party. That is why it becomes an attractive opportunity and fuel for M&As. On the other hand, it can be an opportunity for a company with lots of investment possibilities and no cash to finance to merge with one with great potential to generate cash in the future. (Brealey, *et al*., 2011)

- **Cost of capital reduction:** As a theory, debt capacity of the company formed after M&A should be greater than the parties separately involved. (Berk & DeMarzo,2014) With the synergy effect after M&As take place cost of capital decreases. If one party has unused debt capacity, this can be used to finance mergers and acquisition process. From the point lender point of view, due to the low level of risk, it is possible to find a cheap loan. (Akay, 1997) As a result, the cost of capital after M&As decreases compared to before.

1.3.6 Tax Advantages

Tax aspect has been a great motive for a number of M&As, on the other hand, there are still ongoing debates on this topic. For instance, a lucrative company performing in the top tax bracket can benefit via acquiring a company having through accrued tax loss. (Auerbach & Reishus, 1987) So, instead of transferring it to the following years to use it in the future, immediate usage as tax savings would be more favorable for companies. However, it is crucial to mention that benefiting this kind of a deal is more difficult recently due to the strict controls and legislation. (Gaughan, 2015)

Moreover, for companies with excess cash reserves, this kind of M&A deal can be a great advantage for decreasing tax burden. To illustrate, if one company is lacking options for internal investment, as mentioned under "free-cash-flow" there are several options ahead for the usage of such kind of excess cash: dividend payment, purchasing securities, purchasing back their own stocks from the market or acquiring another company. Dividend payment to shareholders will end up with abrupt tax payment with the conclusion of the distribution. Purchasing securities has a short-term average benefit for companies, however, they are inadequate to match the expectations of shareholders. Repurchasing stocks from the market and selling them again may create a capital accumulation but nothing more. Acquiring another company with the spare cash would provide a clean shortcut and avoidance of tax burden. However, it should not be ignored that acquisition premium payments are still more than the tax saving, therefore making the tax advantage as the sole motive for an acquisition may end up with a loss from acquiring party side. (Ehrhardt & Brigham, 2011)

Gilson, Scholes, and Wolfson (1988) conducted a research to test the accuracy and validity of this theory of gaining tax advantage and found that it is valid only for a small group of mergers this motive could be noteworthy. Hayn's (1989) findings are also in parallel with the previous research. She investigated the importance of tax feature of targets for the bidder and target abnormal returns and proved the noteworthy existence of the relation. In addition, tax aspect, especially tax-free status provided by it, was a considerable driver for acquisition deals.

1.3.7 Elimination of Inefficiencies

If this motive is a driving force for the acquiring party, then this means there are two assumptions from their side. First, they believe that the company is underperforming and that can be reversed and second highly probably there is an efficiency problem with the management with should be corrected. It is expected then, that poorly managed companies are subject to a takeover. Thus, by eliminating these problems, improving the quality of management, changing the downward direction of stock prices, new shareholders may be attracted. (Watson & Head, 2007) So rather than cash, there are other things that can be wasted by mediocre management. It is essential to mention that the main reason lying beneath the takeover nothing to do with the wealth of the joint parties. It is used as a technique to substitute the old one with new and efficient. Due to the high positions of the management, it can be challenging to dismiss the top personnel and M&As make it much easier and practical. (Brealey, *et al*., 2011) Martin and McConnell's (1991) findings support this theory that in following year of the takeover chief officers are possibly changed. Maximum of 10% of replacement amount (for the years (-1, -5)) reaches almost 42% after the takeover had been concluded.

1.3.8 Intellectual Property, Expertise & Know-How

Parties of an M&A deal may have dissimilar technological competences, corporate culture, intellectual properties (copyrights, trademarks, patents, human capital, etc.) and know-how. In case of an agreement, all of these strengths will be combined and diffuse through the new structure. Eventually, they will gain a solid place in the market or in an extreme case they may dominate the market. (Röller et al., 2006)

Nowadays, expertise in precise areas is a required specification to be more efficient and compete with the rest of the market. So, in case of such need, it is pretty difficult to find the required labor force and even more difficult him to obtain success in an unfamiliar environment. So instead, getting this force with his already operating unit, in other words, acquiring the company owning the labor force would be more target-oriented and fertile in considerably less time. (Berk & DeMarzo,2014)

What’s more, if the acquirer has a belief that the target company will be in an upright position future in the market due to the valuable intellectual property rights it has, acquiring party may desire to prevent competition or enlarge invention capacity by taking over the company. (Akgüç, 1998)

CHAPTER 2

MERGER WAVES

2.1 Introduction

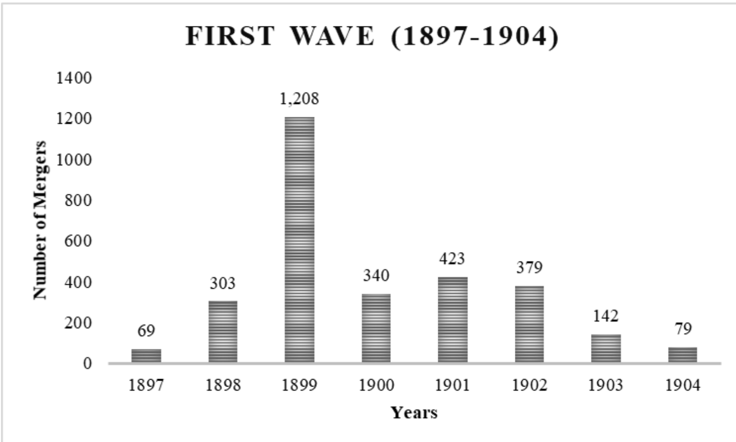
Cyclical and intensified merger activities appeared mainly in US history during the six period are named as merger waves. (Fuad & Gaur, 2019) Historical process of merger and acquisition waves can be classified as below. Recurring activity of great amount of mergers followed by comparatively less amounts formed these periods. Between the years 1897-1989 is the materialization of the four waves, from that time until the end of 1980 there was a noticeable drop in the merger activities. However, there was opposite movement in from the beginning of 1990s till 1992 (commencement of fifth wave). (Gaughan, 2015)

[Appendix A: Table 2.1. Merger Waves]

2.1.1 First Wave (1897-1904)

In 1883, after great depression first merger wave emerged. Two third of mergers concluded in this period concentrated on petroleum and food products, metal, mining and transportation fields. (Owens, 2009) Peak period was between the years 1898-1902 and in 1904 the first merge wave ended. Observed M&As during this period and their breakdowns with respect to years are as below. (Eis, 1969) During this period horizontal M&As were dominating the market.

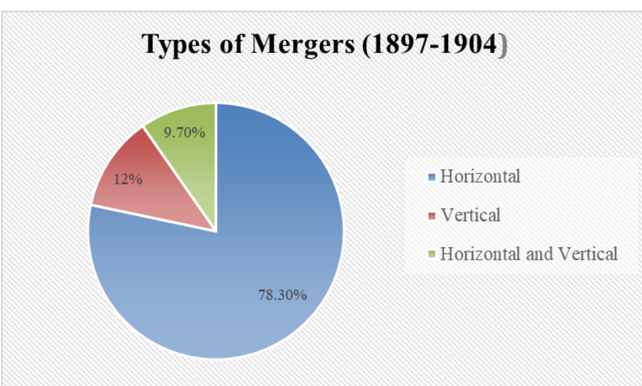
Figure 2.1. *First Wave Merger Amounts*



Source: Gaughan, 2015

To illustrate, in this period in addition to J.P. Morgen merging with Carnegie and US Steel. It merged with more than seven hundred small steel firms. As a result, this enormous sized company held control of 80% of overall steel production. That is why, preventing the formation of such entities, demolishing the ones already standing in the market and the protection of the competition became the official policy of the US government. (Owen, 2009)

Figure 2.2. *First Wave Types of Mergers*



Source: Fligstein, 1993

78% of mergers between the years 1895-1904 were horizontal mergers whereas only 12% of them were vertical. Most of the horizontal mergers occurred in this period brought about monopolistic market creation. That is why this period is known with the role it played in the formation of monopolies. (Kleinert & Klodt, 2002)

2.1.2 Second Wave (1916-1929)

As the first wave was known as the mergers of monopolies, the second wave was called as the merge of oligopolies. An oligopoly can be described as an industry controlled by only a few producers. (Case *et al*., 2017) It comes from the same roots that prompted monopoly. The main difference between the first and the second wave is that the first wave was the creator of the monopolies, the second wave was the initiator of oligopolies (monopolistic competition). (Kim, 1998) Horizontal merger forms observed in the first wave period lingered through the second wave and at the same time US economy carried on altering and booming. During this period, in order to prevent monopolistic formations, a stricter regulatory environment was established. As a result, efforts were paid and compared to first wave more oligopolistic structures emerged and many vertical integrations occurred. (Markham, 1955) continue

Moreover, in this period, it is encountered that many unrelated industrial branches enter into mergers (pure conglomerate merger). The second wave was concluded with the Wall Street Crash of 1929 (Black Thursday) on 24th of October, 1929. Even though this is not the sole cause for the Great Depression, it had a great role. With the diminished confidence in the business world and with the visible constricted consumption, depression got worse. In the second wave investment banks played a crucial role. In those days, there was a more concentrated structure in investment banks, a huge amount of capital was controlled by only a tiny group of people. (Sudarsanam, 2003)

2.1.3 Mid-Period 1940s

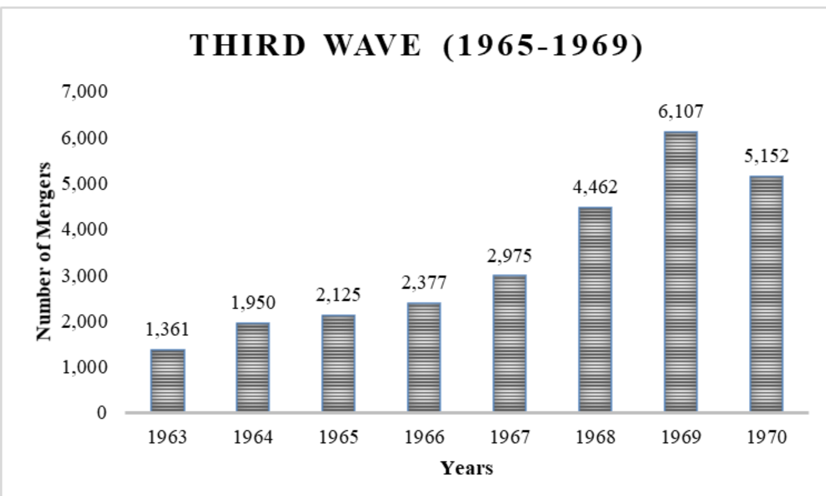
It would be beneficial to enlighten briefly the period between first and second merger waves. Since the market is already in motion of alteration, it would be helpful to understand the environment prepared the third wave. The fundamental purpose of this period's merger activities was to relive the tax burden on the shoulders of large businesses. Therefore, generally private and small-sized businesses were acquired by the larger ones. Because taxes were high and businesses changing hands within the family was extremely pricey, offering businesses for acquisitions became more attractive during this period. (Gaughan, 2015) Owing to the minor percentage weights of mergers in overall assets of the industry, we cannot mention a concentration on mergers. This period was relatively stagnant; no significant technological improvements, no groundbreaking inventions etc. Consequently, we cannot mention a rise in the merger amounts.

2.1.4 Third Wave (1965-1969)

Emergence of a new merging wave took more than 20 years due to impacts of the great depression in the 1930s and Second World War. Owing to the strict antitrust policies in this period, many conglomerate integrations were observed. The third wave is known as the year of merger of businesses which are totally unrelated to each other, in other words, the era of conglomerates. (Kusstatscher & Cooper, 2005) With the aid of the booming economy, the third wave became the era of significant mergers and acquisitions.

Businesses aiming for conglomerate mergers targeted not only product diversification but industry differentiation because of the severe antitrust laws restricting the mergers within the same industry. Celler-Kefauver Act in 1950 was enacted against the monopolies and oligopolies emerged during the first & the second waves and also to strengthen the previous act in 1914 (Clayton Antitrust Act). (Gaughan, 2002) Clearly, this act was aiming for the protection of competition and when we look at the increasing numbers of conglomerate integrations, it was obviously reached. (Shleifer & Vishny, 1991) However, in 1973 with the oil crises broken out and economic recession following, third wave period terminated. (Gregoriou & Renneboog, 2007)

Figure 2.3. *Third Wave Merger Amounts*



Source: Kim, 1998

2.1.5 Fourth Wave (1981-1989)

This wave occurred as a consequence of the inadequacies generated by the third wave's differentiation and diversification policies. (Bhagat *et al*., 1990) Diminution trend of the mergers monitored from the 1970s until 1980s reversed exactly opposite in 1981. Main characteristics of this period were ease of antitrust policies, enhanced control of shareholders and increased competition in capital markets. Businesses started to realize the advantages of de-diversifying and move their focus again on core business activities. (Blair, 1993)

What makes this period totally different from the previous three is the takeover method. Fundamental characteristic of this period is the hostile takeovers[3]. Corporations and strategic partners inclined towards hostile takeover to earn abnormal returns in a very short time. Despite the excessive number of hostile takeovers observed, this period is remembered with the increased concentration on the strategic integrations. Businesses developed several attacks and defend strategy against hostile takeovers. Core effort was downsizing of the operations, foregrounding specialization in operations and the correction of extreme expansions and diversifications arose during the third wave. (Gaughan, 2015) In brief, main motives in this period were re-seizing the control of company's focal point, shrinking company in the process to catch back the focus and consequently, synergy was captured in transferring production and technology after mergers. Especially, mergers concentrated on the technology-intensive sectors. (Kleinert & Klodt, 2002)

At the end of the 1990s economy experienced a slight recession, expansions of 1980s slowed down and came to a halt eventually. Moreover, economy also experienced the breakdown of the junk bond market (main contributor to hostile takeover rise) in the late 1990s. Junk bond market was one of the main veins feeding the great majority of leveraged buyouts [4](LBOs) at that time. (Hurduzeu & Popescu 2015) In short, all these events prepared the conclusion of the fourth merger wave.

[3] "A hostile takeover is really quite the same thing as a regular buyout or acquisition. The thing that makes such a takeover hostile is the fact that it occurs without the consent of the management of the acquired company." (Taillard, 2012)

[4] "A leveraged buyout (LBO) is the acquisition of a company by one or several private equity funds who finance their purchase mainly by debt." (Vernimmen *et al*., 2014)

2.1.6 Fifth Wave (1992-2000)

Fifth merger wave provided various opportunities for businesses similar to its predecessor. During this wave, hostile takeovers and short-term financial gambles were avoided, instead, friendly and strategic with long-term-promise agreements were focalized. Holmström and Kaplan (2001) claim that the reason behind why hostile takeovers declined in this period is that companies inclined towards advantageous aspects of LBOs. As it happened it the previous waves, this wave falls on the peak point of the economic growth. (Martynova & Renneboog, 2008) Throughout this period new peak points were reached in the stock markets and in market indices.

During expansion and growth period in order to respond to increasing demand, businesses started to enter M&A deals. That is why this wave is known as great agreements. (Moeller *et al*., 2005) Furthermore, unprecedentedly enormous international corporations arose and the importance of such formations was emphasized. High stock prices encouraged companies and the idea of "being big to compete" became popular. The largest M&A deal in the history at that time realized in this period. (Lipton, 2006)

It can be said that this is also the period of globalization and deregulations. Globalization brought about the expansion of the global market and consequently, company magnitudes were pushed to follow this movement. Moreover, deregulation made entry and the exit to the market easier. International competitors entered the market against local competitors for the elimination of the monopolistic structures and eventually, cross-border M&As provided greater opportunity to move into prosperous markets. This wave's antitrust policies, deficiencies in the global competition were heavily criticized. (Gönüllü, 2017)

This period terminated with the burst of millennium balloon and big scandals causing revolution in corporate governance like Enron.

Table 2.2. *10 Largest M&A Transactions Worldwide*

Ranking	Year	Acquirer	Target	Value ($)	Value (€)
1	1999	Vodafone AirTouch PLC	Mannesmann AG	202,7	204,7
2	2000	America Online Inc	Time Warner	164,7	160,7
3	2013	Verizon Communications Inc	Verizon Wireless Inc	130,2	100,5
4	2007	Shareholders (Spin out)	Philip Morris Intl Inc	107,6	68,1
5	2015	Anheuser-Busch Inbev SA/NV	SABMiller PLC	101,5	92,3
6	2007	RFS Holdings BV	ABN-AMRO Holding NV	98,2	71,3
7	1999	Pfizer Inc	Warner-Lambert Co	89,6	85,3
8	2017	Walt Disney Co	21st Century Fox Inc	84,2	72,5
9	2016	AT&T Inc	Time Warner Inc	79,4	72,9
10	2019	Bristol-Myers Squibb Co	Celgene Corp	79,4	69,7

Source: Institute for Mergers, Acquisitions and Alliances, 2019

2.1.7 Sixth Wave (2003 - 2007)

This wave is relatively shorter compared to the previous periods, but also can be considered as M&A intensive. This wave began with low-interest rates after the recession in the economy and sources to finance M&As were created. Low-interest rate and soaring market conditions enabled the rise of private equities, leveraged buyouts became extremely inexpensive for them. They could borrow money with fascinating rates to establish a capital, then purchase companies or parts of it with this raised capital and finally by maximizing the profits of these acquired companies sell them to make great profits. Hence, this was the era of private equity firms. They borrowed with very little rates and after sale enjoyed the high returns, this opened the appetite for M&A targets. (McCarthy, 2011)

As in the fourth wave, companies preferred to finance mergers and acquisitions by paying cash or by getting into debt rather than their equity. Acquirers had cash-balance abundance, therefore financing M&A deals with free cash/debt became more common and only a few of the deals in this period was financed with equity in contrast to 1990s. (Harford, 2005)

However, these sixth-period deals couldn’t create value for acquiring parties, on the contrary, they ended up with the loss of a great deal of money. A reason for this can be explained as due to great cash reserves, acquirers were really robust and paying cash during deals might cause free cash flow complication. (Jensen, 1986) Targets shared the same destiny or even poorer abnormal returns. (Alexandridis *et al*., 2011)

Eventually, in 2007 subprime mortgage crisis burst out and these companies which were enjoying the low rates could not attain inexpensive debt and keen investors. With the subsequent recession in the economy, this period came to end. (Gaughan, 2015)

Figure 2.4. and Figure 2.5 provides an overall view of the M&A deals for the period of 1985-2006.

[Appendix B: Figure 2.4. Global Deal Values]

[Appendix B: Figure 2.5. Number of Deals Worldwide]

CHAPTER 3

EMPIRICAL EVIDENCE

In the global dimension, there is a wide-ranging documentation measuring how the stock price performance of M&As on the pre-and post-disclosure period affected. There are several types of research conducted on this subjected so here is some around the world.

The major purpose of the studies regarding merger and acquisitions (M&A) is to investigate whether the stock prices of companies subjected to M&A appreciate or depreciate and correspondingly whether shareholders gain profit. In these studies, it is tested whether abnormal returns (ARs) is attained with mergers and acquisitions. Some studies measure the immediate effect of the announcement on the prices within a very short event window whereas others concentrate on long term performance of the company. (Yılgör, 2014)

3.1 Developed Markets

Liargovas and Spyridon (2011) examined the impact of mergers and acquisition announcements on Greek industry. At the end of their study, in which event study methodology has been conducted, semi-strong form of efficient market hypothesis has been declined for Athens Stock Exchange Market. 10 days before the disclosure of M&As,

shareholders gained substantial positive cumulative average abnormal returns (CAARs) and results show that positive CAARs had been achieved after the announcement of diversifying and horizontal M&As. Overall outcomes demonstrates that banking M&As do not generate wealth for acquiring parties.

Alexandridis, Petmezas and Travlos (2010) chose several developed markets to test their theory which are UK, US and Canada. Their findings showed that the best-case scenario for acquirers to have a zero AR or more commonly negative ARs around the disclosure dates. On the other hand, acquirers from these countries gain with the less premia payment. On the contrary to the previous studies, targets from these markets make considerably less one-sided profit, namely, there is an even, fair distribution of benefits.

Nystad and Grinden (2013) investigated abnormal returns of acquirers for both large and small companies in Norwegian Stock Exchange and AR was calculated both in euro and NOK[5]. The results showed that acquirers experience an average 2.16% AR in €, but AR calculation in NOK shows that acquirers had statically insignificant negative ARs. On the other hand, it has been proved that ARs were changing depending on the company size. AR is 0.22% for large size companies whereas it is 4.10% for smaller size companies. As it can be observed M&A deals create value for acquirers depending on some circumstances.

Schaik and Steenbeek (2004) have studied the non-financial mergers in Japan for the period of 1993-2003. Consistent with the findings of Nystad and Grinden (2013), they found positive AR of 1.4% around the disclosure date and highest return achieved two days before the announcement, however, it is detected that these gains had quite short life and they

[5] Norwegian Krone: National currency of Norway

vanished shortly after. Observed CARs of (-1,0), (-1,1), (-5,5) are 1.37%, 0.57% and 0.87% respectively.

Adnan and Hossain (2016) studied merger disclosure and effect on the share prices of both acquirers and targets in the US market via event study methodology in 2015. During the study, the role of insider data was measured and clarified. Results indicated there is an observed increase in bidder and target stock prices. They propose two explanation: information leakage or good new expectancy. Pre-announcement CAARs are increasing from 0.64% (5 days before) until 1.04%. However, there is an observed decrease in the bidder stock prices during post-event period; CAARs are falling with the announcement day from 0.98% till 0.01% (-5,3) and followed by an increase until 1.01% (-5,5). This shows the incoherency of returns.

Andrade, Mitchell and Stafford (2001) defended the argument that the most trustworthy method to survey whether a merger and acquisition deal produces value is to observe the returns in a short-term event window. They investigated 3,688 samples for the period of 1973-1998. Findings are calculated and presented in 9-years group and results are -0.3% ('73- '79), -0.4% ('80-'89), -1.0% ('90-'98) and -0.7 ('73-'98). Even though results are negative, they claimed that this is not reliable information.

Martynova and Renneboog (2006) investigated the European takeover market (2,419 samples) for the period of 1993-2001. Their sample includes 28 European countries, Ireland and the UK. Although calculated CAARs are statistically significant and positive for acquirers, they are still less compared to target returns; 0.5% on the disclosure date. It is detected that samples coinciding the end of fifth merger wave ruined acquirers' value. According to them, the reason for this failure is because of the hubris, limited data processing and self-regard of managers.

Ings and Inoue's (2012) findings are also consistent with the previous works. They have analyzed Japanese bidder companies for the period of 2000-2010 to investigate shareholder wealth impact on domestic and international acquisitions. Findings revealed that domestic acquisitions are less profitable than the cross-borders. Cross-border transactions generate 1% CAAR, whereas domestic deals could only manage 0.4%, within three days (-1,1) event window.

3.2 Emerging Markets

Shah and Arora (2014) aimed to survey the effect of 37 M&A announcements which were made in Asia-Pacific region, on bidder and target share price returns for the period of March 2013-September 2013. During the study, for various event windows "event study methodology" had been used to measure the CAAR on bidding and target companies' share prices. Paired sample t-test had been applied by comparing target and acquiring companies' pre- and post-announcement stock price return within a (-2, 2) event window. It had been observed that target returns generated statistically significant positive CAARs, different than zero, whereas in all the event windows the acquirer CAARs were statistically irrelevant. It was indicated that pre-disclosure returns were considerably less than post-disclosure returns and also detected that market reaction given to the announcements were really formidable.

Mushidzhi and Ward (2004) analyzed ARs for 64 acquisitions from South Africa including both target and acquiring for the period of March 1998 - December 2002. Event study methodology had been conducted throughout the research for CAAR calculations. For the maximum event window of (-10, 10), findings had been interpreted. As a result, Mushidzhi and Ward proved that average abnormal returns (AARs) increased significantly positive of targets two days before the disclosure date with a halt on day-0 (announcement date) and a downward behavior until +2 days. In the following days, it continued to fluctuate. On the other hand, there was no significant alteration in acquirer AARs' not event on the disclosure date.

Sylvani and Yunita (2017) investigate market response against merger and acquisitions in the telecommunication sector in the Asia-Pacific region. The sample contains 17 observations for the period of 2011-2014. For abnormal returns (AR) computation 21 days window (-10, 10) with 100 days estimation period was used. The primary aim of this project was to assess the impact of the disclosure on stock price return, stock price volatility and trading volume via event study methodology. However, findings showed that there is not much of an influence on ARs during the pre-post announcement period.

Moeller and Zhu (2016) analyzed the short-time effects of cross-border deals among Chinese public listed firms and British companies during 2012-2016. During the research, four different event windows were formed and consequently obtained data had been measured through event study methodology. Results show that Chinese acquirers had attained significant positive ARs in the very first day of the post-disclosure date, however, it was monitored that these ARs had been lost through time. Furthermore, as the event study was applied to sub-sectors, it is inspected that Chinese bidders in several sectors including real estate enjoyed the positive ARs while the ones in financial sector bore negative ARs.

Keown and Pinkerton (1981) proved that there were positive abnormal returns in acquiring parties' share prices enjoyed by the investors before the public disclosure regarding projected mergers had been taken place. This study had been applied to 194 sample companies. However, the results affirmed that there were leakages and company secrets such as this could not be kept as a secret. Especially, the fact that excess returns dated back to twelve days before the disclosure show the severity of the leakage issue.

Sehgal, Banerjee and Deisting (2012) examined whether merger and acquisition disclosures and deal financing methods have any impact on excess returns. As sample BRICS countries were chosen for the period of 2005-2009 however, researchers described their sample as BRICKS countries by adding South Korea also in the group and study was conducted through event study methodology. It was observed that 5 out of 6 countries have benefited from the pre-announcement ARs. Consistent with the Keown and Pinkerton's (1981) research, the results point out possible leakages. South Korea, China and India experienced negative ARs during post-evet period whereas South Africa enjoyed positive ARs. It was also discovered that deal disclosures do not have noteworthy influence on the trading capacity and the stock prices. Nonetheless, there is observed decline in return fluctuation.

In their study, Bae, Kang and Kim (2002) have calculated acquirer abnormal returns listed in Korean Stock Exchange by using market model for the period of 1981-1997. According to their findings, all ARs calculated within the event window are statistically relevant. At 5% significance level their CAARs of (-1,0), (-5,5), (-10,10) are 1.23%, 2.67%, 3.39% respectively.

Examples from Turkish Literature

Nowadays, this topic started to be trend topic in Turkey and some recent studies can be exemplified as below.

The study conducted by Çıtak and Yıldız (2007) investigated 40 acquisitions and abnormal returns (ARs), cumulative abnormal returns (CARs) of acquirers had been computed. It is ascertained that post-sales ARs of acquirers are not statistically meaningful. Furthermore, if the deal is a merger deal, it is likely that there will be negative CAARs whereas, in the case of an acquisition, there will be positive ARs. According to Çıtak and Yıldız, if the deal amount paid by cash, AR returns are positive but if it is made by shares, ARs will be negative.

Yılmaz (2010) researched the effect of M&A deals on share prices of bidders and targets, investigated 51 deals occurred within 2002-2008. Results are presented as 1-month,3-months and 6-months. It is proved that in the 1-month period (-30,30) pre-disclosure ARs (2.56%) are greater than the post-event (0.94%) period. There is a subsequent surge in the post-disclosure ARs; 3-months and 6-months ARs are 0.96% and 6.45% respectively. However, t-test proves that before and after announcement period differences are not statistically meaningful.

Reis (2015) examined the impact of merger and acquisition announcement on Turkish acquirer returns and the determinants of these returns for the period of 1994-2013. Results obtained through standard event study methodology presents a 2.27% cumulative abnormal return during 11-day (-5, 5) event window. CAARs were compared under the several determinants such as merger vs. acquisition, same vs. unrelated business, target country (cross-border vs. domestic), etc. Results present that merger returns are greater than acquisition returns and same relation is valid for companies performing in same industry line compared to unrelated business line.

Eceyurt and Serçemeli (2013) concocted their study on a quite smaller group of 5 sample deals completed during 2008-2009. It was detected that in the 360-day (-180,180) event window, there were no ARs compared to the index. It is more likely to obtain little returns within the 10-days (-5,5) and 60-days (-30,30) period. However, as they claimed that the main objective of a merger of an acquisition is to make increase the market value. It was found unlikely to attain this target.

Findings of Çevikçelik's (2012) are somehow coherent with the previous works. She used 10- and 30-days event window and observed and an increase in the pre-event period. However, this increase reached the peak value either on the event date or the first post-event day and started the fall in the following days. Post-event CAAR trends were observed higher than the pre-event trends. Increase in the pre-event period interpreted as the leakage of the intercompany information. All in all, it is confirmed that IMKB is not even half-effective and that is why it is possible to achieve an abnormal return in the short-term period.

Last but not least, Genç and Coşkun (2013) investigated the impact of both M&A deal announcements and completions on the share prices within an 81-day event window. Results were calculated for both acquirers (138 observations) and targets (76 observations) for the period 2001-2011. They presented that target shareholder experience more abnormal returns than the acquirer shareholders. Even though there were calculated positive abnormal returns, they were not statistically meaningful and not non-zero. CAARs for (-1,0), (0,1) and (-2,1) are 1.14%, 1.06% and 2.04% respectively for the acquirers.

CHAPTER 4

ANALYSIS OF ACQUIRER RETURNS

4.1 Methodology

4.1.1 Introduction

Event study methodology is used to estimate the influence of a precise economic incident on the value of the company by utilizing historical financial data. (Campbell *et al*., 1996) McWilliams and Siegel (1997) listed the basic assumptions behind event study methodology as so;

- Impact of such an incident will be instantly reflected in the stock prices (efficient-market hypothesis).
- There are no insider information leakages and market is informed about the event upon the announcement.
- There is no other event affecting the stock prices in the given event window.

Fisch *et al*. (2018) listed the steps to follow to conduct an event study as below:

i. Event(s) subjected to study must be defined and the dates (announcement, completion), windows (event & estimation) must be identified

ii. Actual returns must be computed for the stocks of the companies in discussion

iii. Expected returns for the same group must be estimated with the help of historical data

iv. ARs (and CAARs, if required) must be computed ($AR_{it} = R_{it} - E(R_{it})$)

v. Finally, in the light of acquired data ARs must be evaluated if the results are statistically significant.

4.1.2 Brief History on Event Study

Although event study methodology seems like new method, actually it has quite a long history. It is assumed that the first published work conducted by Dolley (1933). He analyzed how stock split-ups affect the prices in the light of nominal price alteration during these splits take place. There is an observed sophistication and complexity increase in the researches carried out through the 1930s till 1960s. Studies conducted by Myers and Bakay (1948), Ashley (1962) can be examples of this period. Myers and Bakay (1948) investigated also the split-up impact on prices, however, unlike Dolley they observed effects before and after the event to have a more comprehensive understanding. Ashley (1962), on the other hand, benefited from the event study method in the evaluation of the stock prices with respect to changes in the earnings and dividends. Nonetheless, current version of the event study method which is still in use, introduced by Ball and Brown (1968), Fama, Fisher, Jensen, and Roll (1969). Ball and Brown (1968) examined the utility of existing by exploring their information content. Fama *et al*. (1969) concentrated on evaluating the process of stock price adjustment to the incoming information (such as dividend increases) contained in the stock split and explaining the impact of stock splits independent from the external factors. These pioneering researches triggered a flow of change in the fundamental methodology, so manage complexity in the previous works and create a base for more precise hypotheses. Brown and Warner (1980, 1985) justified in their works the necessity and the significance of these alterations. The study performed in 1980 assesses the performance of stock price via several methodologies such as mean and market-adjusted returns, etc. Characteristics of monthly stock returns were investigated. On the other hand, the study carried out in 1985 deals with the daily stock returns and handles the problems arising from that. Ahorony and Swary (1980) examined the effect of dividend announcements which were made quarterly on stock prices with dividend expectation model and reached the result of a positive impact. MacKinlay (1997) presented various types of event study methodology revision, evaluated their strength and inabilities. His work proved that prices do react to fresh information.

4.2 Cumulative Abnormal Return Calculation (CAR)

As explained in the methodology part, after deciding on the sample and the event dates, very first step to follow is the calculation of the actual returns for every observation in the sample separately. Daily return of stock prices was calculated through this formula:

$$R_{i,t} = \left[\frac{P_{(i,t+1)} - P_{(i,t)}}{P_{(i,t)}}\right] \qquad (1)$$

$\boldsymbol{R_{i,t}}$ **:** is the daily return of company *i* at time *t*

$\boldsymbol{P_{i,t}}$ **:** is the stock price of company *i* at time *t*

$\boldsymbol{P_{i,\, t+1}}$**:** is the stock price of company *i* at time *t+1*

On the other hand, for the calculation of market return BIST-100 closing prices were taken as base and the calculation is the same as daily return of stocks:

$$R_{m,t} = \left[\frac{P_{(m,t+1)} - P_{(m,t)}}{P_{(m,t)}}\right] \qquad (2)$$

$\boldsymbol{R_{m,t}}$ **:** is the daily return of index at time t

$\boldsymbol{P_{m,t}}$ **:** is the closing price of index at time t

$\boldsymbol{P_{m,\,t+1}}$**:** is the closing price of index at time $t+1$

Third step is the calculation of the expected returns. The most common method to measure expected returns are asset pricing modals and among them most preferred model is Capital Asset Pricing Model (CAPM). This theory introduced by Sharpe (1964) and Litner (1965) predicts that the expected return of an assets can be explained through three variables. These variables are the beta of the asset (β), risk-free rate (R_f) and the market return $E(R_m)$.

$$E(R_i) = R_f + [E(R_m) - R_f]\beta_i \qquad (3)$$

In the determined estimation period for this study OLS (Ordinary Least Squares Method) was used to calculate model parameters (α, β) with regression method within the event windows. As a result, model is adjusted as below.

$$E(R_{i,t}) = \alpha_i + \beta_i(R_{m,t}) + e_{i,t} \tag{4}$$

$E(R_{i,t})$ is the expected return of stock *I*, at time *t*. $R_{m,t}$ is the return of the market portfolio and α (constant term, intercept), β (slope) are market variables. $e_{i,t}$ is the random error term and considered as a dummy variable that's why it is assumed that $e_{i,t}$ =0 and it is excluded from the equation. In my study to calculate the expected return of portfolio, capital asset pricing model which was adjusted for OLS had been used.

Last phase is the calculation of abnormal (AR) and cumulative abnormal returns. Abnormal return is defined as any extra return on a given actual return which can be both negative and positive. Cumulative abnormal return on the other hand, is sum total of all abnormal returns in the specific event window.

$$AR_{it} = R_{it} - E(R_{it}) \tag{5}$$

$$CAR_{i,T} = \sum_{t=1}^{T} AR_{i,t} \tag{6}$$

As a final step t-test will be used to evaluate mean differences, Wilcoxon signed-rank and Mann-Whitney tests to measure the differences of medians to decide on levels of significance.

4.3 Sample

In order companies to be included in this study, they should satisfy the following principles proposed by Reis (2015):

i. The transaction is listed as completed with an announcement date in the sample period;
ii. The acquirer firm is a publicly traded company on the Turkish Stock Exchange (Borsa Istanbul);
iii. The transaction is identified as a "merger", "acquisition of majority interest";
iv. The acquiring firm is a non-financial firm;
v. The acquirer does not own more than 20% of the target firm prior to the event date and owns at least 50% after the event date

In this research, there are 327 mergers and acquisitions listed as completed in the database for my research period (1992-2014). Main database contains 46 "mergers", 119 "acquisition of majority assets". However, as the non-financial acquirer companies excluded, that left us with 33 "mergers", 80 "acquisition of majority assets". Unfortunately, some of these companies either ceased to exist or they had merged to other companies and in both cases, they had to be eliminated from the sample because the company stock price data was not available. Consequently, a sum of 80 companies ensure the criteria above.

4.3.1 Sample Description

The sample of 80 companies were divided into 3 sub categories to determine the effect even further as form of transaction (merger & acquisition of majority of assets), industry relatedness (same & unrelated) and target public status (private & public). Due to the fact that all sample deals took place in Turkey, cross-border effect cannot be measured. The sample contains 57 (71,25%) acquisition of majority assets compared to only 23 mergers (28.75%). It is obvious that acquisition deals are more preferred in Turkey. Furthermore, 62,50% (50) of the deals realized between unrelated businesses whereas 37,50% (30) of them occurred between the same businesses. In this field, it is observed that dominance is on the deals between unrelated industries. Last but not least, last examination point was target public status. The sample consists of 68 (85%) private target companies and 12 (15%) public targets.

[Appendix D: Sample Description Table 4.1. Descriptive Statistics]

Table 4.2. presents the distribution of merger and acquisition deals through years in the sample. There is an observed increment in the number of deals from 1993 until 2014. However, main dominance in the sample comes from 2008-2014. As Akdoğu (2011) explained her research, Turkey did not experience all six merger waves; there are two observed merger waves in Turkey. Second merger wave from 2005 onwards is consistent with my sample. Decline in the number of deals in 2009 can be explained with the economic recession period after 2008 crisis. Nevertheless, deal amounts speed up acceleratingly in the following years and makes a peak in 2011. Because 2014 data is until the end of August, there is a reduction in the number of deals but that does not reflect the correct amount.

[Appendix D: Sample Description Table 4.2. Distribution of M&A Deals through Years]

Table 4.3. demonstrates distribution of acquirer industries in the sample. The greatest percentage belongs to “Power” industry with 11% and it is followed by “Oil & Gas” industry and “Food & Beverage” sector with respectively 10% and 9%. By looking at the sample distribution, acquirer industry is dominated by energy sector.

[Appendix D: Sample Description Table 4.3. Distribution of Industries of Acquirers]

On the other hand, Table 4.4. provides the distribution among target industries. In target industry, distribution is not as smooth as in acquirers’ but power industry is still leading the sample. It has 16% share. As the sample investigated thoroughly, more than half of these targets in power industry made deals in the same industry with other companies operating in the same field. Second biggest portion belongs to “Food & Beverage” sector with 8%. Third place is shared between “Oil & Gas” industry and “Metals & Mining” industry with 6%.

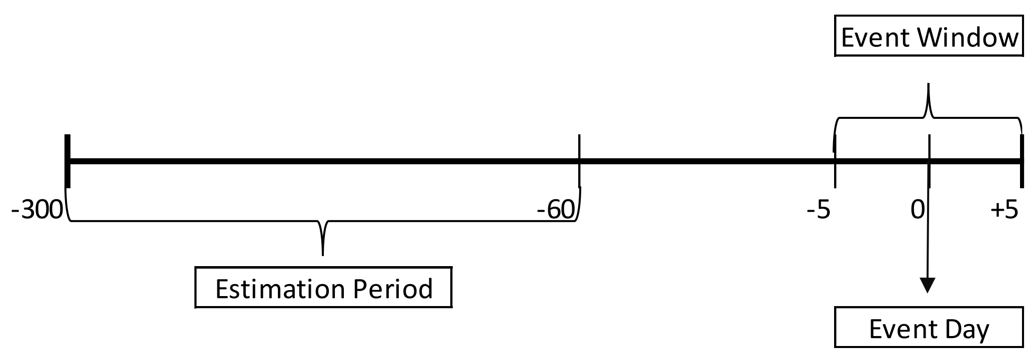
[Appendix D: Sample Description Table 4.4. Distribution of Industries of Targets]

4.4 Event Windows

Event window selection is one most crucial elements of an event study. Before further calculations, estimation and event windows should be clearly defined. Estimation period must be purified from the effects of possible events affecting stock prices. On the other hand, event window must be in an appropriate length to capture the full effect of a given event. In practice measuring acquirer returns, the most well-accepted estimation window covers minimum of (-100, 60) period. It gives even better results if period starts 240-300 days before. Whereas in event window duration is significantly shorter due to the effective market assumption. It is advised that event window should cover the first early impact (pre & post) of the event, in other words should not be too short as well. That is why, 11 days (-5, 5) event window is favored by assuming that event day is zero (0).

During this study, the event date (announcement/disclosure date) is considered as "Day 0" and short-term event window is shaped around the event day and maximum of 10-day (-5, 5). However, the estimation period contains a slightly longer period. In my study, I took the period of 300 days before the announcement day, but to be to avoid any kind of speculations estimation period is (-60, -300). So, it covers a period of 240 days. In the cases, 240-day estimation date is not available; I followed the rule of "minimum 100 days data should be presented".

Figure 4.1. *Estimation and Event Windows*



4.5 Results

In this section, univariate analysis of CARs of Turkish acquiring companies were presented, in other words, only one variable was examined at a time. Cumulative average abnormal returns were related to three distinctive characteristics of acquiring and target companies which are form of transaction (merger vs. acquisition of majority assets), industry relatedness (same vs. unrelated), target public status (private vs. public).

Table 4.5 presents mean and median CARs for the full sample of 80 observations. For the all observations, the largest event window of 11 days (-5, 5) presents negative mean and median CAR of -0.08% and -0.57% respectively. Other outstanding event windows of (0, 1), (0, 2) and (-1, 5) provides positive cumulative abnormal return of 0.41%, 0.82% and 0.59% correspondingly. Although there is an upward trend during the post-event period, all means and medians differ statistically insignificant from zero for all event windows according to both t-test and Wilcoxon signed-rank test results. At this point results are inconclusive; empirical evidence shows that some attain significance returns whereas others obtain insignificant CARs. Same is also valid for positivity and negativity for outcome. Nevertheless, at (-1, 1) event window my results are consistent with the work of Holmen and Knopf (2004), Shah and Arora (2014), Andrade *et al*. (2001) that examined acquirer returns for short event windows and obtained results insignificantly different than zero. As results revealed that null hypothesis cannot be rejected. The fact that there is no significant abnormal return acquired resulting from merger and acquisition announcements points out the lack of informational value formed for acquiring party shareholders.

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Table 4.5. Full Sample CARs]

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Figure 4.2 Mean CAR Chart for Full Sample]

In Table 4.6. CARs for mergers and acquisition of majority assets for acquirers were compared. Almost in all event windows merger cumulative abnormal returns are greater than acquisition returns. However, among these only two event windows have statistical significance and this significance is not persistent across the whole sample. For (-2, 0) event window, mean for mergers is 1.90% and -0.30% for the acquisition. Their difference is significant at 5% level. In addition, merger mean is 1.74% and acquisition mean is -0.81% for (-3,1) event window with a significance at 5% level. Findings in these two event windows are consistent with Reis's (2015) research that examined acquirer returns in Turkey and obtained significant results for most of the event windows. Moreover, for the largest event window (-5, 5) in the sample, mean CAR of mergers is 1.21% whereas it is -0,60% for acquisitions. Moreover, in their research Martynova and Renneboog (2006) investigated M&A deals in Europe and presented that mergers generate reliably greater returns than acquisition of majority assets.

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Table 4.6. Merger vs. Acquisition of Majority Assets CARs]

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Figure 4.3 Mean CAR Comparison (Merger vs Acquisition)]

Table 4.7. shows the distribution of comparison of same versus unrelated industry among the acquirer companies. By looking at the mean CAR values, at the pre-event window companies operating in the same industry performs better. On the other hand, CAR values of companies operating in unrelated industries starts to perform better during post-event period and mean CARs increases as the window gets larger to the post-evet side. Companies

belonging to same industry at (-2,0), (-1,0) (0, 1) event windows generate CARs of 1.16%, 0.70% and 0.54% respectively. Companies with unrelated industry achieve 1.15%, 0.95% and 0.97% CAR values at (0,2), (-1,3) and (-1,5) event windows correspondingly. At the largest event window of (-5,5) 0,26% CAR in unrelated industry and -0.65% in same industry were earned. However, according to the results of Mann-Whitney test among these windows only (-2,0) window produced a significant CAR at 10% level.

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Table 4.7. Same vs. Unrelated Industry CARs]

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Figure 4.4 Mean CAR Comparison (Same vs Unrelated Industry)]

Table 4.8 compares private and public target cumulative abnormal returns. For (-5, 5) event window, calculated private target return is 0.54% and -3.63% for the public target returns. Private targets generate higher cumulative abnormal return than public returns across the sample. This is supported by the literature presented by Chang (1998); Moeller *et al*. (2004); Faccio *et al*. (2006) However, no statistical significance observed at any level for the difference. Faccio *et al*. (2006) obtained an insignificant AAR of -0.38% in public targets and this finding is consistent with my research. Furthermore, insignificant returns obtained from Turkish private and public returns are consistent with Reis's (2015) study. In other words, according to the results market is indifferent to public status of target companies.

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Table 4.8. Private vs. Public Target CARs]

[Appendix E: Acquirer Cumulative Abnormal Returns (CAR) Figure 4.5 Mean CAR Comparison (Private vs Public)]

Moreover, as a result of literature review, I formed the table below from the studies which researched the acquirer returns after M&A announcements. I divided market data into two group as developed & emerging and observed that in the short event window results are no so different than each other. As mentioned before statistical significance is inconclusive through the empirical evidence. Table 3.1. provides the detailed list.

Table 4.9. *Summary List of Acquirer CAR in Global Context*

	Period	Event Window	Average CAR	Significant Results	Insignificant Results
Developed Market					
Asia	2000-2010	(-1, 1)	0.55%	3	2
Europe	1990-2011	(-1, 1)	1.02%	8	6
UK & US	1973-2000	(-2, 2)	0.13%	4	2
Emerging Market	2000-2013	(-1, 1)	0.85%	8	4

[Appendix C: CAR Table by Countries Table 3.1. Full List CAR Table by Countries]

CONCLUSION

Technological advances and shrinking profit margins with escalating competition in global markets led the companies to grow. Additionally, motives like synergy, economies of scale, possession of skilled and capable managerial force, tax advantages, reducing risk through diversification increased the tendency of companies to enter merger and acquisition deal.

Merger means one or more companies becoming one entity by combining their assets and liabilities. It results with the termination of the legal entity of one or all to continue as a new entity. On the other hand, in an acquisition a target company is determined and assets or stocks of these company is purchased to get a controlling share in the target company. M&A deal may occur in various ways but the most common ones are horizontal, vertical and conglomerate integrations.

Although this is a relatively new concept in Turkey, it has a long history in global context especially in the US. The cyclical merger movements in the US history was named as “merger waves”. There are six observed merger waves until now and it is believed that we are currently experiencing the seventh wave.

Primary object of this study was to examine the impact of merger and acquisition announcements on stock prices of the acquiring company for the period of 1994-2014. Event study methodology was followed though the research. First, a sample of 80 observations was chosen through a selection criterion, event window ([-5, 5] -largest) and estimation periods (60 days before the event date and minimum of 100 days) were defined, daily returns were calculated, expected returns were obtained through CAPM model and abnormal returns were evaluated via t-tests.

Results of such studies are inconclusive in global literature; some obtain significance, some cannot, some attain positive abnormal returns, some negative. Findings of my research shows no significance in the full sample at all event windows. At this point, my results are consistent with the works of Holmen and Knopf (2004), Shah and Arora (2014), Andrade *et al*. (2001). Moreover, to get a better comprehensive idea sample was divided into three groups as “merger vs acquisition”, “same vs unrelated industry”, “public vs. private target” and the results were compared. Merger vs acquisition comparison reported significance at 5% level for the windows (-2,0) and (-3,1). Same vs unrelated comparison provided a week evidence but proved significance at 10% level for (-2,0) window. On the other hand, target public status comparison provided significance of 10% for (0,2) interval. All in all, because of the weak results obtained, H_0 hypothesis could not be rejected, in other words, there is not enough evidence to say that CAR values are different than zero.

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APPENDIX A: Table 2.1. Summary Table of Merger Waves

	First Wave	Second Wave	Third Wave	Fourth Wave	Fifth Wave	Sixth Wave
Period	**1897-1904**	**1916-1929**	**1965-1969**	**1981-1989**	**1992-2000**	**2003-2007**
Preferred Payment Method	Cash	Equity	Equity	Cash/Debt	Equity	Cash/Debt
Deal Types	Horizontal	Vertical	Conglomerate	Hostile Takeovers	Cross-Border	Private Equity, LBO
Outcome	Constitution of Monopolies	Constitution of Oligopolies	Diversification	Controversial and leveraged M&As	Globalization	Worldwide expansion
M&A Approac	Friendly	Friendly	Friendly	Hostile	Friendly	Friendly/Hostile
Beginning	Economy expansion, New corporate acts, technological advances	Recovery in the economy, antitrust acts against monopolistic formations	Strengthening M&As incompatible with competition law, recovery after WW2	Financial liberalization, recovery in economy	Unyielding economic growth and expansion, deregulations	Recession in economy, Low interest rates
Ending	Collapse of the capital markets, WW1	Great depression-1929	Oil Crisis-1970	Collapse of the capital markets	Excessive expansion in the market, 9/11 attacks	Subprime mortagage crisis-2007

APPENDIX B: Global Mergers and Acquisitions

Figure 2.4. Global Deal Values

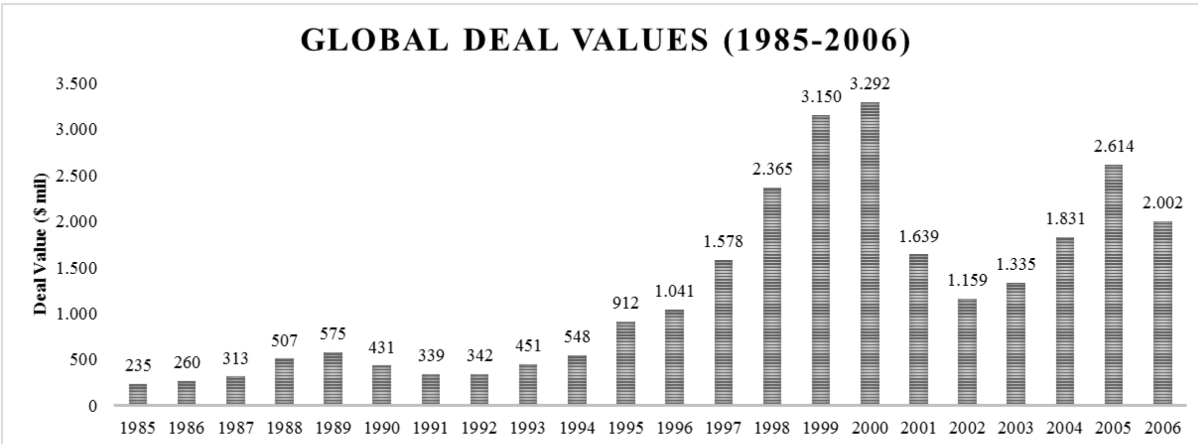

Figure 2.5. Number of Deals Worldwide

APPENDIX C: CAR Table by Countries

Table 3.1. Full List CAR Table by Countries

Country/Region	Period	Event Window	Acquirer CARs	Research
Asia-Pasific	05/2013-09/2013	(-2,2)	1.20%	Shah, Arora (2014)
Austria	1993-2003	(-1,1)	0.96%	Martynova, Renneboog (2006)
Belgium	1993-2001	(-1,1)	1.11%	Martynova, Renneboog (2006)
Brazil	2005-2009	(-1,1)	4.12%	Sehgal, Banerjee,Deisting (2012)
Canada	1964-1983	(-1,0)	1.14%	Eckbo (1986)
China	2005-2009	(-1,1)	5.18%	Sehgal, Banerjee,Deisting (2012)
China	2000-2007	(-1,0)	-1.50%	Wong, Cheung, Mun (2009)
China	2000-2012	(-1,1)	1.22%	Tao,*et al* (2017)
Denmark	1993-2002	(-1,1)	0.90%	Martynova, Renneboog (2006)
Europe	1998-2000	(-1,1)	0.70%	Campa and Hernando (2004)
Finland	1993-2004	(-1,1)	3.78%	Martynova, Renneboog (2006)
France	2000-2011	(-1,1)	0.38%	Sharma, Raat (2016)
France	1993-2008	(-1,1)	0.60%	Martynova, Renneboog (2006)
Germany	1981-2010	(-1,1)	0.01%	Mager, Meyer-Fackler (2017)
Germany	1993-2009	(-1,1)	0.73%	Martynova, Renneboog (2006)
Hong Kong	2000-2007	(-1,0)	-0.33%	Wong, Cheung, Mun (2009)
Hong Kong	2000-2005	(-1,1)	1.73%	Ma, Pagán, Chu (2009)
India	2005-2009	(-1,1)	-1.04%	Sehgal, Banerjee,Deisting (2012)
Italy	1993-2005	(-1,1)	1.38%	Martynova, Renneboog (2006)
Japan	1993-2003	(-1,1)	0.57%	Schaik, Steenbeek (2004)
Japan	2000-2007	(-1,0)	0.25%	Wong, Cheung, Mun (2009)
Japan	2000-2010	(-1,1)	0.59%	Ings, Inoue (2018)
Korea	1981-1997	(-1,1)	1.84%	Bae, Kang, Kim (2002)
Luxemburg	1993-2007	(-1,1)	-0.02%	Martynova, Renneboog (2006)
Netherlands	2000-2011	(-1,1)	0.36%	Sharma, Raat (2016)
Norway	2000-2011	(-1,1)	2.16%	Nystad, Grinden (2013)
Philippines	2000-2005	(-1,1)	0.12%	Ma, Pagán, Chu (2009)
Russia	2005-2009	(-1,1)	2.52%	Sehgal, Banerjee,Deisting (2012)
Singapore	2000-2007	(-1,0)	0.50%	Wong, Cheung, Mun (2009)
South Africa	2005-2009	(-1,1)	2.39%	Sehgal, Banerjee,Deisting (2012)
South Korea	2005-2009	(-1,1)	2.15%	Sehgal, Banerjee,Deisting (2012)
South Korea	2000-2007	(-1,0)	-1.13%	Wong, Cheung, Mun (2009)
Spain	1993-2006	(-1,1)	0.80%	Martynova, Renneboog (2006)
Sweden	1985-1995	(-1,1)	0.04%	Holmen, Knopf (2004)
Switzerland	1990-2001	(-1,1)	1.07%	Lowinski, Schiereck, Thomas (2004)
Taiwan	2000-2007	(-1,0)	-0.55%	Wong, Cheung, Mun (2009)
UK	1990-1998	(-1,1)	-0.46%	Raj, Forsyth (2003)
UK	1983-1995	(-1,1)	-1.39%	Sudarsanam, Mahate (2003)
US	1973-1998	(-1,1)	-0.70%	Andrade, Mitchell, Stafford (2001)
US	1990-2000	(-2,2)	1.45%	Bradley, Sundaram (2004)
US	1990-2000	(-2,2)	1.77%	Fuller, Netter, Stegemoller (2002)
Vietnam	2004-2013	(-1,1)	-0.28%	Phama,Oh,Pech (2015)

APPENDIX D: Sample Description

Table 4.1. Descriptive Statistics

Form of the Transaction	N	Acquisition of Majority Assets	Merger
	80	57	23
		71.25%	28.75%

Target Public Status	N	Private	Public
	80	68	12
		85%	15%

Same/Unrelated Industry	N	Same Industry	Unrelated Industry
	80	30	50
		37.50%	62.50%

Table 4.2. Distribution of M&A Deals through Years

Year	Number of Transactions	% of Total Sample
1993	2	0.02
1994	1	0.01
1997	2	0.02
1999	1	0.01
2000	3	0.04
2001	3	0.04
2002	2	0.02
2003	2	0.02
2004	1	0.01
2005	2	0.02
2006	3	0.04
2007	2	0.02
2008	7	0.08
2009	4	0.05
2010	9	0.11
2011	16	0.19
2012	11	0.13
2013	10	0.12
2014	4	0.05
Total	**85**	**100.00**

Table 4.3. Distribution of Industries of Acquirers

Acquirer Industry	Number of Observations	% of Total Sample
Agriculture & Livestock	1	0.01
Automobiles & Components	3	0.04
Building/Construction	6	0.08
Chemicals	1	0.01
Computers & Electronics Retailing	1	0.01
Computers & Peripherals	1	0.01
Construction Materials	6	0.08
Containers & Packaging	2	0.03
Discount and Department Store Retailing	1	0.01
Electronics	2	0.03
Food & Beverage Retailing	3	0.04
Food and Beverage	7	0.09
Home Furnishings	2	0.03
Hospitals	1	0.01
Hotels and Lodging	1	0.01
Household & Personal Products	1	0.01
Metals & Mining	4	0.05
Oil & Gas	8	0.10
Paper & Forest Products	1	0.01
Pharmaceuticals	1	0.01
Power	9	0.11
Recreation & Leisure	1	0.01
Software	4	0.05
Telecommunications Equipment	1	0.01
Telecommunications Services	1	0.01
Textiles & Apparel	5	0.06
Transportation & Infrastructure	3	0.04
Wireless	3	0.04
Total	**80**	**100.00**

Table 4.4. Distribution of Industries of Targets

Target Industry	Number of Observations	% of Total Sample
Aerospace & Defense	1	0.01
Agriculture & Livestock	2	0.03
Alternative Energy Sources	1	0.01
Automobiles & Components	2	0.03
Banks	1	0.01
Construction Materials	3	0.04
Containers & Packaging	2	0.03
Food & Beverage Retailing	3	0.04
Food and Beverage	6	0.08
Home Improvement Retailing	1	0.01
Household & Personal Products	1	0.01
Insurance	1	0.01
Internet and Catalog Retailing	1	0.01
Internet Software	1	0.01
IT Consulting & Services	4	0.05
Metals & Mining	5	0.06
Non-Residential	1	0.01
Oil & Gas	5	0.06
Other Consumer Products	2	0.03
Other Financials	2	0.03
Other Industrials	1	0.01
Other Retailing	2	0.03
Paper & Forest Products	2	0.03
Pharmaceuticals	2	0.03
Pipelines	1	0.01
Power	13	0.16
Semiconductors	1	0.01
Software	3	0.04
Telecommunications Equipment	1	0.01
Telecommunications Services	1	0.01
Textiles & Apparel	3	0.04
Transportation & Infrastructure	4	0.05
Wireless	1	0.01
Total	**80**	**100.00**

APPENDIX E: Acquirer Cumulative Abnormal Returns (CARs)

Table 4.5. Full Sample CARs

Event Windows	N	Mean	Median	Max	Min	T-Test	Wilcoxon signed-rank test
CAR [-1,1]	80	0.13%	0.17%	16.78%	-15.89%	0.2615	0.4460
CAR [-2,2]	80	0.55%	0.57%	15.82%	-13.69%	0.8752	1.0410
CAR [-2,0]	80	0.33%	-0.26%	17.55%	-9.18%	0.6539	-0.3450
CAR [-1,0]	80	0.32%	0.09%	15.44%	-6.79%	0.8325	0.2210
CAR [0,1]	80	0.41%	0.23%	17.42%	-14.26%	0.8762	0.8250
CAR [0,2]	80	0.82%	0.04%	21.02%	-15.33%	1.2755	0.8540
CAR [-1,3]	80	0.37%	0.47%	18.62%	-30.33%	0.4556	0.9020
CAR [-1,5]	80	0.59%	0.37%	26.19%	-14.54%	0.6962	0.4120
CAR [-3,1]	80	-0.07%	-0.43%	21.55%	-12.09%	-0.1291	-0.3740
CAR [-5,5]	80	-0.08%	-0.57%	30.55%	-23.19%	-0.0819	-0.2930

****, **, and * denote statistical significance at 1%, 5% and 10%, respectively*

Figure 4.2 Mean CAR Chart for Full Sample

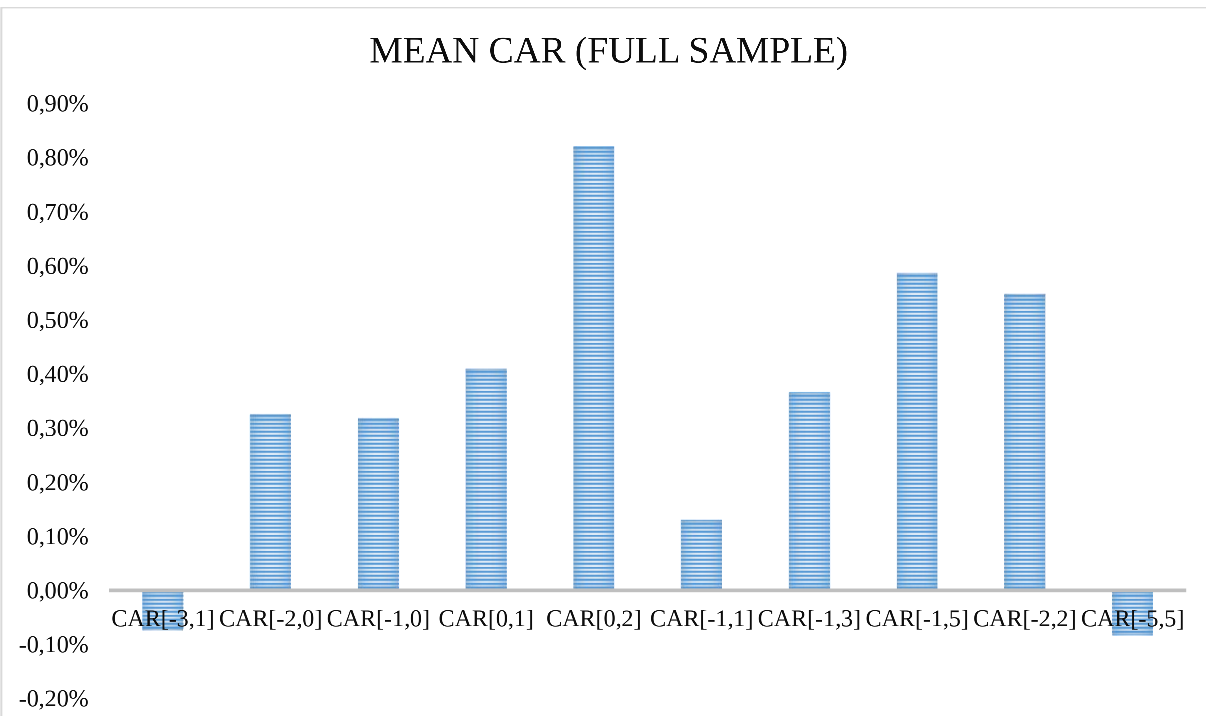

Table 4.6. Merger vs. Acquisition of Majority Assets CARs

		Merger N=23		Acquisition of Majority Assets N=57		Difference		
Event Windows	N	Mean	Median	Mean	Median	Mean	T-Test	Mann-Whitney Test / Z-Value
CAR [-1,1]	80	0.70%	0.92%	-0.10%	0.13%	0.80%	0.7220	0.9620
CAR [-2,2]	80	1.17%	1.69%	0.30%	0.46%	0.87%	0.6223	0.8030
CAR [-2,0]	80	1.90%	0.53%	-0.31%	-0.44%	2.21%	2.0485**	1.9510
CAR [-1,0]	80	0.81%	-0.15%	0.12%	0.09%	0.70%	0.8211	0.4310
CAR [0,1]	80	1.35%	1.24%	0.03%	-0.16%	1.32%	1.2789	1.4400
CAR [0,2]	80	0.73%	1.14%	0.86%	-0.21%	-0.13%	-0.0918	0.4940
CAR [-1,3]	80	-0.91%	0.10%	0.88%	1.03%	-1.79%	-1.0065	-0.7390
CAR [-1,5]	80	0.48%	0.70%	0.63%	0.32%	-0.16%	-0.0832	0.1010
CAR [-3,1]	80	1.74%	1.14%	-0.81%	-0.57%	2.55%	2.0734**	1.812*
CAR [-5,5]	80	1.21%	0.08%	-0.60%	-1.09%	1.81%	0.8086	1.0260

****, **, and * denote statistical significance at 1%, 5% and 10%, respectively*

Figure 4.3 Mean CAR Comparison (Merger vs Acquisition)

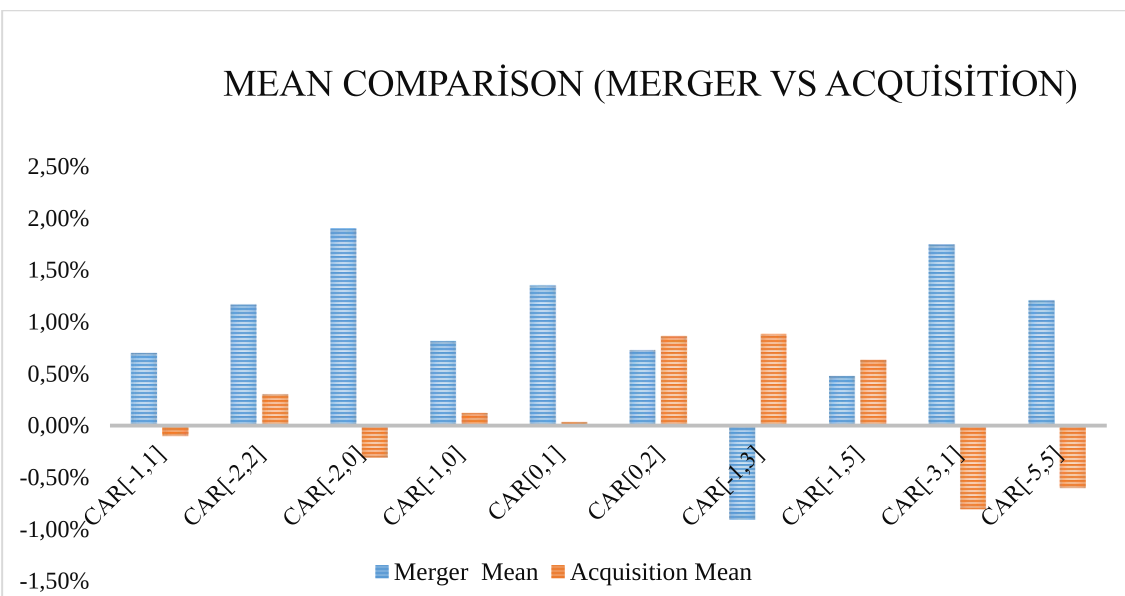

Table 4.7. Same vs. Unrelated Industry CARs

		Unrelated Industry N=50		Same Industry N=30		Difference		
Event Windows	N	Mean	Median	Mean	Median	Mean	T-Test	Mann-Whitney Test / Z-Value
CAR [-1,1]	80	0.06%	0.19%	0.25%	0.17%	-0.18%	-0.1782	-0.0050
CAR [-2,2]	80	0.61%	0.63%	0.44%	0.52%	0.17%	0.1278	0.2140
CAR [-2,0]	80	-0.17%	-0.59%	1.16%	0.35%	-1.33%	-1.2963	-1.724*
CAR [-1,0]	80	0.09%	0.07%	0.70%	0.17%	-0.61%	-0.7644	-0.5420
CAR [0,1]	80	0.34%	0.06%	0.54%	0.50%	-0.20%	-0.2063	-0.3330
CAR [0,2]	80	1.15%	-0.03%	0.28%	0.12%	0.87%	0.6546	0.5020
CAR [-1,3]	80	0.95%	0.46%	-0.60%	0.74%	1.55%	0.9331	0.1840
CAR [-1,5]	80	0.97%	0.65%	-0.04%	-0.63%	1.01%	0.5764	0.3730
CAR [-3,1]	80	-0.56%	-0.61%	0.73%	0.56%	-1.29%	-1.0995	-1.1780
CAR [-5,5]	80	0.26%	-0.48%	-0.65%	-0.62%	0.91%	0.4359	0.1540

****, **, and * denote statistical significance at 1%, 5% and 10%, respectively*

Figure 4.4 Mean CAR Comparison (Same vs Unrelated Industry)

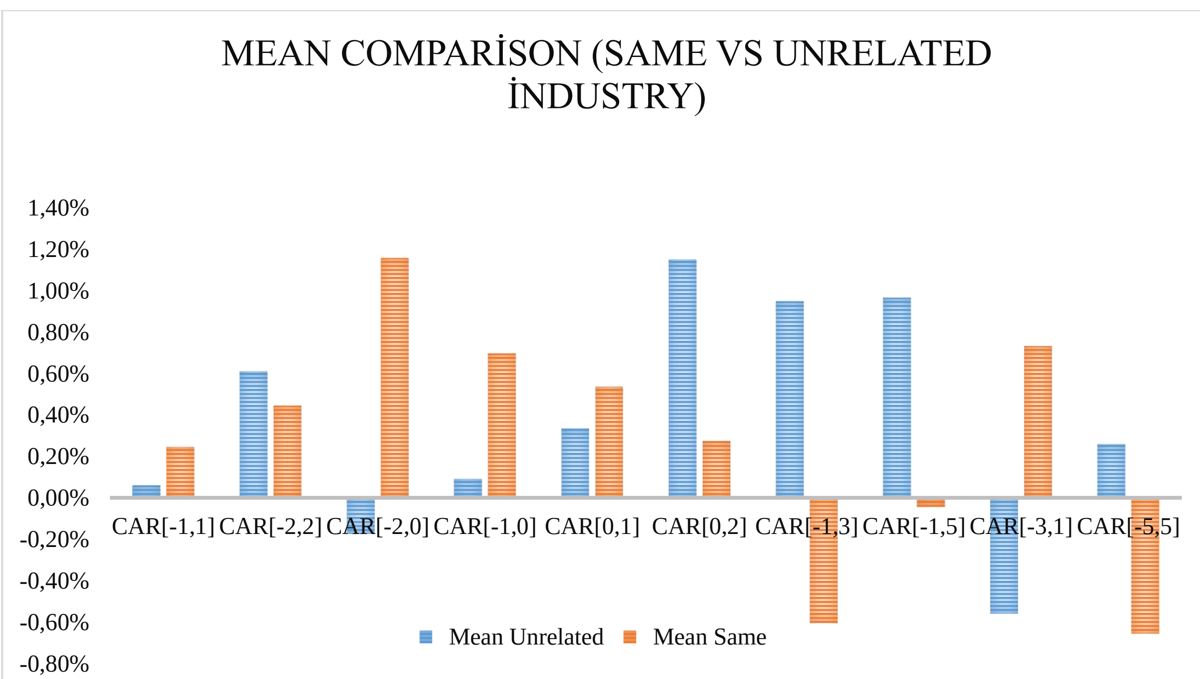

Table 4.8. Private vs. Public Target CARs

Event Windows	N	Private Target N=68		Public Target N=12		Difference		
		Mean	Median	Mean	Median	Mean	T-Test	Mann-Whitney Test / Z-Value
CAR [-1,1]	80	0.15%	-0.12%	0.00%	0.58%	0.16%	0.1102	0.2290
CAR [-2,2]	80	0.90%	1.03%	-1.44%	-0.18%	2.33%	1.3363	1.5090
CAR [-2,0]	80	0.34%	-0.26%	0.23%	-0.21%	0.11%	0.0764	0.633
CAR [-1,0]	80	0.28%	-0.08%	0.55%	0.22%	-0.27%	-0.2541	0.4850
CAR [0,1]	80	0.56%	0.32%	-0.45%	-0.32%	1.01%	0.7718	1.1860
CAR [0,2]	80	1.24%	0.53%	-1.57%	-1.08%	2.81%	1.5749	1.752*
CAR [-1,3]	80	0.54%	1.03%	-0.64%	-0.27%	1.19%	0.5258	1.0910
CAR [-1,5]	80	0.96%	0.84%	-1.50%	-1.40%	2.46%	1.0407	1.2130
CAR [-3,1]	80	0.09%	-0.43%	-1.00%	-0.26%	1.09%	0.6799	0.7680
CAR [-5,5]	80	0.54%	-0.90%	-3.63%	-2.90%	4.17%	1.4864	1.6030

****, **, and * denote statistical significance at 1%, 5% and 10%, respectively*

Figure 4.5 Mean CAR Comparison (Private vs Public)