İSTANBUL BİLGİ UNIVERSITY

INSTITUTE OF SOCIAL SCIENCES

FINANCIAL ECONOMICS MASTER'S DEGREE PROGRAM

THE IMPACT OF ACQUISITIONS ON STOCK PRICES OF TARGET COMPANIES: AN EMPIRICAL EVIDENCE FROM TURKEY

Hakan EKİM

116620003

Supervisor

Assoc. Prof. Serda Selin ÖZTÜRK

İSTANBUL

2020

ACKNOWLEDGMENTS

I would like to express my sincere gratitude to my supervisor Assoc. Prof. Serda Selin Öztürk, who shed light on the topics that I concentrated on in this research, and supportively and patiently guided me with her insightful comments and opinions all the time throughout this study process.

I am genuinely and deeply grateful to my beloved parents Halit and Gülçin, and my dearest sisters Berna and Mine, who constantly supported me all the way, and it would not be possible to complete this study without their endless love and encouragement, which carried me forward.

TABLE OF CONTENTS

LIST OF ABBREVIATIONS

CAPM **:** Capital Asset Pricing Model

CAR **:** Cumulative Abnormal Return

CEO **:** Chief Executive Officer

M&A **:** Merger and Acquisition

UK **:** The United Kingdom of Great Britain and Northern Ireland

USA **:** The United States of America

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

This study examines the long term and short term effects that the announcements made in 2012-2019 concerning the stock acquisitions of 9 target firms publicly traded on Borsa İstanbul (previously, the İstanbul Stock Exchange) operating in the banking, manufacturing, food, and beverage sectors had on the target firms' stock prices.

Firstly, the theoretical framework of the study was formed by defining the fundamental terms of M&As and explaining the various types of M&A structures along with the advantages and disadvantages of each. Within the framework of theoretical reviews, the study also elaborates on the prime factors companies take into consideration when making M&A decisions, including synergy, economies of scale, financial and tax advantages, diversification, and globalization.

Furthermore, the analysis section utilizes the event study method and employs the Capital Asset Pricing Model to test the effects the stock acquisition announcements have on the stock prices of the target companies. In addition to the sample review as a whole, a sectoral comparison is made in terms of the effects the share acquisitions of the target companies have on their stock prices, given the diversity in each company's field of activity.

Consequently, it was observed that in the long term, Finansbank's stock experienced extra negative abnormal returns after the acquisition. Accordingly, in the long run, the riskiness of the stocks of Finansbank, Garanti, Doğtaş, Hürriyet, and Ulusoy after the acquisition decreased. On the other hand, it was observed that in the short term, the stocks of Tukaş, Finansbank, and Denizbank experienced extra abnormal negative returns after the acquisition, whereas the riskiness of the stocks in Banvit, Tukaş, and Finansbank decreased after the acquisition in the short term. As for a sectoral comparison, although there are limited similarities in the findings regarding

the banking and food and beverage sectors, it may be concluded that there generally may be a decrease in the riskiness of stocks in the banking sector in the long term and in the food and beverage sector in the short term. In terms of the manufacturing sector, the findings revealed that the riskiness of the stocks of the target companies decreased in the long term.

Key Words: Merger, acquisition, stock price, target company, CAPM, event study

ÖZET

Bu çalışmada, bankacılık, imalat ve yeme-içme sektörlerinde faaliyet gösteren ve Borsa İstanbul'da (önceki ismiyle, İstanbul Menkul Kıymetler Borsası) payları işlem gören 9 adet hedef firmanın hisselerinin 2012-2019 yılları arasında devralınmalarına ilişkin duyuruların bu hedef firmaların hisse değerleri üzerinde kısa ve uzun dönemlerde yarattığı etkisi incelenmiştir.

İlk olarak, çalışmanın teorik çerçevesini çizebilmek amacıyla, şirket birleşme ve devralmalarına ilişkin temel tanımlamalar yapılmıştır ve birleşmelerin ve devralmaların yapısal yöntemleri avantaj ve dezavantajlarıyla birlikte açıklanmıştır. Şirketlerin birleşme ve devralma kararlarına temel teşkil eden sinerji, ölçek ekonomilerinden yararlanma, mali ve vergi avantajlar, çeşitlilik ve küreselleşme gibi öne çıkan sebeplerin detayları teorik açıklamalar çerçevesinde yapılmıştır.

Ayrıca, analiz kısmında olay etüdü yöntemi benimsenmiş olup, hisse devralma duyurularının çalışmaya konu hedef firmaların hisse değerlerine etkisi Finansal Varlık Fiyatlama Modeli kullanılarak test edilmiştir. Bütün olarak örneklem incelemesine ek olarak, bu çalışmaya konu hedef şirketlerin faaliyet alanlarının farklı olması sebebiyle, hisse devralmalarının hisse değerlerine etkisi açısından sektörel bir karşılaştırma yapılmıştır.

Sonuç olarak, Finansbank hissesinin devralma sonrasında uzun vadede ekstra negatif anormal getiri sağladığı tespit edilmiştir. Benzer şekilde, Finansbank, Garanti, Doğtaş, Hürriyet ve Ulusoy hisselerinin riskinin devralma sonrasında uzun vadede azalmıştır. Diğer taraftan, Tukaş, Finansbank ve Denizbank hisselerinin devralma sonrasında kısa vadede ekstra negatif anormal getiri sağladığı tespit edilmiştir. Bunun yanı sıra, Banvit, Tukaş ve Finansbank hisselerinin riski devralma sonrasında kısa vadede azalmıştır. Sektörel karşılaştırma açısından, bankacılık ve yeme-içme sektörlerine ilişkin bulgularda sınırlı bir benzerlik tespit edilmekle birlikte, genel olarak

bankacılık sektöründe uzun vadede ve yeme-içme sektöründe kısa vadede hisselerin riskinde bir azalma olabileceği sonucuna varılabilir. İmalat sektöründeki bulgular uzun vadede hedef şirketlerin hisselerinin riskinin azaldığını ortaya koymaktadır.

Anahtar Kelimeler: Birleşme, devralma, hisse değeri, hedef şirket, FVFM, olay etüdü

INTRODUCTION

Almost every country across the globe has found their national markets to lack sufficient resources for sustainable production. Accordingly, international markets have begun taking the place of national markets due to the rapid increase in globalization in today's economic conditions. Globalization's robust impact on national markets stems from the dramatic increase in international capital movements. In parallel with globalization, many types of international capital movement instruments, such as the international movement of foreign direct investments, portfolio investments, international bank loans, and financial derivative products, have significantly increased in recent years and continue to grow. Companies put considerable effort in keeping up with these hasty developments in an effort to maintain their existence and to achieve their ultimate goal — positively maximizing their market value.

Globalization leads to the development of internationally established codes of conduct in areas such as trade and finance. The most important of these rules are the new competition laws. Several reasons have led to competition becoming an issue of a global dimension, such as the establishment of free trade zones between countries, customs union and economic union agreements, new economic, social, and political environments emerging from theoretical and institutional structures, increased research and development activities, the development of technological innovations, as well as the shortening of the technology transfer processes. Increasing global competition makes it difficult for companies to survive in the market and encourages them to adapt their production and management methods in line with the new market conditions.

While companies exert great effort to continue their existence in such a competitive environment, they simultaneously attempt to develop their growth. This growth can be divided into two categories in finance: internal growth and external

growth. Internal growth can be described as growth in its internal opportunities and funds. In particular, small firms value internal growth more than large firms. High returns are expected from internal growth and internal growth is viewed as a better method in terms of company culture and practices. However, the most significant disadvantage of internal growth is that it is a slow process requiring a significant amount of time and calls for outside help (Weston and Weaver, 2002). External growth refers to business growth occurring through the purchase of all or part of another business or its assets. The importance of this growth model has increased considerably since the beginning of the 20th century with the development of new economic structures, market growth, changes in production technology, and the introduction of new production and marketing methods.

The goal when entering into an M&A deal is to have a higher value at the end of the transaction than the total market value of the individual companies prior to the M&A. M&As may also increase the company productivity by reducing average costs. Other motiving factors such as providing cost advantages, entering new product markets and geographical markets, and increasing borrowing capacity are among the rational reasons that draw the market towards participating in M&As. While economic reasons are usually at the forefront of the M&As, sometimes psychological factors such as management hubris may give rise to M&A deals.

In the second half of the 1970s, stock returns based on M&A disclosures became a common literature research topic in countries where M&As prevailed and capital markets were productive, as was the case in the USA and the UK. The literature in this area indicates that stock was usually modified above market value around the M&A announcement day, but it was established primarily in the stock returns of the target firms.

There has been a notable increase in the number of M&As in Turkey since the early 1990s. The Turkish economy has become more open to foreign direct investments and stock market development and legislative and technical developments in the equity markets after 1980 have also played an important role in increasing M&A activity in Turkey. After the 1990s, factors such as increased privatization, the strengthened relationship with the European Union, and high foreign capital participation in sectors such as financial services and manufacturing highly influenced the rise in the volume of M&A transactions. The Turkish Government plans to invest more in Turkish M&A transactions in an effort to boost economic development and sustainability in the long-term. According to the 11th Development Plan issued by the Presidency of Strategy and Budget of the Republic of Turkey for the years 2019 – 2023, M&As will be credited and a new support program that covers twinning, qualified employment, and consultancy supports will be created for company mergers. Despite these improvements and the increase in M&A activity particularly in 2005, Turkish literature remains limited regarding the effect M&As have on the stock prices of publicly traded target companies in Turkey.

Within the scope of this study, M&As, which are a form of external growth, are examined and the short and long term effects these acquisitions have on the stock prices of the target companies are analyzed. The study consists of five parts.

In the first part of this study, conceptual information about M&As as an external growth strategy is provided. This section explains that mergers and acquisitions are two concepts used interchangeably, but there are key differences in some of the basic characteristics of these transactions. This section also elaborates on the structural forms and the pros and cons of the M&As. Furthermore, this section delves into what motivates companies to enter into M&A transactions and provides supportive literature reviews for each motivation.

The second section focuses on the literature review on the CAPM model, the event study method, and the impact M&As have on the stock prices of target firms and provides several empirical studies conducted both abroad and in Turkey.

The third section covers the features of the methodology and financial model used for this study. In this regard, the event study methodology and the CAPM model are described and the formulas and steps to follow are outlined in light of brief history. The short-term and long-term event windows subject to this study are also defined under this section.

The fourth section concentrates on the details of the data used in this study. Historical data was collected from the databases of Investing.com and Wall Street Journal, and an analysis was made for 9 Turkish target companies that are publicly traded on Borsa İstanbul operating in the banking, manufacturing, and food and beverage sectors. Similar to the previous studies in the literature, the sample was defined through a series of criteria.

The fifth and final section is the research analysis section that presents the results together with tables supporting the findings.

SECTION ONE

GENERAL OVERVIEW OF M&As

1.1. KEY DEFINITIONS

"Mergers" and "acquisitions" are two widely used methods for corporate restructuring. While these methods are often used interchangeably, there are certain differences between them (Singh, 1971).

A *merger* is a combination of two or more firms in which the acquiring company (bidder) assumes the assets and liabilities of the target firm(s). While the acquiring company may be a completely different organization, it maintains its original identity and the target firms dissolve without liquidation (Scott, 2003; Sherman and Hart, 2006). Another term commonly used to refer to various forms of transactions is a *takeover*. This term is quite vague and often only refers to hostile transactions, friendly and unfriendly mergers (Gaughan, 2010).

An *acquisition* can be defined as the purchase of another company's assets (a segment or a product line) or stocks in a way that usually gives the bidder the right of control over the target company while the target company and the acquiring company continue their legal personalities separately (Danbolt, 1996). This may also include a full purchase of the target entity.

1.2. MERGERS

A merger occurs when two or more firms become one company by incorporation, both legally and practically. The merger is one method of integration, as it usually leads to full convergence of the goals, strategies, and operating systems of two organizations through combination.

Statutory mergers, subsidiary mergers, and consolidation mergers are three forms of merger integration. In a statutory merger, the acquirer buys all of the assets and liabilities of the target and the target no longer exists. Generally, this sort of integration occurs when the target company is smaller than the acquiring company. During a subsidiary merger, the target company is a subsidiary of the acquirer company. In a subsidiary merger, the target company becomes a subsidiary of the acquiring company. This integration usually happens when a renowned brand is included in the target business. The target and acquiring firms no longer exist in a consolidation merger and instead these entities form a new firm. This is generally the case when the acquirer and the target company are similar in size.

1.2.1. Structural Forms of Mergers

In terms of value chain and field of activity, mergers are classified as horizontal, vertical, and conglomerate transactions. The main features of each form are listed in Table 1.1. below.

Table 1.1. Structural Forms of Mergers

Type	Main Characteristic
Horizontal	Firms are in the same line of business, generally competitors.
Vertical	Firms are in the same line of production (*e.g.*, supplier-customer).
Conglomerate	Firms are in unrelated lines of business.

1.2.1.1. Horizontal Mergers

Horizontal mergers take place when a company merges with its competitor(s) to achieve the strategic advantages of a business with a wider scale and scope. The

merger of firms operating in the same or similar sectors in terms of activity generally increases concentration.

Some of the benefits of horizontal mergers include ensuring the effective use of resources and specialization in management, cost savings, advantages for the supply chain, cooperation in the production of equipment and technology, and competitive advantages.

Horizontal mergers may cause additional costs and drawbacks such as the integration of a diverse corporate structure and culture, competition related concerns due to narrowing the market, and reduced flexibility in a larger entity.

1.2.1.2. Vertical Mergers

Vertical integration occurs when a producer merges with suppliers or distributors who operate in the same sector. Manufacturers generally execute agreements with several raw materials or product suppliers and with a seller to market the finished products. Vertical integration is primarily aimed at reducing the risks faced by manufacturers and retailers (Roberts, Wallace and Moles, 2010). In vertical mergers, the acquirer strives to decrease transaction cost and leverage economies of scale (Chunlai and Findlay, 2003).

Vertical mergers take place in two ways: forward integration and backward integration. Forward integration involves increasing the supply chain of products in the latter levels of production in a way that allows the company to acquire its customer or distributor. If the company acquires its supplier, this is referred to as backward integration, which decreases the supply chain of products in the earlier levels of production.

A cost reduction in the manufacturing cycles resulting from integrated phases and reduced raw material prices by profiting from economies of scale are some of the main benefits of vertical mergers. On the other hand, vertical mergers may bear certain risks such as the elimination of profit generated by the target company for the acquiring company and the need to manage a new business line and business operations.

1.2.1.3.Conglomerate Mergers

Conglomerate mergers are not nearly as common as horizontal and vertical mergers. In conglomerate mergers, the acquiring companies seek to pursue opportunities in various industries unrelated to their core operations (Felton, 1971).

Conglomerate mergers can be divided into two groups: pure conglomerate mergers and concentric conglomerate mergers. Pure conglomerate mergers occur when firms acquire other firms engaged in the manufacture of functionally unrelated goods, meaning that there is no overlap in raw materials, manufacturing methods, or distribution networks (Felton, 1971). Concentric conglomerate mergers take place between companies whose products are related in terms of the products' raw material origins, product creation, manufacturing technology, or marketing networks (Spivack, 1970).

While conglomerate mergers may positively affect the acquiring company in terms of enlarging customer networks and diversifying business risk, they also pose disadvantages such as difficulties with managing and marketing products in new sectors and resource shortages of the acquiring companies.

1.3. ACQUISITIONS

Acquisition is the most well-known concept and involves one company purchasing a portion of another. An acquisition happens when an acquiring firm gains

the right to control a target company by purchasing the assets or products of the target company. “The acquiring and acquired companies remain two independent companies from a legal point of view even after the acquisition, although the acquiring company has control over the acquired company” (Jang *et al*., 2004, p. 7).

1.3.1. Types of Acquisitions

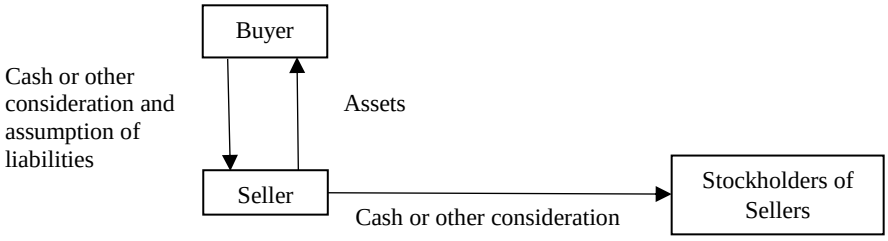
In previous studies, acquisitions have been categorized as horizontal, vertical, and conglomerate subject to the field of activity of the companies involved in the acquisitions.

In addition to this, acquisitions are also classified into two groups based on the subject matter of the acquisition: asset acquisitions and stock acquisitions. In some cases, the inevitable result of stock acquisitions may be asset acquisitions given the liability regime of stock acquisitions as explained below.

1.3.1.1.Asset Acquisitions

A buyer acquires the assets (*e.g.*, equipment, licenses, customer lists, and inventory) and liabilities of the target company in a conventional purchase, as set out in an asset purchase agreement, and the buyer and seller maintain their separate legal existence upon completion of the transaction. The process for acquiring assets can be seen in Figure 1.1. below.

Figure 1.1. The Process for Acquiring Assets



Source: Utzschneider and Blanchet (2016).

Asset acquisitions may require approval from third parties since many contracts contain anti-assignment provisions that restrict the seller's right to transfer the contracts to a purchaser. One benefit for the buyer in an asset acquisition is that buyers are usually able to determine which liabilities linked to the target's assets should be assumed, if any, rather than being expected to assume all of the liabilities as is the case in a stock purchase (Klamrzynski and Grieb, 2015).

There are several advantages and disadvantages to asset acquisitions, as set out in Table 1.2. below.

Table 1.2. The Pros and Cons of Asset Acquisitions

Pros	Cons
• Only the risks associated with the relevant asset purchased rather than all of the risks related to the target company are assumed. • The process to transfer ownership of the asset is rather simple. • Goodwill, which is the amount paid for a company exceeding the value of its tangible assets, can be amortized right away.	• The new owner may need to renegotiate and/or renovate contracts for the assets, particularly with customers and retailers. • The assignment of contract rights for the assets may be limited. • There may be a need to retitle the assets which may result in additional costs.

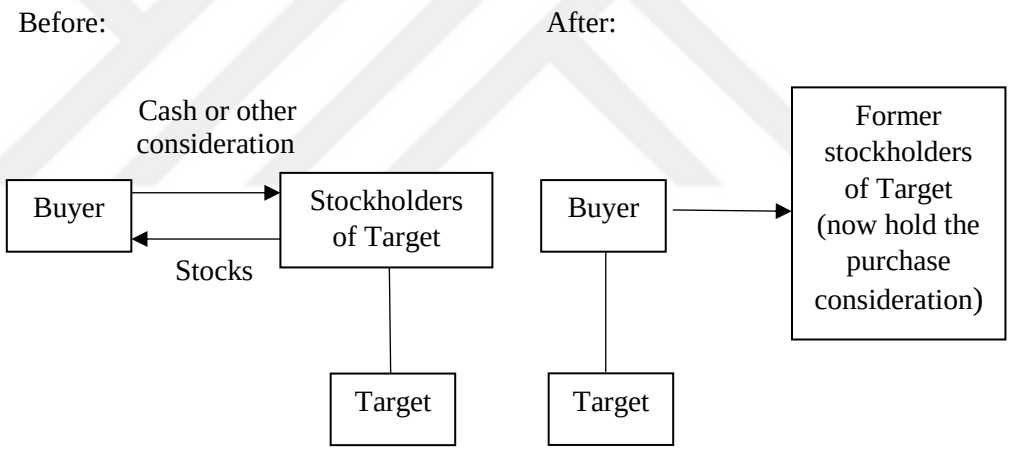
1.3.1.2. Stock Acquisitions

In a stock acquisition, the seller acquires the shares of a target company directly from the selling stockholders. The document evidencing the acquisition transaction is generally referred to as a stock purchase agreement. As a result of this acquisition, a

buyer acquires the assets and liabilities of a company partially or completely depending on the structure of the deal.

Although the target company retains its legal nature, it is a direct or indirect subsidiary of the buyer upon the consummation of the transaction. Share acquisitions are a traditional way of purchasing all or part of a company's stock or a subsidiary of a company that performs its business by one or more independent subsidiaries. The process for acquiring stocks can be seen in Figure 1.2. below.

Figure 1.2. The Process for Acquiring Stocks



Source: Utzschneider and Blanchet (2016).

In comparison with asset acquisitions, while stock acquisition transactions may require less third party consent to transfer contacts that the target companies have entered into, stock purchases may trigger change in control clauses in the target company's current contracts, meaning that it may be appropriate to seek approval from counterparties prior to closing. Furthermore, in most jurisdictions, the consummation of stock purchase transactions is subject to certain regulatory approvals from different governmental authorities having scrutiny in the regulated sectors such as banking, competition, and insurance.

As indicated in Table 1.3. below, stock acquisitions may have certain advantages and disadvantages.

Table 1.3. The Pros and Cons of Stock Acquisitions

Pros	Cons
• As the economy and business operations grow, the corporate earnings will increase. • Net operating losses of the target company from previous years can be utilized as an immediate tax gain. • The parts are, in some cases, more important than the whole. In a company, individual assets may be sold to make a profit.	• The stock acquisition process may be complex due to the applicable legislation in the relevant jurisdiction. • Certain shareholders may not agree to sell their stocks, which may drag the process out and raise the acquisition costs. • Goodwill is not tax-deductible if there is a share price premium.

1.4. MOTIVATIONS FOR M&A TRANSACTIONS

There are various legitimate reasons for companies to participate in M&A transactions, such as synergy, diversification, and tax advantages. No matter how complicated the reasons for a company to enter into M&A transactions are, the key purpose behind each transaction is to increase the company's net value and improve productivity.

For several years, the reasons to participate in M&A activities have been thoroughly debated (Piesse *et al*., 2006; Brealey *et al*., 2012). No single explanation suffices to cover all M&As and it is vital to establish certain bases to understand the rationale behind these transactions. Among these reasons, the following are the most common in both theory and in practice.

1.4.1. Synergy

Synergy is the combined value and performance of two items or factors together that is greater than the sum of the value and performance they can create separately and independently. In other words, compared to the sum of the expected free cash flows generated by two or more companies individually and independently, on the assumption that the other conditions remain the same, synergy occurs if more free cash flow is obtained as a result of the merger or acquisition of these companies.

Empirical evidence suggests that synergy is the main objective of acquisitions (Bruce and Christopher, 2000; Goergen and Renneboog, 2004). The impact of synergy can be measured with the following formula:

$$V(xy) > V(x) + V(y) \quad (1)$$

Where V(xy) is the value of the combined companies and V(x) and V(y) represent the stand-alone value of company x and y, it follows that the synergy effect is the difference between the merged companies' value and the stand-alone value of the companies:

$$S = V(xy) - (V(x) + V(y)) \quad (2)$$

Synergy consists of three main aspects for M&A transactions: operational synergy, financial synergy, and managerial synergy.

Operational synergy is based on efficiency and stems from economies of scale and economies of scope. Operational synergy can be achieved by increasing sales, decreasing costs, and using resources efficiently. Economies of scope suggest that the production of two or more goods in the same place is an incentive for companies to enter M&A transaction and promotes the creation and delivery of new products and

services through product growth, automated manufacturing processes, and distribution networks (Yılmaz, 2010).

It is believed that financial synergy is derived from reducing capital costs and M&As can help reduce capital costs in several ways. Firstly, companies that greatly expand their size after an M&A would have more cash in place and thus have a greater potential for leverage (Lewellen, 1971). Furthermore, the company reduces the unsystematic risk by diversifying its operations. Lastly, establishing an internal capital market can reduce the cost of capital and may be more effective at allocating resources.

The idea of managerial synergy is based on the assumption that different firms have different levels of productivity, considering their management capacity. If the management of one firm performs below the capacity of another firm, a more effective management team can purchase that firm and replace the incompetent management. Jarrell *et al*. (1988), and Martin and McConnell (1991) sorted out that abnormal stock returns were achieved following an acquisition where the management was replaced.

1.4.2. Economies of Scale

Economies of scale refer to rising costs due to the vast number of units produced and it exists when there are operational efficiencies that make the firm more competitive, thus bringing down the expense of each unit. Given that operations require specific fixed costs, the cost factor per unit eliminates these costs when a firm produces more units. Economies of size enable companies to cut costs by expanding the scale of their production volume.

There are limitations for any production facility and these limitations can be eliminated through M&As. The same applies to fixed costs, which can be minimized even further in the event of an M&A (DePamphilis, 2019). M&As can produce economies of less bureaucracy and the expense of running larger units

can outweigh more than the productivity gained from economies of scale (Williamson , 1988). Horizontal mergers boost the size of the business, resulting in lower operating costs. If the overall costs decline as the firm's size rises, cost savings are greater for smaller companies than for bigger firms. Horizontal mergers may also result in cost savings by reorganizing production or by removing duplications through merging separate manufacturing and distribution networks (Pesendorfer, 1998). As for vertical mergers, the removal of manufacturing steps results in cost cuts. Vertical mergers may result in a higher output, shorter lead times, improved quality control, decreased inventory costs, and streamlined production runs (Riordan and Salop, 1995).

1.4.3. Market Power

Market power is a company's ability to increase the selling price of a product or service under reasonable and competitive terms. Companies can generate sustainable value when they can gain market power through M&As. For example, horizontal M&As may reduce the strength of competition in an industry, thereby increasing the acquirers' overall profitability (Porter, 2008). Vertical M&As can also create market power through the acquisition of distribution channels, service centers, or a supplier producing raw materials in the value chain. In this respect, the acquirer may exclude certain rival firms using the same raw materials, channels, or services from the market. As such, vertical M&As enable companies to improve their control over value chain activities and build economic value, strengthening their market power.

1.4.4. Rapid Growth

M&A deals are primarily driven by a desire for growth. There are two growth paths, known as organic growth (internal growth) and external growth (M&A). Organic growth is achieved by rising production and domestically improving revenue. Given that organic growth is a costly and risky investment, organic growth may slow down the production pace. If organic growth does not materialize or other organic growth

opportunities do not exist, then M&A transactions prove to be the only way to generate growth (Steger and Kummer, 2007). Besides, M&As may offer a unique opportunity in some industries where there are heavy entry requirements that may cause negative effects for new investments (Yılmaz, 2010).

1.4.5. Diversification

The studies on diversification in literature (Graham *et al*., 2002; Campa and Kedia, 2002) have repeatedly challenged the efficiency of diversification in M&A transactions.

The core principle of diversification is based on the modern portfolio theory proposed by Harry Markowitz (1952). This theory supports the idea that one motive for participating in an M&A is diversification (Motis, 2007). It is difficult to obtain a perfect investment that produces high returns with low losses, but the theory advocates that a perfect investment can be accomplished by constructing an ideal portfolio with many uncorrelated instruments. Such a portfolio may reduce the risk of diversification and build an optimized investment plan.

On the other hand, some studies in the literature found that diversification causes an undesirable effect on the value and characteristics of companies in M&As. Brock *et al*. (2006) stated that the diversifying companies must continuously tackle the inefficiencies of reaching distant territories, new legal structures, and foreign cultures in cross-border M&As. Furthermore, Lang and Stulz (1994), and Berger and Ofek (1995) tested the impact of diversification and found a certain percentage of loss in the value of companies that were diversified through an M&A transaction.

1.4.6. Hubris Hypothesis

Hubris is the trait of over-confidence or over-optimism, which causes a person to feel that he or she can do no wrong. Managerial hubris is the belief of arrogant managers in acquiring firms that believe they can handle a target firm's assets more effectively than the existing management of the target firm. The hubris hypothesis was first proposed by Richard Roll (1986) to expound the effect of management's overconfidence in an M&A transaction and Roll noted that the decision-makers of the acquirers pay too much for their targets on average. Malmendier and Tate (2008) claimed that overconfident CEOs resulted in overpayment and decreased efficiency in the M&A deals. Aktas *et al*. (2005) concluded that logical CEOs are more aggressive in the M&A process from deal to deal and they concede to the target shareholders through fractions of expected synergies to contribute to the success of the M&A deal. This learning process will allow CEOs infected with hubris to gradually correct overconfidence if they survive at the end.

1.4.7. Financial Reasons

Acquiring companies may have excessive free-cash-flow from their business activities, and therefore, may be more eager to invest in the target firms with this cash savings to boost their capacity of production and services as well as to generate operational and financial synergy. The companies may also be willing to enter into an M&A process since most M&A transactions result in a decrease in the cost of capital given that the debt capacity of the companies increases and it would be easier for these companies, especially small and medium-sized enterprises, to have access to appropriate and affordable finance.

1.4.8. Tax Advantages

Tax gains can be encouraging and favorable in some acquisitions. If the acquiring company is in the position to pay corporate tax, the losses of the target company may be subject to a deduction in the calculation of the corporate tax base that occurred in the post-merger period depending on certain conditions. Since there may be an increase in the borrowing ability of the companies involved in the M&A at the end of this process, the tax savings applicable to those companies may increase depending on the volume of the financing costs.

There is a strong relationship between tax benefits and abnormal returns obtained after the M&A. Hayn (1989) presented proof that the target firms' tax attributes are important in explaining the abnormal returns obtained by target shareholders as well as acquiring firms after acquisition announcements.

1.4.9. Unlocking Hidden Value

The acquisition of firms with the motivation of unlocking hidden value may reduce the operational and financial costs of these firms and such acquisitions are mostly made in areas where the acquiring company believes it will spend most of its funds and resources to develop products or services that the target company develops and where the target company is underperforming. When a company is struggling for a long time due to its operational, managerial, or financial conditions, a buyer may think that this company can be acquired at a lower purchase price and that improving management, providing resources, or improving the organizational structure can eliminate the reasons underlying the poor and inefficient performance of the targets.

1.4.10. Globalization

Economically speaking, globalization is expressed primarily in the rising importance of information, the rise in the number of cross-border M&As, the concentration of foreign direct investments, the increasing importance of multinational companies, and the diminishing independence of smaller countries and the growing dependence of economies on foreign trade (Sedlacek and Valouch, 2015).

One of the most influential aspects of globalization is the development of new investment opportunities for large multinational companies in developing countries due to massive privatization, deregulation initiatives, increased local demand (Norbäck and Persson, 2008), a cheap labor force, and vast production and distribution capability. Martynova and Renneboog (2005) noted that the increasing globalization of goods, services, and capital markets in the 1990s resulted in a large proportion of cross-border M&As.

1.4.11. Intellectual Property and Know-How

The parties in an M&A transaction may possess different technical abilities, corporate culture, intellectual property (copyrights, trademarks, patents etc.), and know-how. Particularly, manufacturing, banks, and fintech companies have well-known and intellectual technology properties, which are protected by certain pieces of legislation relating to intellectual property in different jurisdictions. M&As can integrate these attributes under the corporate structure of the acquiring company or foster the development of these attributes in the target company. The intellectual property rights obtained through an M&A transaction may ultimately help the acquiring company achieve a strong market position, or in an extreme scenario, may dominate the market.

SECTION TWO

LITERATURE REVIEW

There is a wide range of literature assessing how the pre- and post-announcement period affects the stock prices of target companies and that measures the success of the M&As accordingly.

The subject matter of the majority of M&A studies focuses on evaluating whether the stock prices of companies entering into the M&A transaction create or lose value and whether shareholders of both the acquiring and target companies are making a profit out of the transaction. In these studies, abnormal returns received by the M&A parties are observed and whether these abnormal returns are achieved through M&As is tested.

2.1. THE CAPM MODEL

The CAPM model tests the relationship between the risk and expected return of an investment. The CAPM methodology is commonly used in applications such as calculating the cost of capital for businesses and assessing the efficiency of investments under management, such as M&A transactions.

The CAPM model builds on the concept of portfolio preference established by Markowitz (1952). Under this model, an investor selects a portfolio at time t – 1 and a stochastic return at time t is created by the portfolio. The fundamental assumptions of this model are as follows:

- Investors are risk-averse.
- Investors only worry about the mean and variation of their one-period returns on investment when deciding between portfolios.

Sharpe (1964) and Lintner (1965) introduce two main assumptions to the Markowitz model to determine a portfolio that must be efficient in mean-variance. “First, we assume a common pure rate of interest, with all investors able to borrow or lend funds on equal terms. Second, we assume homogeneity of investor expectations: investors are assumed to agree on the prospects of various investments – the expected values, standard deviations and correlation coefficients (previous) described” (Sharpe, 1964, pp. 433–434).

Other important assumptions in the CAPM model are as follows:

- All markets are perfectly competitive.
- All markets are frictionless.
- There are perfect market conditions.

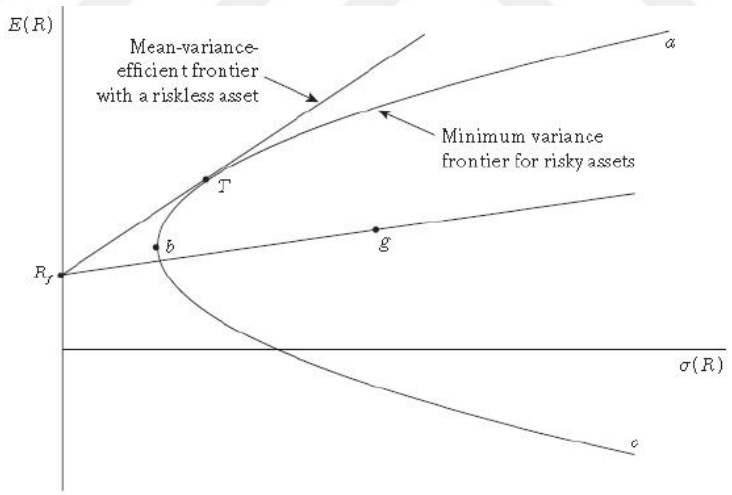
Miller and Scholes (1972), Black (1972), and Fama and MacBeth (1973) showed a strong relationship between the effects of the beta and asset return. Nonetheless, the returns on higher beta stocks are systematically lower than expected by the CAPM, whereas those on lower beta stocks are systematically higher.

The analysis conducted by Pettengill, Sundaram and Mathur (1995) focused on the return-to-beta relationship predicted by the Sharpe-Lintner-Black model, which uses expected return rather than actual return. It is presumed that there is always a positive relationship between predicted return and beta, but if the test conducted return an excess return on the market, it is a conditional relationship. The findings show that the beta calculations portray the continuous systemic risk for both time and sub-period. In addition to this, the positive trade-off between beta and the return relationship is consistent with the later theory. They concluded that beta would continue to be used as a test of market risk.

Elsas, El-Shaer and Theissen (2003) found a positive and statistically significant relationship between beta and return by analyzing a sample from the German market during the period from 1960 to 1995. They also concluded that the empirical findings justify portfolio managers using betas derived from historical return data.

Fama and French (2004) presented portfolio prospects and pictured the CAPM model (Figure 2.1.). "In short, portfolios that combine risk-free lending or borrowing with some risky portfolio *g* plot along a straight line from *Rf* through *g*" (Fama and French, 2004, p. 27).

Figure 2.1. The CAPM Model



Source: Fama and French (2004).

Campa and Hernando (2004) analyzed the value created by the announcement of 262 M&A transactions involving companies from the European Union during the period from 1998 to 2000 and used the CAPM model relative to the domestic stock market of each company to determine the expected shareholder return.

Papadatos (2011) investigated the wealth impact on Greek acquiring companies of M&A announcements and used the CAPM model to determine the derivation of beta estimates.

Liang (2013) explored the effect of M&A announcements made by companies listed on the Hong Kong Stock Exchange, acquiring Hong Kong domestic firms and cross-border firms in Hong Kong during the period from 2007 – 2012 by using the CAPM model to test whether or not the firms would generate an abnormal return.

2.2. THE EVENT STUDY METHOD

It is a commonly believed that people tend to overreact to knowledge. Since knowledge delivery is a usual occurrence, deciding which strategy to use when relaying new knowledge is of significant importance.

Academic research methods that calculate the output of M&As are divided into four groups. The first category is classified as an analysis of the case. Event research analyzes the effect the M&A has on the share price of the deal announcement as per the pre-announcement date and post-announcement date. The second method analyzes the performance of the M&A through financial statements that observe the long-term effects of the deal. The third approach uses one case or small samples to examine the impact of announcing the deal in detail. The final approach is to analyze the results of M&A deals through employing a questionnaire and one-on-one interviews with directors of companies involved in the M&A (Bruner, 2002). For this study, we will focus on the event study method and the historical academic studies of the same.

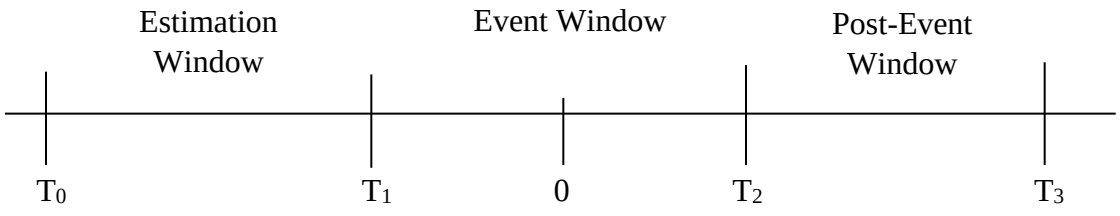
In 1933, Dolley carried out the first study using the event study method to examine the effects of stock divisions on price. From this date, the event study method was developed and has been continuously used in many studies (Myers and Bakay, 1948; Ashley, 1962; Ball and Brown, 1968; Fama *et al*., 1969).

The analysis of events essentially tests the impact a particular event has on a given dependent variable. Conversely, stock price activity caused by an incident is investigated by analyzing the incident and the event study focuses on the impacts of the incident. For instance, an event analysis aims to determine the valuation impact of a company's event such as an acquisition or merger announcement by examining a stock price reaction that occurred around the time of the event.

For a capital markets analysis, event studies often play a significant role as a method use to assess market effectiveness. Non-zero abnormal returns cannot exist consistently in the absence of market performance. Brown and Warner (1980) argue that event studies based around an event can therefore provide the main statement about market efficiency. Fama (1991) used the market effectiveness hypothesis as a clear statement that protection prices completely represent all of the information available and concluded that event tests, particularly event tests on daily returns, offer the clearest proof of market-efficiency. Fama (1991) also stated that the way one abstracts from planned returns to calculate irregular and regular returns is a secondary factor because an information event can be precisely dated and the event has a great impact on prices.

An event study timetable can be described as below:

Figure 2.2. The Event Study Timetable



2.3. THE IMPACT OF M&AS ON STOCK PRICES

In an M&A-related analysis, researchers generally investigate whether there is an abnormal return on the stock price by using the event study method before and after the date of the announcement.

There is ample literature on the event study method with regard to the impact of M&As on the stock returns of acquirer and target companies, both abroad and in Turkey. In general, the findings show that target firms experience an increase in stock prices, while acquiring firms do not experience a significant change.

Jensen and Ruback (1983) concluded that corporate takeovers produce beneficial gains, benefit firms' target shareholders, and do not lose bidding firm shareholders. It does not appear that the benefits generated by corporate takeovers come from market power formation. Nonetheless, if the merger or acquisition is not successful, returns are always positive when the first announcement of a merger or acquisition is made; however, this advantage vanishes when it turns out the merger or acquisition is not on the right track.

Swenson (1993) looked at M&As in the USA between the years 1968 and 1990, and the final sample only included acquisitions taking place between 1974 and 1990. Swenson concluded that target firms received abnormal returns around the date of the announcement.

Bessler and Murtagh (2002) investigated the stock market reactions to the announcements of M&A transactions conducted by Canadian banks during the period 1998 and 2001 and found that there was a positive abnormal return for these banks in the short run (3 and 5 days before the announcement).

The research, which was based on the wealth impact of M&A deals in the USA and the UK, showed that target companies earned statistically significant returns (Sudarsanam and Mahate, 2003).

Campa and Hernando (2004) found that there were positive and significant cumulative abnormal returns from approximately 4% over the period [t - 1, t + 1] to about 9% over the period [t - 30, t + 30] for target companies, and on the contrary, the mean cumulative abnormal return for their shareholders of acquiring companies did not vary substantially from zero. Furthermore, they concluded that in nearly 55% of transactions, returns to acquiring firms were negative.

Chari, Quimet, and Tesar (2004) studied M&A transactions in 9 Latin American and East Asian countries (Argentina, Brazil, Chile, Indonesia, Malaysia, Mexico, Philippines, South Korea, and Thailand) for the period from 1988-2002 and concluded that returns from announcements for acquirers and target companies measured the benefit distribution and displayed a statistically significant increase of 2.4% and 6.9%, respectively.

Shaheen (2006) analyzed the impact of the announcements of M&As between 1997 and 2006 in the USA concerning stock prices by using a T-test. Shaheen took 5 days before and after the announcement of the transaction as a basis, and the study showed that the target firms experienced significant positive abnormal returns while the acquiring companies experienced negative abnormal returns.

The goal of the research conducted by Herdan and Mateus (2007) was to examine the effects of the M&A processes for both the acquirer and the target entity for a group of UK banks from 2000-2005. Using a 20-day event test before and after the date of the M&A announcement, they found that the target banks had an average abnormal return that was five times higher than the acquiring firms.

Kiymaz and Baker (2008) investigated the short-term market reaction related to the disclosure of major domestic M&As involving USA public corporations with public targets from 1989 to 2003 and concluded that the acquirers had a substantial negative return while the owner of the target firms had substantially positive abnormal returns both before and after the announcement day.

The study conducted by Ma, Pagán, and Chu (2009) focused on 1.477 M&A deals in the Asian markets and investigated abnormal returns for the shareholders of bidder firms in 10 emerging Asian markets around the day the M&A announcement was made. These markets include China, India, Hong Kong, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, and Thailand. In their research, stock markets predicted positive cumulative abnormal returns in three separate event windows: a two-day window [0, 1], a three-day window [t - 1, t + 1]; and a five-day window [t - 2, t + 2], and they concluded that the valuation impact of leaking information about M&A transactions was statistically significant.

Mallikarjunappa and Nayak (2013) analyzed the effect of acquisition announcements on the performance of the target companies' stock prices by taking a sample of 227 Indian companies that received acquisition bids from 1998 to 2007. The stock price reaction was analyzed for 61 days following the acquisition announcement using the standard market model. They concluded that, in response to the announcements of takeovers, the target company shareholders had a cumulative average abnormal return of about 27%-37%, which was a strong and substantially positive wealth impact thereon, and provided investors the ability to make money both before and after the takeover bid was announced.

Dilshad (2013) tested the efficiency of the market based on M&A announcements using the event study methodology, particularly focusing on the effects bank mergers have on stock prices in Europe. In the study, 18 M&A transactions

carried out from 2001 to 2010 were examined to determine the returns for the target and acquiring company stakeholders. According to the results, cumulative abnormal returns for the acquiring company stakeholders were observed in the short term. Based on the increase in stock prices a few days before the M&A announcements were made, information regarding the respective M&A may have leaked before the announcement date. In the study, excess returns were observed in the days following the announcement day and it was concluded that the target banks gained abnormal returns on the announcement day. The acquiring company stakeholders obtained positive returns for just two weeks following the announcement day.

Shah and Arora (2014) analyzed a selection of 37 M&A announcements in the Asia-Pacific region over the period of May 2013 – September 2013 to assess the post-facto impact of M&A announcements on the stock prices of target and acquiring firms during the event periods of [t – 2, t + 2], [t – 5, t + 5], [t – 7, t + 7], and [t – 10, t + 10]. As a result, it showed that the acquiring firms did not generate abnormal returns, while the post-announcement returns of target firms were greater than their pre-announcement returns by a mean difference of 6.9%.

Using the event analysis approach, Arık and Kutan (2015) studied the response of stock returns of target firms from 1.648 M&As in twenty emerging markets (*i.e.*, Brazil, Chile, China, Colombia, Czechia, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey) between 1997 and 2013, and found that M&A announcements produced an average abnormal return of 5.17% for the stocks of target companies within a symmetrical event period of three days, while M&As had lower abnormal returns in highly regulated sectors and when the acquirers were private equity firms.

Atm and Hossain (2016) assessed 50 acquirer and 50 target firms from the USA market and concluded that the pre-announcement time price run-up for both target and

acquirer companies, which indicated that either information had been leaked or there was good news anticipation. On the other hand, the price for the acquirer companies had been downgraded during the post-announcement period.

Kyriazopoulos (2016) investigated the effects resulting from the announcement of 69 M&A deals in Eastern Europe that took place between 1995 and 2015. The study showed that target firms obtained major abnormal returns during the time of events, while acquirers seemed to earn insignificant excess returns.

The study done by Giannopoulos, Khansalar and Neel (2017) explored the effect of acquisition announcements during the period from 2002-2006 on the wealth of shareholders of UK acquirers. Findings indicated that during the announcement period, the shareholders of the acquirer obtained significant abnormal returns.

Dranev, Frolova, and Ochirova (2019) looked at M&A transactions in the fintech sector in developed (USA, Canada, and Europe) and emerging markets (China, and India) from 2010-2018 using the event study method and explored significant positive average abnormal returns after the acquisition of fintech firms on a short-term and negative average long-term abnormal return.

Norbäck and Persson (2019) focused on acquisitions made by multinational enterprises in emerging markets and concluded that the owners of the target firm shall benefit from the acquisition and both the acquirer and the non-acquirers' share-values will increase when an acquisition is announced if the domestic assets are not too strategically relevant or if competitive bidding is not too restrictive.

The research of Kaczmarczyk (2019) concentrated on M&A deals made by seven companies listed on the Warsaw Stock Exchange and its purpose was to check whether the largest acquisitions had an impact on the valuation of stocks. Kaczmarczyk concluded that successful completion of the acquisition caused changes in stock price

behavior in general, stock price decreases and increases were experienced as a result of acquisitions, and M&As had a rather positive impact in the banking sector.

As for academic studies done on the effects of M&As on the stock returns of acquirer and target companies in Turkey, Mandacı (2004) tested whether companies whose stocks are traded on the İstanbul Stock Exchange provided abnormal returns to their shareholders within 10 days before or after the M&As completed between 1998 and 2003 were made public. For the twelve mergers that took place in Turkey between these years, it was determined that the shareholders of the target companies achieved a cumulative abnormal return rate of 7.21%. The study concluded that there were insiders in the market considering that the stocks examined provided abnormal returns to their owners, especially before M&A announcements, and this clearly emphasized that the İstanbul Stock Exchange was not a semi-strong market.

Çukur and Eryiğit (2006) measured the abnormal returns in the stocks of companies operating in the banking sector by examining the effects M&A announcements made in this sector had on stock returns and stated that while disclosing merger intent to the public brought meaningful and positive returns, realization of the merger yielded positive but meaningless results.

Yörük and Ban (2006) tested whether eight Turkish companies operating in the food and beverage sector who were listed on the İstanbul Stock Exchange, which were merged or acquired between 1997 and 2004, could obtain excessive returns according to the index with the help of stock closing prices and index closing prices. They concluded that it would not be possible to achieve excessive returns in the food and beverage sector within 116 days before and after the announcement date; however, very small amounts of return could be achieved within 5 days before and after the announcement date.

İçke (2006) examined the 29 M&A transactions conducted by financial service sector firms in 1998-2005 using the event study method and concluded that mergers created abnormal returns on stock returns.

Elmas (2007) focused on 19 M&A transactions made by companies listed on the İstanbul Stock Exchange that were involved in deals between 2004 and 2006, and concluded that the stock prices of the target companies in the mergers were significantly affected. The study also showed that in some mergers, the stock prices of acquiring companies remained unresponsive to the event, while in others, there was a slight reaction. It was determined that reactions to the mergers were seen in both the target companies and acquiring companies within a few days following the event.

Çıtak and Yıldız (2007) analyzed the effect the acquisitions of 40 Turkish companies traded on the İstanbul Stock Exchange, realized between 1997 and 2005, had on their stock prices in 1 month, 3 months, 6 months, 1 year, and 2 year intervals before and after the transaction was announced with the help of T-test, and concluded that the return rates of stocks up to one month were significant and were insignificant in other periods. This showed that investors' interest in buying was short-term.

In the study conducted by Kaderli and Demir (2009), firms that announced to the public in 2008 that they had made an investment decision were studied to determine whether these investment decision announcements affected the stocks of the related firms and the firms were categorized by sector. For each determined sector, abnormal returns and cumulative abnormal returns were calculated using the daily returns within 5 days before and after the announcement date (event date) of the companies. They concluded that excess returns can be achieved in the short term if the announcements are made by firms listed on the İstanbul Stock Exchange, especially those operating in the chemical, petroleum, rubber, and plastic products sector and the metalware machinery and equipment manufacturing sectors.

Yılmaz (2010) studied the impact 51 M&A transactions realized during 2002 and 2008 in Turkey, where at least one of the parties to the transaction was traded on the İstanbul Stock Exchange, had on the stock return and noted the statistically important positive excess returns of the target stocks in general. On the other hand, the excess return could not be achieved in the shares of the acquiring party. The T-test was used to investigate whether the results were significant.

Hekimoğlu and Tanyeri (2011) studied the public announcements made for 142 M&A deals that took place in Turkey between 1991 and 2009 and assessed the announcements' impact on the partial sale of the target company's stock prices, which revealed that the target company shareholders achieved a cumulative abnormal return of 8.56% in mergers and 2.25% in partial sales during the three-day timeframe, centered on the day of public announcement. Findings showed that buyer companies paid a higher price in M&As where they took over the target company management compared to partial sales. This study claimed that the reason for having lower stock returns in Turkey than in those in the USA and Europe were due to difficulties in determining the date of the announcement and the information leaked about the M&A, as well as the differences in the regulatory and competitive environment in Turkey.

Genç (2012), and Genç and Coşkun (2013) studied M&A transactions that took place in 2001 and 2011 in Turkey that involved at least one party traded on the İstanbul Stock Exchange. The studies concluded that the beneficial party in the M&A process was the shareholders of the target company. In other words, the stock price of the acquired company increased more than the stock price of the acquiring company.

The purpose of the study made by İlarslan and Aşıkoğlu (2012) was to investigate whether mergers and acquisitions will trigger any changes in the financial performance of firms. In this respect, this study examined M&A deals made by 17 manufacturing companies listed on the İstanbul Stock Exchange during the years 2004

and 2005 and observed an improvement in the return on equity parameter, which was an indication of financial success following the M&A process.

The study of Çakır and Gülcan (2012) covered companies that were traded on the İstanbul Stock Exchange during 2005 and 2009 that operated outside the financial sector and were subject to M&A transaction. The findings obtained in this study suggested that companies subject to the merger had CAR values different from 0 in the event intervals, and in the merger activities examined within the range of [t – 5, t + 5] and [t – 20, t + 20], there was a rapid increase in CAR values before the merger. The study concluded that abnormal returns can be obtained by making public M&A announcements in the market and the rapid increase observed in the CAR values before the incident can be interpreted as a situation related to the trade of insiders who facilitate benefiting from the abnormal returns of the merger.

Çevikçelik (2012) focused on companies other than those in the financial sector that were subject to M&A activities from 2005 to 2011 that were traded on the İstanbul Stock Exchange. The purpose of this study was to examine how the stock prices of the companies subject to the study acted against the M&A by using the event study method. The findings showed that correlations usually had short-term effects on the share prices and that market efficiency knowledge was gathered.

Eyceyurt and Serçemeli (2013) concentrated on companies traded on the İstanbul Stock Exchange during the years 2008 and 2009 that were subject to an M&A transaction and examined the effect the acquisition had on the stock prices using the T-test method. In the study, the day on which the M&As took place was accepted as 0 and the researchers took 5, 10, 20, 30, and 180 days before and after the event day as a sample. As a result of the study, it was stated that M&A transactions did not yield an extraordinary return according to the index in the 180 days, but that it was possible to obtain a little excessive return in the short term between 5 and 30 days.

Selçuk (2015) assessed the effects M&A announcements had on the stock price performance of certain Turkish target companies using a dataset of 67 deals reported between 2000 and 2014. Using standard methodology for event analysis, stock price reaction around the announcement date was examined for 21 days, and it was concluded that much of the M&A gains only accrued for target firms and acquirers paid a premium to monitor the rights to those targets.

The study made by Reis (2015) explored the reaction and the determinants of the reaction the stock market had in response to the acquisition announcements made by acquiring companies in Turkey between the years 1994 and 2003 using the event analysis technique to calculate abnormal returns during the announcement time. The study concluded that Turkish acquirers receive a substantial positive cumulative abnormal return of 2.27% over the 11-days announcement period, and the revenues of acquirers were higher in mergers compared with acquisitions, even in the same acquisitions relative to unrelated acquisitions.

Gönüllü (2017) investigated the effect of M&As on stock performance to determine whether the mergers of the merging companies provide abnormal returns. In the research, it was stated that the cumulative average abnormal return of the 7 days before and after the announcement date for the purchased companies changed at a level of 5% significance. As such, the M&A announcement had a significant effect on the shares of the target company while the acquiring companies were not affected as much and the cumulative average abnormal return was no different at the 5% significance level. Gönüllü also commented that the M&A-related information to be made public may have leaked before the announcement date given that the returns started to deviate days before the announcement date.

Gönüllü (2018) covered 163 M&A deals in which at least one of the merging companies was traded on Borsa İstanbul from 2005 to 2015. The models that explained

the accumulated abnormal returns generated by the public announcement of the merger and the features of the merger and the company-specific variables were estimated. Based on the results of the analysis, it was indicated that variables such as Tobin's Q ratio, industry, the form of transaction, return on equity, debt ratio, and cash flows influence the accumulated abnormal returns of companies.

In the research conducted by Öztürk and Yeşilyurt (2019), 14 different M&A activities from 12 firms among the companies listed on Borsa İstanbul that performed M&A activities between 2013 and 2015 were analyzed. The analysis indicated that against expectations, M&A activities did not always increase the profitability of the companies. In the sample used in the study done by Öztürk and Yeşilyurt, a relative increase in profitability and growth rates was achieved in the transportation and manufacturing sectors.

Karcıoğlu *et al*. (2019) aimed to investigate the short-term impact of 48 M&A transactions conducted by companies listed on Borsa İstanbul and analyzed the M&A transactions of such companies in the first four industries (information technologies, energy, finance, and manufacturing), where the majority of M&As occurred between 2013 and 2016, by applying the T-test method. The study revealed that M&As did not have an impact on excessive returns.

SECTION THREE

DATA

Considering that acquisition deals are more preferred in Turkey, this study analyzes 9 stock acquisition transactions in the banking, manufacturing, and food and beverage sectors that took place in Turkey between 2012-2019. Table 3.1. shows the sample details including the names of the target companies, the acquisition announcement dates, data periods, acquisition ratios, and sectors.

Table 3.1. Sample Details

Tradename of the Target Company	Stock Acquisition Announcement Date on the Public Disclosure Platform	Data periods in this Study	Ratio of Shares Acquired in the Transaction	Sector
Banvit Bandırma Vitaminli Yem Sanayi A.Ş. (BANVT)	10 January 2017	10 January 2016-10 January 2018	79.48%	Food and Beverage
Ülker Bisküvi Sanayi A.Ş. (ULKER)	29 January 2017	29 January 2016-29 January 2018	30%	Food and Beverage
Tukaş Gıda Sanayi ve Ticaret A.Ş. (TUKAS)	4 April 2018	4 April 2017-4 April 2019	11%	Food and Beverage
QNB Finansbank A.Ş. (FIN) (previously, Finansbank A.Ş.)	22 December 2015	22 December 2014-22 December 2016	99.81%	Banking
Türkiye Garanti Bankası A.Ş. (GARAN)	21 February 2017	22 February 2016-21 February 2018	9.95%	Banking
Denizbank A.Ş. (DENIZ)	22 May 2018	22 May 2017-22 May 2019	99.85%	Banking
Doğtaş Kelebek Mobilya Sanayi ve Ticaret A.Ş. (DGKLB) (previously, Kelebek Mobilya Sanayi ve Ticaret A.Ş.)	10 August 2012	10 August 2011-10 August 2013	67%	Manufacturing
Hürriyet Gazetecilik ve Matbaacılık A.Ş. (HURGZ)	22 March 2018	22 March 2017-22 March 2019	79.18%	Manufacturing
Ulusoy Elektrik İmalat Taahhüt ve Ticaret A.Ş. (ULUSE)	1 February 2019	1 February 2018-31 January 2020	82.275%	Manufacturing

These sectors were selected for this study since, according to the annual M&A reports issued by the Turkish Competition Authority and several independent auditing firms such as Ernst & Young and Deloitte, these sectors are highly popular and rising in Turkey and the companies operating in these sectors, among others, have been targeted in stock acquisition transactions in recent years. The reason acquisition activities are mostly carried out in these sectors may be due to the belief that these companies have the potential to show sustainable return performance in the future.

It is widely known that there was a decline in the number of deals in Turkey in 2009 due to the economic recession that took place after the 2008 global crisis. Deal amounts gradually accelerated in the following years and peaked in 2011. Given these circumstances, this study focuses on the period after 2011 to eliminate the economic recession effects on the market to the extent possible. All the calculations were made on Microsoft Excel and Eviews.

The data gathered from the Investing.com and Wall Street Journal databases based on the following requirements:

- The target firms were publicly traded companies listed on Borsa İstanbul when the acquisition announcement was made to the public.
- The closing stock price information of the target firms was gathered from Investing.com.
- The transaction is listed as complete with an announcement date within the sample period.
- The transaction form is defined as an “acquisition of majority or partial interest” of the target companies by Turkish or foreign companies.
- Estimation windows are 1 year before and after the announcement date and 5 business days after the announcement date.

The BIST 100 index, which consists of the highest 100 stocks traded on Borsa İstanbul in terms of market value and trading volume, was taken into account to calculate the market index and this data was collected from the Wall Street Journal. The daily market index was calculated as the logarithmic return.

The yield of the 10-year Turkish Government bond was accepted as a risk-free rate and the data was obtained from the Database of the Central Bank of the Republic of Turkey. The risk-free rate was calculated daily. All of the closing prices of the selected target firms during the event windows were also calculated daily as the logarithmic return and subjected to the CAPM calculation.

SECTION FOUR

METHODOLOGY

4.1. APPLICATION OF THE EVENT STUDY METHOD

As with several previous research studies (Campa and Hernando, 2004), this study utilizes the event study approach to assess if there is an abnormal return on the stock prices of target companies before and after the announcement day of M&A transactions.

Sitthipongpanich (2011) listed the basic assumptions of the event study methodology as follows:

- The effect of an event would be immediately expressed in stock prices under the market-efficiency theory; hence, stock returns can be calculated by the market's response to the event over the study period.
- The event is unknown. Abnormal (excess) returns on stocks reflect an investor response to the unpredictable event.
- There are no interfering effects during the event period, indicating that the impact is exclusive of other events.

Fisch, Gelbach, and Klick (2018) described the steps for the analysis of an event study as follows:

i. The event(s) being analyzed must be specified, and the dates (announcement) and windows (event, estimation) must be determined.
ii. The actual returns for the stocks of the firms under consideration must be determined.

iii. The expected returns of the stocks of the firms on the day of the announcement must be determined, given the business dynamics that might influence the stock price even in the absence of the news at issue.
iv. The excess return must be computed by deducting the expected return from the actual return on the date at issue.
v. As a last step, it should be assessed whether the expected excess return is statistically significant at the selected level of significance.

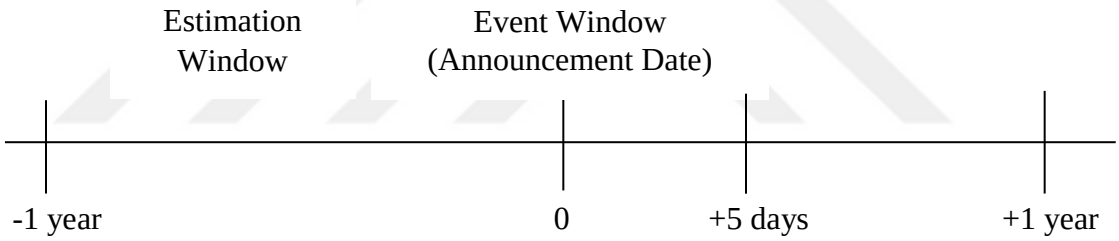
4.2. EVENT WINDOWS

In previous studies, the effect of an M&A transaction on the stock prices of target companies was measured in short and long terms. Martynova and Renneboog (2008) stated that observational M&A experiments are usually predicated on irregular short-term returns since long term evaluations appear to be less sensitive. DePamphilis (2019) noted that the impact M&As have in long term return analyses are more difficult to discern relative to short term studies. Several periods, which were extended to 30 days before the announcement date, were used to review M&A transactions that occurred in the USA (Swenson, 1993; Kiymaz and Baker, 2008; Kyei-Mensah, 2011). The research analyzing the economic effect of mergers in India as a developing market used specific event periods including the 10-day window before the announcement date (Mohapatra, 2014). It is recommended that the event window should cover the events' early impact (pre & post); in other words, it should not be too short.

In this study, as shown in Figure 4.1. below, 1 year before and after the announcement date and 5 business days after the announcement date were used as the key estimation and event windows to calculate the impact of acquisitions on the stock prices of the target firms in the short and long terms, as investigated in studies carried out in past. The estimation period includes a slightly longer period. In this study, 1 year before and after the announcement day is taken as the estimation window, which is

tested by the variable called “Dummy 1”. It is assumed that the days up until 1 year before the announcement day (excluding the announcement day itself) are zero (0), while the announcement day and the days up until 1 year after the announcement day are one (1). The short-event period is formed around the event date and up to five business days [0, +5] and is tested by the variable called “Dummy 2”. As such, it is assumed that the days up until 1 year before the announcement day (excluding the announcement day itself) and the days after 5 business days following the announcement day are zero (0), while the announcement day and the days up until 5 business days after the announcement day are one (1).

Figure 4.1. Estimation and Event Windows



4.3. MODEL

We measured the short term and long term reaction of the relevant stock against the overall market before and after the M&A transactions were announced through the use of different models.

As explained in the methodology section, after determining the sample and event dates, the separate measurement of the actual returns for each observation in the sample is the very first step. This study used the closing prices of all stocks in Borsa İstanbul and estimated the logarithmic return of the daily prices of the stocks during the relevant estimation period with the following formula:

$$R_{it} = ln\left(\frac{P_{(i,t)}}{P_{(i,t-1)}}\right) \quad (3)$$

R_{it} : daily logarithmic return of stock i at the time t

$P_{(i,t)}$: closing price of the stock i at time t

$P_{(i,t-1)}$: closing price of the stock i at time (t-1)

The BIST 100 index at the time of the relevant estimation periods was taken into consideration to calculate the market index for each observation and the logarithmic return of the daily prices of the market index was calculated with the same formula used to calculate the logarithmic return of the daily prices of the stocks:

$$R_{mt} = ln\left(\frac{P_{(m,t)}}{P_{(m,t-1)}}\right) \quad (4)$$

R_{mt} : daily logarithmic return of the market index at the time t

$P_{(m,t)}$: closing price of the market index at time t

$P_{(m,t-1)}$: closing price of the market index at time (t-1)

The CAPM model is commonly applied in finance and helps make judgments about investments through the appropriate rate of return on assets. The theory describes the systemic risks of the assets' return and further reveals that the assets' necessary return has a linear relationship. In this study, we used variables (determinants) to evaluate the impact the M&As have on the target companies' stock prices during the specific event windows and tested if the M&As create any abnormal returns on the stocks of the target firms. To determine the significance of an abnormal return on the stocks of the target company, the expected return on the stock should be calculated. For this purpose, we applied the empirical standard CAPM formula, as indicated below,

in four different versions, which will be explained in detail in the subsequent parts of this section.

$$\left(R_{it} - R_{ft}\right) = \alpha_i + \beta_i \left(R_{mt} - R_{ft}\right) + \varepsilon_{it} \quad (5)$$

R_{it} : return of the stock i at time t

R_{ft} : risk-free rate at time t

α_i : constant term of stock i

R_{mt} : market return at time t

β_i : beta of the stock i

ε_{it} : error term of the stock i at time t

In the first version (Model 1 as indicated in Section 5 below), no dummy variable was taken into account for calculation purposes. Therefore, we estimate the classical CAPM model given above.

In the second version, the intercept dummy variable (δ) was introduced to the equation for both Dummy 1 and Dummy 2 separately to examine whether there any abnormal returns had occurred within one week and one year after the acquisition. The results for Dummy 1 and Dummy 2 are indicated as Model 2 and Model 3 respectively in Section 5 below. The new regression equation can be written for Dummy 1 and Dummy 2 as follows:

$$\left(R_{it} - R_{ft}\right) = \alpha_i + \beta_i \left(R_{mt} - R_{ft}\right) + \delta_i D_{ii} + \varepsilon_{it} \quad (6)$$

In the third version, the slope dummy variable (ϕ) was introduced to the equation for both Dummy 1 and Dummy 2 separately to examine whether any change

in the risk parameter had occurred within one week and one year after the acquisition. The results for Dummy 1 and Dummy 2 are indicated as Model 4 and Model 6 respectively in Section 5 below. The new regression formula can be stated for Dummy 1 and Dummy 2 as follows:

$$\left(R_{it} - R_{ft}\right) = \alpha_i + \beta_i \left(R_{mt} - R_{ft}\right) + \phi_i D_{it}\left(R_{mt} - R_{ft}\right) + \varepsilon_{it} \qquad (7)$$

In the fourth and final version, both the intercept dummy and the slope dummy were introduced to the equation for both Dummy 1 and Dummy 2 separately to examine the stability of the stock over the market within one week and one year after the acquisition. The results for Dummy 1 and Dummy 2 are indicated as Model 5 and Model 7 respectively in Section 5 below. The new regression equation can be formulated for Dummy 1 and Dummy 2 as follows:

$$\left(R_{it} - R_{ft}\right) = \alpha_i + \beta_i \left(R_{mt} - R_{ft}\right) + \delta_i D_{it} + \phi_i D_{it}\left(R_{mt} - R_{ft}\right) + \varepsilon_{it} \qquad (8)$$

Alpha (α) is an indicator of the success of an investment against an acceptable benchmark market index, such as the BIST100. An alpha indicates when the return on investment has outperformed the overall market average over a given period. A positive alpha value is referred to as an abnormal return on an asset that has performed well based on the market average, whereas a negative alpha number represents an underperforming investment compared with the market average.

Market risk premium $\left(R_{mt} - R_{ft}\right)$ is the excess return on the risk-free rate. It essentially defines the portfolio relationship with assets and the risk-free rate technically excepted. Investors typically view the yield on treasury bonds as a risk-free rate. In this study, the yield on the 10-year Turkish Government bond at the relevant estimation period was taken as the risk-free rate. These rates were calculated daily with the following formula:

$$R_{ft} = ln(1 + R_{ft})^{1/365} \quad (9)$$

In the CAPM model, beta (β) is used as a risk parameter and measures the volatility or systematic risk of a security in comparison with the overall market. Theoretically, the market beta value is accepted as 1 (Kularni, *et al*. 2016; Mcclure, 2020). The beta interpretation can be made as follows:

- When beta equals 1, the portfolio or stock experiences the same level of market risk. In other words, if the stock rises by 1%, the stock chosen will increase by 1%.
- When beta is between 0 and 1, the portfolio, like the overall market, will not be affected by the fluctuation. This stock was less competitive than the market.
- If beta is greater than 1, the stock is riskier than the overall market. It would fluctuate more than the market, which is acknowledged as a riskier investment.
- If beta is less than 1, the assets behave in a manner entirely differently from the market as a whole. If the market rises by 1%, the asset will fall by 1%.

When assessing beta, the R-squared value should be taken into account given that the R-squared value indicates the percentage of explanatory amount accrued by the regression. Therefore, interpreting beta as a risk predictor would not be rational if the degree of the R-squared regression is fairly small.

Delta (δ) parameter measures whether an extra abnormal return occurred within the given period after the acquisition. Depending on whether the delta carries a positive or negative value, the asset has a positive or negative extra abnormal return for the estimated period.

Phi (ϕ) parameter tests how the risk balance between the asset and stock has changed within the given periods after the acquisition. If this parameter is positive, the riskiness of the asset has increased. On the other hand, if this parameter is negative, there has been a decrease in the riskiness of the asset.

SECTION FIVE

RESULTS

5.1. RESULTS FOR BANVİT

Table 5.1. represents the estimated results for Banvit. The estimated beta coefficients are similar for all the models and they are not significant. Since they are smaller than 1, they suggest that the market is riskier than the stock of Banvit. The alpha parameters are significant at 5% in Models 1, 3, 4, 6, and 7, and at 10% in Models 2 and 5; therefore, the stock of Banvit has abnormal returns normally. However, we can conclude that extra abnormal returns did not occur in the long run or the short run after the acquisition since the coefficients of the dummy variables from Models 2 and 3 are not significant. When we consider the values of the slope dummy variables, we see that the riskiness of the stock of Banvit did not decrease after the acquisition since the coefficient of beta*dummy1 is not significant in both models 4 and 5. Therefore, when we consider only one year after the acquisition, the results suggest that there was no abnormal return and no decrease in riskiness since the R-squared and Log-likelihood values are better in Model 5 than Model 4. On the other hand, when we consider one week after the acquisition, we examine that the riskiness of the stock of Banvit decreased after the acquisition since the coefficient of beta*dummy2 is significant in both Models 6 and 7. The results show that no abnormal return occurred after the acquisition but the risk of the stock decreases. Finally, when we compare the models in terms of goodness of fit values, since the Log-likelihood and R-squared values are maximized in Models 6 and 7, these models fit the data better than the other models. Therefore, we can conclude that for one week after the acquisition, the risk of the stock of Banvit decreased but there were no extra abnormal return.

Table 5.1. CAPM Results for Banvit

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	0.004048** (0.001877)	0.004667* (0.002660)	0.003859** (0.001884)	0.004112** (0.001883)	0.004860* (0.002686)	0.003740** (0.001857)	0.003943** (0.001861)
BETA	-0.123929 (0.160778)	-0.122066 (0.161021)	-0.107577 (0.161408)	-0.014850 (0.270445)	-0.002436 (0.272533)	-0.032482 (0.160857)	-0.030820 (0.160714)
Dummy 1	—	-0.001228 (0.003739)	—	—	-0.001472 (0.003769)	—	—
Dummy 2	—	—	0.021064 (0.018911)	—	—	—	-0.032775 (0.023631)
BETA*Dummy 1	—	—	—	-0.168223 (0.335241)	-0.183925 (0.337925)	—	—
BETA*Dummy 2	—	—	—	—	—	-3.587392*** (0.989450)	-4.650677*** (1.250982)
R^2	0.001182	0.001397	0.003649	0.001684	0.001988	0.026719	0.030449
Log-likelihood	884.6425	884.6967	885.2657	884.7691	884.8460	891.1692	892.1368

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

5.2. RESULTS FOR ÜLKER

Table 5.2. represents the estimated results for Ülker. The estimated beta coefficients are similar for all of the models and are significant at 1%. Since they are smaller than 1, they suggest that the market is riskier than the stock of Ülker. None of the alpha parameters are significant; therefore, the stock of Ülker does not have abnormal returns. Furthermore, we can conclude that the abnormal return did not exist in the long run or the short run after the acquisition since the coefficients of the dummy variables from Models 2 and 3 are not significant. When we consider the values of the slope dummy variables, the results suggest that there was no change in the riskiness of the stock after one week or one year following the acquisition since beta*dummy1 and beta*dummy2 are not significant in Models 4 and 5 or in Models 6 and 7. However, there was no decrease in riskiness since the R-squared and Log-likelihood values are better in Model 5 than Model 4 and in Model 7 than Model 6. Finally, when we compare the models in terms of goodness of fit values, there is no significant difference in terms of the R-squared and Log-likelihood values. Therefore, the basic CAPM fits the data set better than the other models. In conclusion, the acquisition did not change the dynamics of the stock in terms of both riskiness and abnormal return.

Table 5.2. CAPM Results for Ülker

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	-0.000298 (0.000735)	-0.000843 (0.001040)	-0.000344 (0.000739)	-0.000256 (0.000736)	-0.000857 (0.001040)	-0.000283 (0.000737)	-0.000348 (0.000738)
BETA	0.719539*** (0.063089)	0.717730*** (0.063165)	0.716100*** (0.063342)	0.769949*** (0.079772)	0.770885*** (0.079806)	0.721884*** (0.063575)	0.722183*** (0.063530)
Dummy 1	—	0.001088 (0.001469)	—	—	0.001206 (0.001472)	—	—
Dummy 2	—	—	0.004878 (0.007430)	—	—	—	0.014248 (0.010905)
BETA*Dummy 1	—	—	—	-0.134365 (0.130139)	-0.142205 (0.130533)	—	—
BETA*Dummy 2	—	—	—	—	—	-0.168756 (0.530601)	-0.913542 (0.778523)
R^2	0.205791	0.206661	0.206474	0.207478	0.208540	0.205952	0.208653
Log-likelihood	1355.545	1355.821	1355.762	1356.081	1356.419	1355.596	1356.455

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

5.3. RESULTS FOR TUKAŞ

Table 5.3. represents the estimated results for Tukaş. The estimated beta coefficients are similar for all of the models and are significant at 1%. Since they are smaller than 1, they suggest that the market is riskier than the stock of Tukaş. The alpha parameter is significant at 5% in Models 3 and 7; therefore, the stock of Tukaş has abnormal returns normally. However, Tukaş exhibited extra negative abnormal returns for one week after the acquisition since the coefficient of the dummy variable from Model 3 is significant at 1% and negative. Furthermore, since the dummy variable in Model 2 is not significant, we can conclude that extra negative abnormal returns did not exist in the long run and only existed in the short run as negative. When we consider the values of the slope dummy variables, it is revealed that the riskiness of the stock of Tukaş did not decrease after the acquisition since the coefficient of beta*dummy1 is not significant in both Models 4 and 5. When we consider the entire period after the acquisition, the results show that no abnormal returns existed after the acquisition and the risk of the stock did not decrease. On the other hand, beta*dummy2 is significant at 1% when the intercept dummy is added in Model 7. Therefore, when we consider only one week after the acquisition, the results suggest both extra negative abnormal

return and a decrease in riskiness existed when both the intercept and slope dummy variables are added to the equation as in Model 7. Finally, when we compare the models in terms of goodness of fit values, since Log-likelihood and R-squared values are maximized in Model 7, this model fits the data better than the other models. Therefore, we can conclude that for a week after the acquisition, both the risk of the stock of Tukaş decreased and the stock experienced an extra negative abnormal return.

Table 5.3. CAPM Results for Tukaş

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	0.002041 (0.001478)	0.002149 (0.002094)	0.002890** (0.001437)	0.002113 (0.001482)	0.002236 (0.002099)	0.002141 (0.001480)	0.002891** (0.001429)
BETA	0.956909*** (0.116161)	0.956325*** (0.116553)	0.919573*** (0.112538)	0.838453*** (0.204873)	0.837593*** (0.205340)	0.942990*** (0.116673)	0.943325*** (0.112265)
Dummy 1	—	-0.000216 (0.002966)	—	—	-0.000245 (0.002968)	—	—
Dummy 2	—	—	-0.086094*** (0.014447)	—	—	—	-0.111910*** (0.017452)
BETA*Dummy 1	—	—	—	0.174952 (0.249199)	0.175252 (0.249471)	—	—
BETA*Dummy 2	—	—	—	—	—	1.433640 (1.182177)	-3.599617*** (1.382039)
R^2	0.119083	0.119092	0.177394	0.119949	0.119961	0.121661	0.188405
Log-likelihood	1002.405	1002.408	1019.664	1002.653	1002.656	1003.144	1023.060

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

5.4. RESULTS FOR FİNANSBANK

Table 5.4. represents the estimated results for Finansbank. The estimated beta coefficients are similar for all of the models and are significant at 1%. Aside from Model 5, the beta coefficients are all smaller than 1, suggesting that the market is mostly riskier than the stock of Finansbank. None of the alpha parameters are significant; therefore, the stock of Finansbank does not have abnormal returns. We can conclude that abnormal returns did not exist in the long run or the short run after the acquisition since the coefficients of the dummy variables from Models 2 and 3, where we do not have the slope dummies, are not significant. When we examine the values of the slope dummy variables, beta*dummy1 is only significant at 5% when the intercept dummy is added in Model 5. Therefore, when we consider only one year after the acquisition, the results suggest that we examined both negative abnormal returns

and a decrease in riskiness. On the other hand, beta*dummy2 is only significant at 5% when the intercept dummy is added in Model 7. Therefore, when we consider only one week after the acquisition, the results suggest that we again examined negative abnormal returns and a decrease in riskiness when they are taken into consideration together. Finally, when we compare the models in terms of goodness of fit values, since Log-likelihood and R-squared values are maximized in Models 5 and 7, these models fit the data better than the other models. The results suggest that both the riskiness and abnormal return structure of the stock changed after the acquisition.

Table 5.4. CAPM Results for Finansbank

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	-0.004485 (0.002873)	-0.002494 (0.003194)	-0.004331 (0.002880)	-0.004479 (0.002878)	0.003537 (0.003962)	-0.004444 (0.002880)	-0.004087 (0.002868)
BETA	0.784620*** (0.100393)	0.786782*** (0.100303)	0.786090*** (0.100434)	0.782310*** (0.109323)	1.024080*** (0.136481)	0.784823*** (0.100488)	0.795771*** (0.100025)
Dummy 1	—	-0.003866 (0.002720)	—	—	-0.016702*** (0.005719)	—	—
Dummy 2	—	—	-0.011785 (0.013752)	—	—	—	-0.151684** (0.059139)
BETA*Dummy 1	—	—	—	0.005115 (0.095303)	-0.509508** (0.199987)	—	—
BETA*Dummy 2	—	—	—	—	—	0.159955 (0.584713)	-6.110080** (2.512786)
R^2	0.108286	0.111860	0.109589	0.108291	0.123220	0.108419	0.119974
Log-likelihood	1045.480	1046.494	1045.849	1045.481	1049.744	1045.517	1048.811

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

5.5. RESULTS FOR GARANTİ

Table 5.5. represents the estimated results for Garanti. The estimated beta coefficients are similar for all of the models and they are significant at 1%. Since they are higher than 1, they suggest that the stock of Garanti is riskier than the market. None of the alpha parameters are significant; therefore, the stock of Garanti does not have abnormal returns. We can also conclude that abnormal returns did not exist in the long run or the short run after the acquisition since the coefficients of the dummy variables from none of the models are significant. When we consider the values of the slope dummy variables, it is concluded that the riskiness of the stock of Garanti decreased after the acquisition since the coefficient of beta*dummy1 is significant in Models 4

and 5. When we consider the entire period after the acquisition, the results show that no abnormal returns occurred after the acquisition, but the risk of the stock decreased. On the other hand, when we consider only one week after the acquisition, the results suggest that there was no decrease in the riskiness of the stock since beta*dummy2 is not significant in Models 6 and 7. Finally, when we compare the models in terms of goodness of fit values, since the Log-likelihood values are maximized in Models 4 and 5, these models fit the data better than the other models. Therefore, we can conclude that only the riskiness of the stock of Garanti increased after the acquisition in the long run, but the effect was not seen in the short run.

Table 5.5. CAPM Results for Garanti

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	-0.0000662 (0.000384)	-0.0000103 (0.000545)	-0.0000265 (0.000386)	-0.0000976 (0.000382)	0.0000208 (0.000541)	-0.0000570 (0.000385)	-0.0000261 (0.000386)
BETA	1.341067*** (0.033132)	1.341146*** (0.033169)	1.340267*** (0.033140)	1.265295*** (0.042141)	1.265001*** (0.042190)	1.339712*** (0.033207)	1.339569*** (0.033217)
Dummy 1	—	-0.000111 (0.000768)	—	—	-0.000236 (0.000764)	—	—
Dummy 2	—	—	-0.003962 (0.003876)	—	—	—	-0.003461 (0.004091)
BETA*Dummy 1	—	—	—	0.193647*** (0.067317)	0.194825*** (0.067486)	—	—
BETA*Dummy 2	—	—	—	—	—	0.398569 (0.577766)	0.234934 (0.609436)
R^2	0.765103	0.765113	0.765591	0.768912	0.768956	0.765326	0.765660
Log-likelihood	1684.873	1684.883	1685.398	1689.001	1689.049	1685.112	1685.473

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

5.6. RESULTS FOR DENİZBANK

Table 5.6. represents the estimated results for Denizbank. The estimated beta coefficients are significant at 10% in Models 1, 2, 6, and 7 and at 5% in Model 3. Since they are smaller than 1, they suggest that the market is riskier than the stock of Denizbank. The alpha parameter is significant at 10% in Models 3 and 7; therefore, the stock of Denizbank had abnormal returns only when we add the dummy variable for one week after the acquisition. However, Denizbank exhibited an extra negative abnormal return for one week after the acquisition since the coefficient of the dummy

variable from Model 3 is significant at 1% and negative. Furthermore, since the dummy variable in Model 2 is not significant, we can conclude that the abnormal return did not exist in the long run and only exists in the short run as negative. When we consider the values of the slope dummy variables, the results suggest that there was no change in the riskiness after one week or one year following the acquisition since beta*dummy1 and beta*dummy2 are not significant in Models 4 and 5 as well as in Models 6 and 7. However, there was no decrease in the riskiness since the R-squared and Log-likelihood values are better in Model 5 than Model 4 and in Model 7 than Model 6. Finally, when we compare the models in terms of goodness of fit values, since the Log-likelihood and R-squared values are maximized in Models 3 and 7, these models fit the data better than the other models. Overall, after the acquisition, the stock only had an extra negative abnormal return for one week and no further changes were observed.

Table 5.6. CAPM Results for Denizbank

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	0.002560 (0.001884)	0.002707 (0.002663)	0.003219* (0.001874)	0.002524 (0.001886)	0.002715 (0.002665)	0.002578 (0.001888)	0.003200* (0.001873)
BETA	0.258780* (0.146055)	0.258265* (0.146349)	0.291260** (0.144844)	0.378151 (0.244770)	0.378251 (0.245014)	0.262755* (0.147793)	0.265507* (0.145995)
Dummy 1	—	-0.000294 (0.003770)	—	—	-0.000383 (0.003775)	—	—
Dummy 2	—	—	-0.064236*** (0.018825)	—	—	—	-0.075662*** (0.020648)
BETA*Dummy 1	—	—	—	-0.185471 (0.305076)	-0.186669 (0.305605)	—	—
BETA*Dummy 2	—	—	—	—	—	-0.187914 (1.024286)	1.490396 (1.110644)
R^2	0.006215	0.006227	0.028785	0.006947	0.006968	0.006281	0.032271
Log-likelihood	880.7624	880.7654	886.5518	880.9482	880.9534	880.7793	887.4577

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

5.7. RESULTS FOR DOĞTAŞ

Table 5.7. represents the estimated results for Doğtaş. The estimated beta coefficients are similar for all of the models and they are significant at 1%. Since they are smaller than 1, they suggest that the market is riskier than the stock of Doğtaş. The

alpha parameter is significant at 10% in Models 3 and 7; therefore, the stock of Doğtaş had abnormal returns only when the intercept dummy for one week after the acquisition is added to the model. However, Doğtaş exhibited extra negative abnormal returns for one week after the acquisition since the coefficients of the dummy variable from Model 3 and 7 are significant at 10% and negative. Furthermore, since the dummy variable in Model 2 is not significant, we can conclude that the abnormal return did not exist in the long run and only existed in the short run. When we consider the values of the slope dummy variables, we examine that the riskiness of the stock of Doğtaş decreased after the acquisition since the coefficient of beta*dummy1 is significant in Models 4 and 5. On the other hand, when we consider only one week after the acquisition, the results suggest that there was no decrease in the riskiness since beta*dummy2 is not significant in Models 6 and 7. Finally, when we compare the models in terms of goodness of fit values, since the Log-likelihood and R-squared values are maximized in Models 4 and 5, these models fit the data better than the other models. Therefore, results suggest that the acquisition only affected the abnormal return of the stock and resulted in an extra negative abnormal return in the short run, but the riskiness decreased in the long run.

Table 5.7. CAPM Results for Doğtaş

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	0.001602 (0.001082)	0.002031 (0.001527)	0.001798* (0.001085)	0.001561 (0.001076)	0.001894 (0.001520)	0.001605 (0.001083)	0.001798* (0.001086)
BETA	0.410995*** (0.071223)	0.410616*** (0.071290)	0.411441*** (0.071062)	0.597637*** (0.102987)	0.596505*** (0.103144)	0.412103*** (0.071410)	0.411664*** (0.071253)
Dummy 1	—	-0.000863 (0.002164)	—	—	-0.000671 (0.002155)	—	—
Dummy 2	—	—	-0.019710* (0.010874)	—	—	—	-0.019640* 0.010962
BETA*Dummy 1	—	—	—	-0.354202** (0.141839)	-0.352616** (0.142059)	—	—
BETA*Dummy 2	—	—	—	—	—	-0.327161 (1.223004)	-0.066212 (1.228971)
R^2	0.062323	0.062620	0.068444	0.073873	0.074053	0.062457	0.068449
Log-likelihood	1158.134	1158.214	1159.781	1161.251	1161.300	1158.170	1159.782

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

5.8. RESULTS FOR HÜRRİYET

Table 5.8. represents the estimated results for Hürriyet. The estimated beta coefficients are similar for all three of the models and they are significant at 1%. Aside from Models 4 and 5, all of the beta coefficients are smaller than 1, suggesting that the market is riskier than the stock of Hürriyet. None of the alpha parameters are significant; therefore, the stock of Hürriyet does not have abnormal returns normally. However, the coefficient of the dummy variable from Model 3 is significant at 1% and positive; therefore, Hürriyet exhibited positive abnormal returns for one week after the acquisition. Furthermore, since the dummy variable in Model 2 is not significant, we can conclude that this abnormal return did not exist in the long run and only existed in the short run. When we consider the values of the slope dummy variables, we examine that the riskiness of the stock of Hürriyet decreased after the acquisition since the coefficient of beta*dummy1 is significant in Models 4 and 5. For the entire period after the acquisition, the results show no extra abnormal returns occurred after the acquisition but the risk of the stock decreases. On the other hand, beta*dummy2 is only significant at 10% when the intercept dummy is not added in Model 6. Therefore, when we consider only one week after the acquisition, the results suggest that we mostly examined extra abnormal returns but no decrease in riskiness since the R-squared and Log-likelihood values are better in Model 7 than Model 6. Finally, when we compare the models in terms of goodness of fit values, since the Log-likelihood and R-squared values are maximized in Models 4 and 5, these models fit the data better than the other models. Therefore, we can conclude that after the acquisition, the risk of the stock of Hürriyet decreased.

Table 5.8. CAPM Results for Hürriyet

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	0.000263 (0.001490)	0.001285 (0.002110)	-0.000120 (0.001489)	-0.0000609 (0.001483)	0.000907 (0.002099)	0.0000766 (0.001491)	-0.000120 (0.001490)
BETA	0.927023*** (0.121393)	0.920762*** (0.121802)	0.943008*** (0.120868)	1.409094*** (0.205638)	1.401711*** (0.206063)	0.942013*** (0.121455)	0.941917*** (0.121132)
Dummy 1	—	-0.002046 (0.002990)	—	—	-0.001936 (0.002968)	—	—
Dummy 2	—	—	0.038743*** (0.014967)	—	—	—	0.041612* (0.021698)
BETA*Dummy 1	—	—	—	-0.735788*** (0.254321)	-0.733653*** (0.254488)	—	—
BETA*Dummy 2	—	—	—	—	—	-2.961293* (1.701872)	0.449283 (2.458407)
R^2	0.104078	0.104914	0.115903	0.118800	0.119549	0.109459	0.115962
Log-likelihood	998.3805	998.6159	1001.729	1002.556	1002.770	999.8988	1001.746

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

5.9. RESULTS FOR ULUSOY

Table 5.9. represents the estimated results for Ulusoy. The estimated beta coefficients are similar for all of the models and they are significant at 1%. Since they are smaller than 1, they suggest that the market is riskier than the stock of Ulusoy. The alpha parameters are significant for all of the models except for Model 2; therefore, the stock of Ulusoy has positive abnormal returns generally. However, we can conclude that there was no extra abnormal return after the acquisition either in the long run or in the short run since the coefficients of the dummy variables from Models 2 and 3 are not significant. When we consider the values of the slope dummy variables, we examine that the riskiness of the stock of Ulusoy decreased after the acquisition since the coefficient of beta*dummy1 is significant in both Models 4 and 5. For the entire period after the acquisition, the results show that no abnormal returns occurred after the acquisition, but the risk of the stock decreased. When we consider only one week after the acquisition, the results suggest that there was no decrease in the riskiness of the stock since beta*dummy2 is not significant in Models 6 and 7. Finally, when we compare the models in terms of goodness of fit values, since the Log-likelihood and R-squared values are maximized in Models 4 and 5, these models fit the data better than the other models. Therefore, we can conclude that after the acquisition, the risk of the

stock of Ulusoy decreased in the long run but this effect was not shown in the one week period after the announcement date.

Table 5.9. CAPM Results for Ulusoy

Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
ALPHA	0.002190** (0.000967)	0.002061 (0.001369)	0.002289** (0.000972)	0.002328** (0.000955)	0.002290* (0.001353)	0.002259** (0.000967)	0.002288** (0.000972)
BETA	0.293262*** (0.071460)	0.292873*** (0.071590)	0.291921*** (0.071469)	0.538067*** (0.096078)	0.537885*** (0.096281)	0.288451*** (0.071428)	0.288507*** (0.071492)
Dummy 1	—	0.000259 (0.001937)	—	—	0.0000769 (0.001913)	—	—
Dummy 2	—	—	-0.009929 (0.009709)	—	—	—	-0.003705 (0.010989)
BETA*Dummy 1	—	—	—	-0.531289*** (0.141572)	-0.531144*** (0.141760)	—	—
BETA*Dummy 2	—	—	—	—	—	2.469037 (1.595283)	2.183055 (1.808028)
R^2	0.032776	0.032811	0.034811	0.059481	0.059484	0.037424	0.037645
Log-likelihood	1206.701	1206.710	1207.226	1213.686	1213.687	1207.903	1207.960

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

CONCLUSION

This study investigates the short term and long term effects the stock acquisition announcements made by 9 target companies made during 2012 – 2019, which are publicly listed on Borsa İstanbul and operate business in the banking, manufacturing, and food and beverage sectors, have on the target companies' stock prices. The results are evaluated for each sector in terms of the effect the acquisition of shares of the target companies have on their stock prices, given that the fields of activity of the target companies in this study are substantially different.

The event study method was adopted through the research. The short term event window included the announcement day and up to five business days after the announcement day [0, +5] and the long term event window included the event date and up to 1 year after the announcement day while 1 year before and after the announcement day was taken as the estimation window. The daily logarithmic returns of the stocks, the BIST100 index, and the risk-free rates at the time of the event windows were calculated and the expected returns were measured through the CAPM model by adding the intercept and slope dummy variables.

The results show that after one year following the acquisition, the stock of Finansbank experienced extra negative abnormal returns and the riskiness of the stocks of Finansbank, Garanti, Doğtaş, Hürriyet, and Ulusoy decreased. On the other hand, the findings point out that after a week following the acquisition, the stocks of Tukaş, Finansbank, and Denizbank experienced extra abnormal negative returns and the riskiness of the stocks of Banvit, Tukaş, and Finansbank decreased.

In terms of a sector based comparison, while there are a few similarities in the findings concerning the stock of the target companies operating in the banking and food and beverage sectors, it may generally be concluded that there may be a decrease in the riskiness of stocks in the banking sector in the long run and the food and beverage

sector in the short run. The findings in the manufacturing sector show that the riskiness of the stocks of the target companies decreased in the long term.

REFERENCES

Aktas, N., De Bodt, E., & Roll, R. (2005). *Hubris, learning, and M&A decisions*. USA: University of California at Los Angeles, Anderson Graduate School of Management.

Arık, E., & Kutan, A. M. (2015). Do mergers and acquisitions create wealth effects? Evidence from twenty emerging markets. *Eastern European Economics, 53*(6), 529-550.

Ashley, J. W. (1962). Stock prices and changes in earnings and dividends: some empirical results. *Journal of Political Economy, 70*(1), 82-85.

Atm, A., & Hossain, A. (2016). Impact of M&A announcement on acquiring and target firm's stock price: An event analysis approach. *International Journal of Finance and Accounting*, *5*(5), 228-232.

Ball, R., & Brown P. (1968). An empirical analysis of accounting income numbers. *Journal of Accounting Research*, *6*(2), 159-178.

Berger, P. G., & Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics, 37*(1), 39-65.

Bessler, W., & Murtagh, J. P. (2002). The stock market reaction to cross-border acquisitions of financial services firms: An analysis of Canadian banks. *Journal of International Financial Markets, Institutions and Money, 12*(4-5), 419-440.

Black, F. (1972). Capital market equilibrium with restricted borrowing. *The Journal of Business, 45*(3), 444-455.

Brealey, R. A., Myers, S. C., & Marcus, A. J. (2012). *Fundamentals of Corporate Finance*. New York: McGraw-Hill/Irwin.

Brock, D. M., Yaffe, T., & Dembovsky, M. (2006). The global law firm: An initial study of strategy and performance. *International Journal of Business and Economics, 5*(2), 161-172.

Brown, S. J., & Warner, J. B. (1980). Measuring security price performance. *Journal of Financial Economics*, *8*(3), 205-258.

Bruce, A. B., & Christopher, T. T. (2000). R&D intensity and acquisitions in high-technology industries: Evidence from the US electronic and electrical equipment industries. *Journal of Industrial Economics*, 48 (1), 47-70.

Bruner, R. F. (2002). Does M&A pay? A survey of evidence for the decision-maker. *Journal of Applied Finance, 12*(1), 48-68.

Campa, J. M., & Hernando, I. (2004). Shareholder value creation in European M&As. *European Financial Management*, *10*(1), 47-81.

Campa, J. M., & Kedia, S. (2002). Explaining the diversification discount. *The Journal of Finance, 57*(4), 1731-1762.

Chari, A., Ouimet, P. P., & Tesar, L. L. (2004). *Acquiring control in emerging markets: Evidence from the stock market*. NBR Working Paper Series No. 10872. National Bureau of Economic Research, Cambridge.

Chunlai C. Z., & Findlay, C. (2003). A review of cross-border mergers and acquisitions in APEC. *Asian-Pacific Economic Literature*, *17*(2), 14-38.

Çakır, H. M., & Gülcan, Ö. G. Z. (2012). Şirket birleşme ve devralma kararlarının hisse senedi getirilerine etkisi. *Mali Çözüm Dergisi*, 113, 79-108.

Çevikçelik, S. (2012). *Şirket birleşmelerinin firmanın piyasa değerine etkisi: İMKB'de uygulama* [Yüksek Lisans Tezi]. Adnan Menderes Üniversitesi Sosyal Bilimler Enstitüsü, Aydın.

Çıtak, L., & Yıldız, F. K. (2007). Devralmanın devralan işletmelerin hisse senedi getirileri üzerindeki etkisi: Sermaye Piyasası Kurulu izni ile gerçekleşen devralmaların devralan işletmelerin hisse senedi getiri oranları üzerindeki etkisinin incelenmesi. *Dokuz Eylül Üniversitesi İktisadi İdari Bilimler Fakültesi Dergisi*, *22*(2), 273-294.

Çukur, S., & Eryiğit, R. (2006). Banka birleşme ve devralma olaylarının borsadaki etkisi. *İktisat İşletme ve Finans Dergisi*, *21*(243), 96-107.

Danbolt, J. B. H. (1996). *A comparative analysis of the wealth effects to target and bidding company shareholders from domestic and cross-border acquisitions into the United Kingdom (1986-1991)* [Doctoral Dissertation]. Heriot-Watt University, UK.

Deloitte Türkiye. (2015). *2014 yılı birleşme ve satın almalar raporu*. Retrieved from: https://www2.deloitte.com/tr/tr/pages/mergers-and-acquisitions/articles/annual-turkish-mareiview20141.html (Accessed: 14.04.2020).

Deloitte Türkiye. (2016). *2015 yılı birleşme ve satın almalar raporu*. Retrieved from: https://www2.deloitte.com/tr/tr/pages/mergers-and-acquisitions/articles/annual-turkish-ma-2015.html (Accessed: 14.04.2020).

Deloitte Türkiye. (2017). *2016 yılı birleşme ve satın almalar raporu*. Retrieved from: https://www2.deloitte.com/tr/tr/pages/mergers-and-acquisitions/articles/annual-turkish-ma-2016.html (Accessed: 14.04.2020).

Deloitte Türkiye. (2018). *2017 yılı birleşme ve satın almalar raporu*. Retrieved from: https://www2.deloitte.com/tr/tr/pages/mergers-and acquisitions/articles/annual-turkish-ma-2017.html (Accessed: 14.04.2020).

DePamphilis, D. M. (2019). *Mergers, acquisitions, and other restructuring activities: An integrated approach to process, tools, cases, and solutions*. USA: Academic Press.

Dilshad, M. N. (2013). Profitability analysis of mergers and acquisitions: An event study approach. *Business and Economic Research, 3*(1), 89-125.

Dolley, J. C. (1933). Characteristics and procedure of common stock split-ups. *Harvard Business Review, 11*(3), 316-326.

Dranev Y., Frolova K., & Ochirova E. (2019). The impact of fintech M&A on stock returns. *Research in International Business and Finance, 48*(2019), 353-364.

Elmas, B. (2007). *İşletme politikalarından şirket birleşmelerinin hisse senedi fiyatı üzerine etkisi-İMKB örneği* [Yüksek Lisans Tezi]. Atatürk Üniversitesi Sosyal Bilimler Enstitüsü, Erzurum.

Elsas, R., El-Shaer, M., & Theissen, E. (2003). Beta and returns revisited: Evidence from the German stock market. *Journal of International Financial Markets, Institutions and Money, 13*(1), 1-18.

Ernst & Young Türkiye. (2014). *Birleşme ve satın alma işlemleri 2013 raporu*. Retrieved from:

https://www.ey.com/Publication/vwLUAssets/MA_2013_Raporu/%24FILE/Ernst&Young-Birlesme_ve_Satin_Alma_Islemleri_2013_Raporu.pdf (Accessed: 14.04.2020).

Ernst & Young Türkiye. (2019). *Birleşme ve satın alma işlemleri 2018 raporu*. Retrieved from: https://www.ey.com/Publication/vwLUAssets/Mergers_and_Acquisitions_Report_Turkey_2018/$File/EY%20Mergers%20and%20Acquisitions%20Report%20Turkey%202018%20(Web).pdf (Accessed: 14.04.2020).

Ernst & Young Türkiye. (2020). *Birleşme ve satın alma işlemleri 2019 raporu*. Retrieved from: https://www.ey.com/Publication/vwLUAssets/EY-birlesme-satin-alma-islemleri-2019-raporu-m-and-a-2019/$File/EY-MA-Raporu-Turkiye-2019.pdf (Accessed: 14.04.2020).

Eyceyurt, T., & Serçemeli, M. (2013). Şirket birleşme ve satın almalarının hisse senedi fiyatına etkisi. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, *27*(1), 159-175.

Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. *International Economic Review*, *10*(1), 1-21.

Fama, E. F. (1991). Efficient capital markets: II. *The Journal of Finance*, *46*(5), 1575-1617.

Fama, E. F., & French, K. R. (2004). The capital asset pricing model: Theory and evidence. *Journal of Economic Perspectives*, *18*(3), 25-46.

Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, *81*(3), 607-636.

Felton, J. R. (1971). Conglomerate mergers, concentration and competition. *The American Journal of Economics and Sociology, 30*(3), 225-242.

Fisch, J. E., Gelbach, J. B., & Klick, J. (2018). The logic and limits of event studies in securities fraud litigation. *Texas Law Review, 96*(553), 553-621.

Gaughan, P. A. (2010). *Mergers, acquisitions, and corporate restructurings*. USA: John Wiley & Sons Inc.

Genç, A. (2012). *Birleşme ve satın alma duyurularının şirketlerin piyasa değerine kısa dönem etkisi* [Yüksek Lisans Tezi]. Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü, Denizli.

Genç, A., & Coşkun, E. (2013). Birleşme ve satın alma duyurularında anormal getiri: Satın alan şirket ve hedef şirket açısından bir inceleme. *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *17*(3), 359-376.

Giannopoulos, G., Khansalar, E., & Patel, N. (2017). The impact of single and multiple mergers and acquisitions on shareholders' wealth of UK bidder firms. *International Journal of Economics and Finance*, *9*(3), 141-167.

Goergen, M., & Renneboog, L. (2004). Shareholder wealth effects of European domestic and crossborder takeover bids. *European Financial Management*, *10*(1), 9-45.

Gönüllü, O. (2017). Birleşme ve devralmalar yoluyla büyümenin hisse senedi performansı üzerine etkisi. *Uluslararası Sosyal Araştırmalar Dergisi*, *10*(52).

Gönüllü, O. (2018). Birleşme ve devralma işlemlerinin yarattığı paydaş değeri üzerinde etkili olan faktörler: Borsa İstanbul üzerine bir uygulama. *Uluslararası Yönetim İktisat ve İşletme Dergisi*, *14*(1), 233-256.

Graham, J. R., Lemmon, M. L., & Wolf, J. G. (2002). Does corporate diversification destroy value?. *The Journal of Finance, 57*(2), 695-720.

Hayn, C. (1989). Tax attributes as determinants of shareholder gains in corporate acquisitions. *Journal of Financial Economics*, *23*(1), 121-153.

Hekimoğlu, M. H., & Tanyeri, B. (2011). Türk şirket birleşmelerinin hisse senedi fiyatları üzerindeki etkileri. *İktisat İşletme ve Finans Dergisi*, *26*(308), 53-70.

Herdan A., & Mateus C. (2007). Shareholder wealth effects from mergers and acquisitions: Evidence from the UK banks. *The European Journal of Management and Public Policy, 6*(1), 1-18.

İçke, B. T. (2006). *Firma birleşme ve satınalmalarının hisse senedi değeri açısından analizi ve İMKB'de bir uygulama* [Doktora Tezi]. Marmara Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

İlarslan, K., & Aşıkoğlu. R. (2012). Birleşme ve satın almaların işletmelerin finansal performansı üzerindeki etkilerinin incelenmesi: Panel veri analizi. *Finans Politik ve Ekonomik Yorumlar, 49*(572), 59-78.

Jang, S. J., & M.M.C. (2004). *Mergers and acquisitions strategies*. Seoul: Pakyoungsa.

Jarrell, G. A., Brickley, J. A., & Netter, J. M. (1988). The market for corporate control: The empirical evidence since 1980. *Journal of Economic Perspectives*, *2*(1), 49-68.

Kaczmarczyk, W. (2019). The impact of acquisition on stock value in case of Warsaw Stock Exchange. *Economics and Culture, 16*(1), 70-79.

Kaderli, Y., & Demir, S. (2009). Yatırım kararı duyurularının hisse senedi getirileri üzerindeki etkisinin ölçülmesi: Olay etüdü yöntemi. *Mali Çözüm Dergisi*, (91), 45-65.

Karcıoğlu, R., Abar, H., Ağırman, E., Kantar, M., A., Gülrenk, M., & Okuyucu, N. (2019). Birleşme ve satın alma işlemlerinin hisse senedi fiyatına etkisi: Borsa İstanbul'da bir araştırma. *KAÜİİBFD, 10*(20), 987-1006.

Kiymaz, H., & Baker, H. K. (2008). Short-term performance, industry effects, and motives: Evidence from large M&As. *Quarterly Journal of Finance and Accounting*, *47*(2), 17-44.

Klamrzynski, G. A., & Grieb, C. A. (2015). Fundamentals of middle-market acquisition financing. *The Banking Law Journal (LexisNexis A.S. Pratt)*, *132*, 92-99.

Kularni, K., Vidyavathi B., & Ainapur P. (2016). A study on beta analysis of selected stocks. *International Journal of Advance Research in Computer Science and Management Studies*, *4*(6), 1-12.

Kyei-Mensah, J. (2011). *Wealth effects of merger and acquisitions for U.S. firms using alternative pricing models* [Doctoral Dissertation]. The University of Aston Business School, UK.

Kyriazopoulos, G. (2016). Wealth effects from banks mergers and acquisitions in Eastern Europe. *International Journal of Economics and Financial Issues*, *6*(2), 588-595.

Lang, L. H., & Stulz, R. M. (1994). Tobin's q, corporate diversification, and firm performance. *Journal of Political Economy, 102*(6), 1248-1280.

Lewellen, W. G. (1971). A pure financial rationale for the conglomerate merger. *The Journal of Finance*, *26*(2), 521-537.

Liang, C. (2013). *The impact of merger and acquisition announcements on firms' stock performance: Evidence from Hong Kong stock market* [Master Dissertation]. Saint Mary's University, Canada.

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. *Review of Economics and Statistics*, *47*(1), 13–37.

Ma, J., Pagán, J. A., & Chu, Y. (2009). Abnormal returns to mergers and acquisitions in ten Asian stock markets. *International Journal of Business*, *14*(3), 235-250.

Mallikarjunappa, T., & Nayak, P. (2013). A study of wealth effects of takeover announcements in India on target company shareholders. *Vikalpa*, *38*(3), 23-50.

Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, *89*(1), 20-43.

Mandacı, P. E. (2004). Şirketlerin birleşme ve satın alma duyurularının hisse senedi fiyatları üzerine etkileri. *İktisat İşletme ve Finans Dergisi*, *19*(225), 118-124.

Markowitz, H. (1952). Portfolio selection. *Journal of Finance*, *7*(1), 77-99.

Martin, K. J., & McConnell, J. J. (1991). Corporate performance, corporate takeovers, and management turnover. *The Journal of Finance*, *46*(2), 671-687.

Martynova, M., & Renneboog, L. (2005). *Takeover waves: Triggers, performance and motives*. The Netherlands: Tilburg University.

Martynova, M., & Renneboog, L. (2008). A century of corporate takeovers: What have we learned and where do we stand?. *Journal of Banking & Finance*, *32*(10), 2148-2177.

Mcclure, B. (2020). *What beta means when considering a stock's risk*. 18 February 2020. Retrieved from: https://www.investopedia.com/investing/beta-know-risk/ (Accessed: 30.03.2020).

Miller, M., & Scholes, M. (1972). Rates of return in relation to risk: A reexamination of some recent findings. Jensen, M. (Ed.). *Studies in the Theory of Capital Markets*, 47-78.

Mohapatra, J. K. (2014). Economic impact of mergers; its motives and consequences: A case of Indian aviation. *Pacific Business Review International*, *6*(11), 73-78.

Motis, J. (2007). *Mergers and acquisitions motives*. Toulouse School of Economics and University of Crete Working Paper No. 730. Retrieved from: http://economics.soc.uoc.gr/wpa/docs/0730.pdf (Accessed: 06.04.2020).

Myers, J. H., & Bakay, A. J. (1948). Influence of stock split-ups on market price. *Harvard Business Review*, *26*(2), 251-255.

Norbäck, P. J., & Persson, L. (2008). Globalization and profitability of cross-border mergers and acquisitions. *Economic Theory*, *35*(2), 241-266.

Norbäck, P. J., & Persson, L. (2019). Stock market impact of cross-border acquisitions in emerging markets. *The North American Journal of Economics and Finance*, *48*, 346-363.

Öztürk, İ., & Yeşilyurt, S. (2019). Birleşme ve satın alma faaliyetlerinin firma performansı üzerine etkisi: Bist'te bir inceleme. *İşletme Araştırmaları Dergisi*, *11*(3), 2016-2026.

Papadatos, K. (2011). The wealth effects of takeover announcement on acquiring firms: The case of the Athens Stock Exchange. *European Journal of Economics, Finance and Administrative Sciences*, (43), 155-167.

Pesendorfer, M. (1998). *Horizontal mergers in the paper industry*. NBR Working Paper Series No. 6751. National Bureau of Economic Research, Cambridge.

Pettengill, G. N., Sundaram, S., & Mathur, I. (1995). The conditional relation between beta and returns. *Journal of Financial and Quantitative Analysis*, *30*(1), 101-116.

Piesse, J., Lee, C. F., Lin, L., & Kuo, H. S. (2006). Merger and acquisition: Definitions, motives, and market responses. Lee, C., & Lee, A.C. (Ed.), *Encyclopedia of Finance.* USA: Springer.

Porter, M. E. (2008). *Competitive strategy: Techniques for analyzing industries and competitors*. USA: The Free Press.

Presidency of the Republic of Turkey, Presidency of Strategy and Budget. (2019). *Eleventh development plan (2019-2023)*. Retrieved from: http://www.sbb.gov.tr/wp-content/uploads/2020/03/On_BirinciPLan_ingilizce_SonBaski.pdf (Accessed: 10.04.2020).

Reis, E. (2015). The determinants of acquirer returns in the Turkish stock market. *Boğaziçi Journal Review of Social, Economic and Administrative Studies*, *2*(2015), 21-39.

Rekabet Kurumu, Ekonomik Analiz ve Araştırma Dairesi Başkanlığı. (2014). *Birleşme ve devralma görünüm raporu 2013*. Ankara. Retrieved from: https://www.rekabet.gov.tr/Dosya/birlesme-devralma-gorunum-raporlari/2013 (Accessed: 14.04.2020).

Rekabet Kurumu, Ekonomik Analiz ve Araştırma Dairesi Başkanlığı. (2015). *Birleşme ve devralma görünüm raporu 2014*. Ankara. Retrieved from: https://www.rekabet.gov.tr/Dosya/birlesme-devralma-gorunum-raporlari/2014 (Accessed: 14.04.2020).

Rekabet Kurumu, Ekonomik Analiz ve Araştırma Dairesi Başkanlığı. (2016). *Birleşme ve devralma görünüm raporu 2015*. Ankara. Retrieved from: https://www.rekabet.gov.tr/Dosya/birlesme-devralma-gorunum-raporlari/2015 (Accessed: 14.04.2020).

Rekabet Kurumu, Ekonomik Analiz ve Araştırma Dairesi Başkanlığı. (2017). *Birleşme ve devralma görünüm raporu 2016*. Ankara. Retrieved from: https://www.rekabet.gov.tr/Dosya/birlesme-devralma-gorunum-raporlari/2016 (Accessed: 14.04.2020).

Rekabet Kurumu, Ekonomik Analiz ve Araştırma Dairesi Başkanlığı. (2018). *Birleşme ve devralma görünüm raporu 2017*. Ankara. Retrieved from: https://www.rekabet.gov.tr/Dosya/birlesme-devralma-gorunumraporlari/birlesme-ve-devralma-gorunum-raporu-2017.pdf (Accessed: 14.04.2020).

Rekabet Kurumu, Ekonomik Analiz ve Araştırma Dairesi Başkanlığı. (2019). *Birleşme ve devralma görünüm raporu 2018*. Ankara. Retrieved from: https://www.rekabet.gov.tr/Dosya/birlesme-devralma-gorunum-raporlari/bdgr (Accessed: 14.04.2020).

Rekabet Kurumu, Ekonomik Analiz ve Araştırma Dairesi Başkanlığı. (2020). *Birleşme ve devralma görünüm raporu 2019*. Ankara. Retrieved from: https://www.rekabet.gov.tr/Dosya/birlesme-devralma-gorunum-raporlari/bd-gorunum-raporu-2019_sonnn-20200109142809959-pdf (Accessed: 14.04.2020).

Riordan, M. H., & Salop, S. C. (1994). Evaluating vertical mergers: A post-Chicago approach. *Antitrust Law Journal*, *63*(2), 513-568.

Roberts, A., Wallace, W., & Moles P. (2010). *Mergers and acquisitions*. UK: Heriot-Watt University. Retrieved from: https://www.ebsglobal.net/EBS/media/EBS/PDFs/Mergers-Acquisitions-Course-Taster.pdf (Accessed: 27.03.2020).

Roll, R. (1986). The hubris hypothesis of corporate takeovers. *Journal of Business*, *59*(2), 197-216.

Ruback, R. S., & Jensen, M. C. (1983). The market for corporate control: The scientific evidence. *Journal of Financial Economics*, *11*, 5-50.

Scott, D. L. (2003). *Wall Street words: an A to Z guide to investment terms for today's investor*. New York: Houghton Mifflin Harcourt.

Sedlacek, J., & Valouch, P. (2015). *Motifs of M&A in the US, European and Asian markets*. Atlantis Press.

Selçuk, E. A. (2015). Do mergers and acquisitions create value for Turkish target firms? An event study analysis. *Procedia Economics and Finance*, *30*, 15-21.

Shah, P., & Arora, P. (2014). M&A announcements and their effect on return to shareholders: An event study. *Accounting and Finance Research*, *3*(2), 170-190.

Shaheen, I. (2006). *Stock market reaction to acquisition announcements using an event study approach* [Doctoral Dissertation]. Retrieved from: https://pdfs.semanticscholar.org/087b/105a097231ce3ffd1d98dec16d451a3d076a.pdf?_ga=2.250225027.464134589.1586130510-616611960.1584971880 (Accessed: 28.03.2020).

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, *19*(3), 425-442.

Sherman, A. J. & Hart, M. A. (2006). *Mergers & acquisitions from A to Z*. USA: Amacom (American Management Association).

Singh, A. (1971). *Take-Overs: Their Relevance to the stock market and the theory of the firm*. UK: Cambridge University Press.

Sitthipongpanich, T. (2011). Understanding the event study. *Journal of Business Administration*, *34*(130), 59-68.

Spivack, G. B. (1970). Conglomerate mergers and the antitrust laws. *University of Miami Law Review*, *25*, 65-93.

Steger, U., & Kummer, C. (2007). *Why merger and acquisition (m & a) waves reoccur: The vicious circle from pressure to failure*. Switzerland: IMD International.

Sudarsanam, S., & Mahate, A. A. (2003). Glamour acquirers, method of payment and post-acquisition performance: The UK evidence. *Journal of Business Finance & Accounting*, *30*(1-2), 299-342.

Swenson, D. L. (1993). Foreign Mergers and Acquisitions in the United States. Froot, K. A. (Ed.), *Foreign Direct Investment*. Chicago: University of Chicago Press.

Utzschneider, J. R., & Blanchet, G., J. (2016). *Choosing an acquisition structure and structuring a deal*. 5 October 2016. Morgan, Lewis & Bockius LLP. Retrieved from: https://www.morganlewis.com//media/files/publication/presentation/webinar/2016/ma-academy-choosing-acquisition-structure 05oct16.ashx?la=en&hash=EC06A80D3FA5451D6D0BD5087022D3930BAED059 (Accessed: 31.03.2020).

Weston, J. F., & Weaver, S. (2002). *Mergers and acquisitions: Executive MBA series*. USA: McGraw-Hill.

Yılmaz, M. (2010). *Şirket birleşme ve devralmalarınn getiri üzerinde etkisi ve İMKB'da bir uygulama* [Doktora Tezi]. Kadir Has Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Yörük, N., & Ban, Ü. (2006). Şirket birleşmelerinin hisse senedi fiyatlarına etkisi: İMKB'de işlem gören gıda sektörü şirketlerinde birleşme etkisinin analizi. *Muhasebe ve Finansman Dergisi*, (30), 88-101.

APPENDIX

APPENDIX A: Images of CAPM Results for Banvit

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 18:47
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004048	0.001877	2.156983	0.0315
EXCESS_MARKET_RETU...	-0.123929	0.160778	-0.770806	0.4412

R-squared	0.001182	Mean dependent var	0.004197
Adjusted R-squared	-0.000808	S.D. dependent var	0.041895
S.E. of regression	0.041912	Akaike info criterion	-3.502550
Sum squared resid	0.881803	Schwarz criterion	-3.485793
Log likelihood	884.6425	Hannan-Quinn criter.	-3.495977
F-statistic	0.594142	Durbin-Watson stat	2.037536
Prob(F-statistic)	0.441185		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:09
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004667	0.002660	1.754188	0.0800
EXCESS_MARKET_RETU...	-0.122066	0.161021	-0.758077	0.4488
DUMMY_1	-0.001228	0.003739	-0.328367	0.7428

R-squared	0.001397	Mean dependent var	0.004197
Adjusted R-squared	-0.002589	S.D. dependent var	0.041895
S.E. of regression	0.041949	Akaike info criterion	-3.498796
Sum squared resid	0.881613	Schwarz criterion	-3.473662
Log likelihood	884.6967	Hannan-Quinn criter.	-3.488937
F-statistic	0.350455	Durbin-Watson stat	2.038290
Prob(F-statistic)	0.704540		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:22
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003859	0.001884	2.048226	0.0411
EXCESS_MARKET_RETU...	-0.107577	0.161408	-0.666491	0.5054
DUMMY_2	0.021064	0.018911	1.113845	0.2659

R-squared	0.003649	Mean dependent var	0.004197
Adjusted R-squared	-0.000328	S.D. dependent var	0.041895
S.E. of regression	0.041902	Akaike info criterion	-3.501055
Sum squared resid	0.879625	Schwarz criterion	-3.475920
Log likelihood	885.2657	Hannan-Quinn criter.	-3.491195
F-statistic	0.917539	Durbin-Watson stat	2.039660
Prob(F-statistic)	0.400171		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:14
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004112	0.001883	2.184424	0.0294
EXCESS_MARKET_RETURN	-0.014850	0.270445	-0.054909	0.9562
EXCESS_MARKET_RETURN*DUMMY_1	-0.168223	0.335241	-0.501798	0.6160

R-squared	0.001684	Mean dependent var	0.004197
Adjusted R-squared	-0.002301	S.D. dependent var	0.041895
S.E. of regression	0.041943	Akaike info criterion	-3.499084
Sum squared resid	0.881360	Schwarz criterion	-3.473949
Log likelihood	884.7691	Hannan-Quinn criter.	-3.489224
F-statistic	0.422529	Durbin-Watson stat	2.035742
Prob(F-statistic)	0.655621		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:27
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004860	0.002686	1.809456	0.0710
EXCESS_MARKET_RETURN	-0.002436	0.272533	-0.008940	0.9929
DUMMY_1	-0.001472	0.003769	-0.390558	0.6963
EXCESS_MARKET_RETURN*DUMMY_1	-0.183925	0.337925	-0.544278	0.5865

R-squared	0.001988	Mean dependent var	0.004197
Adjusted R-squared	-0.004000	S.D. dependent var	0.041895
S.E. of regression	0.041978	Akaike info criterion	-3.495421
Sum squared resid	0.881091	Schwarz criterion	-3.461908
Log likelihood	884.8460	Hannan-Quinn criter.	-3.482275
F-statistic	0.332055	Durbin-Watson stat	2.036579
Prob(F-statistic)	0.802179		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:01
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003740	0.001857	2.014554	0.0445
EXCESS_MARKET_RETURN	-0.032482	0.160857	-0.201931	0.8401
EXCESS_MARKET_RETURN*DUMMY_2	-3.587392	0.989450	-3.625644	0.0003

R-squared	0.026719	Mean dependent var	0.004197
Adjusted R-squared	0.022834	S.D. dependent var	0.041895
S.E. of regression	0.041414	Akaike info criterion	-3.524481
Sum squared resid	0.859258	Schwarz criterion	-3.499347
Log likelihood	891.1692	Hannan-Quinn criter.	-3.514622
F-statistic	6.876906	Durbin-Watson stat	2.049291
Prob(F-statistic)	0.001132		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:02
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003943	0.001861	2.119349	0.0346
EXCESS_MARKET_RETURN	-0.030820	0.160714	-0.191769	0.8480
DUMMY_2	-0.032775	0.023631	-1.386929	0.1661
EXCESS_MARKET_RETURN*DUMMY_2	-4.650677	1.250982	-3.717620	0.0002

R-squared	0.030449	Mean dependent var	0.004197
Adjusted R-squared	0.024632	S.D. dependent var	0.041895
S.E. of regression	0.041375	Akaike info criterion	-3.524353
Sum squared resid	0.855964	Schwarz criterion	-3.490840
Log likelihood	892.1368	Hannan-Quinn criter.	-3.511207
F-statistic	5.234246	Durbin-Watson stat	2.053973
Prob(F-statistic)	0.001451		

APPENDIX B: Images of CAPM Results for Ülker

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 18:56
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000298	0.000735	-0.405723	0.6851
EXCESS_MARKET_RETU...	0.719539	0.063089	11.40508	0.0000

R-squared	0.205791	Mean dependent var	0.000217
Adjusted R-squared	0.204209	S.D. dependent var	0.018457
S.E. of regression	0.016465	Akaike info criterion	-5.371210
Sum squared resid	0.136089	Schwarz criterion	-5.354454
Log likelihood	1355.545	Hannan-Quinn criter.	-5.364637
F-statistic	130.0758	Durbin-Watson stat	1.983250
Prob(F-statistic)	0.000000		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:12
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000843	0.001040	-0.810875	0.4178
EXCESS_MARKET_RETU...	0.717730	0.063165	11.36278	0.0000
DUMMY_1	0.001088	0.001469	0.741133	0.4590

R-squared	0.206661	Mean dependent var	0.000217
Adjusted R-squared	0.203494	S.D. dependent var	0.018457
S.E. of regression	0.016472	Akaike info criterion	-5.368338
Sum squared resid	0.135940	Schwarz criterion	-5.343203
Log likelihood	1355.821	Hannan-Quinn criter.	-5.358478
F-statistic	65.25412	Durbin-Watson stat	1.984976
Prob(F-statistic)	0.000000		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:24
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000344	0.000739	-0.465863	0.6415
EXCESS_MARKET_RETU...	0.716100	0.063342	11.30525	0.0000
DUMMY_2	0.004878	0.007430	0.656540	0.5118

R-squared	0.206474	Mean dependent var	0.000217
Adjusted R-squared	0.203306	S.D. dependent var	0.018457
S.E. of regression	0.016474	Akaike info criterion	-5.368102
Sum squared resid	0.135972	Schwarz criterion	-5.342968
Log likelihood	1355.762	Hannan-Quinn criter.	-5.358243
F-statistic	65.17969	Durbin-Watson stat	1.987615
Prob(F-statistic)	0.000000		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:38
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000256	0.000736	-0.347529	0.7283
EXCESS_MARKET_RETURN	0.769949	0.079772	9.651877	0.0000
EXCESS_MARKET_RETURN*DUMMY_1	-0.134365	0.130139	-1.032471	0.3023

R-squared	0.207478	Mean dependent var	0.000217
Adjusted R-squared	0.204314	S.D. dependent var	0.018457
S.E. of regression	0.016464	Akaike info criterion	-5.369368
Sum squared resid	0.135800	Schwarz criterion	-5.344233
Log likelihood	1356.081	Hannan-Quinn criter.	-5.359508
F-statistic	65.57943	Durbin-Watson stat	1.980280
Prob(F-statistic)	0.000000		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:40
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000857	0.001040	-0.824470	0.4101
EXCESS_MARKET_RETURN	0.770885	0.079806	9.659449	0.0000
DUMMY_1	0.001206	0.001472	0.819155	0.4131
EXCESS_MARKET_RETURN*DUMMY_1	-0.142205	0.130533	-1.089416	0.2765

R-squared	0.208540	Mean dependent var	0.000217
Adjusted R-squared	0.203791	S.D. dependent var	0.018457
S.E. of regression	0.016469	Akaike info criterion	-5.366740
Sum squared resid	0.135618	Schwarz criterion	-5.333228
Log likelihood	1356.419	Hannan-Quinn criter.	-5.353595
F-statistic	43.91458	Durbin-Watson stat	1.982277
Prob(F-statistic)	0.000000		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:07
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000283	0.000737	-0.383293	0.7017
EXCESS_MARKET_RETURN	0.721884	0.063575	11.35489	0.0000
EXCESS_MARKET_RETURN*DUMMY_2	-0.168756	0.530601	-0.318047	0.7506

R-squared	0.205952	Mean dependent var	0.000217
Adjusted R-squared	0.202782	S.D. dependent var	0.018457
S.E. of regression	0.016480	Akaike info criterion	-5.367444
Sum squared resid	0.136061	Schwarz criterion	-5.342310
Log likelihood	1355.596	Hannan-Quinn criter.	-5.357585
F-statistic	64.97200	Durbin-Watson stat	1.979598
Prob(F-statistic)	0.000000		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:08
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000348	0.000738	-0.471135	0.6377
EXCESS_MARKET_RETURN	0.722183	0.063530	11.36754	0.0000
DUMMY_2	0.014248	0.010905	1.306525	0.1920
EXCESS_MARKET_RETURN*DUMMY_2	-0.913542	0.778523	-1.173429	0.2412

R-squared	0.208653	Mean dependent var	0.000217
Adjusted R-squared	0.203905	S.D. dependent var	0.018457
S.E. of regression	0.016468	Akaike info criterion	-5.366884
Sum squared resid	0.135598	Schwarz criterion	-5.333371
Log likelihood	1356.455	Hannan-Quinn criter.	-5.353738
F-statistic	43.94480	Durbin-Watson stat	1.979352
Prob(F-statistic)	0.000000		

APPENDIX C: Images of CAPM Results for Tukaş

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 18:53
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002041	0.001478	1.380788	0.1680
EXCESS_MARKET_RETU...	0.956909	0.116161	8.237750	0.0000

R-squared	0.119083	Mean dependent var	0.001904
Adjusted R-squared	0.117328	S.D. dependent var	0.035315
S.E. of regression	0.033179	Akaike info criterion	-3.969861
Sum squared resid	0.552612	Schwarz criterion	-3.953105
Log likelihood	1002.405	Hannan-Quinn criter.	-3.963288
F-statistic	67.86052	Durbin-Watson stat	2.021946
Prob(F-statistic)	0.000000		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:11
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002149	0.002094	1.026158	0.3053
EXCESS_MARKET_RETU...	0.956325	0.116553	8.205072	0.0000
DUMMY_1	-0.000216	0.002966	-0.072791	0.9420

R-squared	0.119092	Mean dependent var	0.001904
Adjusted R-squared	0.115575	S.D. dependent var	0.035315
S.E. of regression	0.033212	Akaike info criterion	-3.965904
Sum squared resid	0.552606	Schwarz criterion	-3.940769
Log likelihood	1002.408	Hannan-Quinn criter.	-3.956044
F-statistic	33.86568	Durbin-Watson stat	2.021651
Prob(F-statistic)	0.000000		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:23
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002890	0.001437	2.011191	0.0448
EXCESS_MARKET_RETU...	0.919573	0.112538	8.171254	0.0000
DUMMY_2	-0.086094	0.014447	-5.959352	0.0000

R-squared	0.177394	Mean dependent var	0.001904
Adjusted R-squared	0.174110	S.D. dependent var	0.035315
S.E. of regression	0.032094	Akaike info criterion	-4.034379
Sum squared resid	0.516033	Schwarz criterion	-4.009245
Log likelihood	1019.664	Hannan-Quinn criter.	-4.024520
F-statistic	54.02000	Durbin-Watson stat	2.061650
Prob(F-statistic)	0.000000		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:32
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002113	0.001482	1.425442	0.1547
EXCESS_MARKET_RETURN	0.838453	0.204873	4.092556	0.0000
EXCESS_MARKET_RETURN*DUMMY_1	0.174962	0.249199	0.702097	0.4829

R-squared	0.119949	Mean dependent var	0.001904
Adjusted R-squared	0.116435	S.D. dependent var	0.035315
S.E. of regression	0.033195	Akaike info criterion	-3.966877
Sum squared resid	0.552069	Schwarz criterion	-3.941742
Log likelihood	1002.653	Hannan-Quinn criter.	-3.957017
F-statistic	34.14246	Durbin-Watson stat	2.027194
Prob(F-statistic)	0.000000		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:34
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002236	0.002099	1.065282	0.2873
EXCESS_MARKET_RETURN	0.837593	0.205340	4.079059	0.0001
DUMMY_1	-0.000245	0.002968	-0.082643	0.9342
EXCESS_MARKET_RETURN*DUMMY_1	0.175252	0.249471	0.702495	0.4827

R-squared	0.119961	Mean dependent var	0.001904
Adjusted R-squared	0.114680	S.D. dependent var	0.035315
S.E. of regression	0.033228	Akaike info criterion	-3.962922
Sum squared resid	0.552062	Schwarz criterion	-3.929409
Log likelihood	1002.656	Hannan-Quinn criter.	-3.949776
F-statistic	22.71879	Durbin-Watson stat	2.026873
Prob(F-statistic)	0.000000		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:05
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002141	0.001480	1.447303	0.1484
EXCESS_MARKET_RETURN	0.942990	0.116673	8.082339	0.0000
EXCESS_MARKET_RETURN*DUMMY_2	1.433640	1.182177	1.212712	0.2258

R-squared	0.121661	Mean dependent var	0.001904
Adjusted R-squared	0.118155	S.D. dependent var	0.035315
S.E. of regression	0.033163	Akaike info criterion	-3.968824
Sum squared resid	0.550995	Schwarz criterion	-3.943690
Log likelihood	1003.144	Hannan-Quinn criter.	-3.958965
F-statistic	34.69741	Durbin-Watson stat	2.021592
Prob(F-statistic)	0.000000		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:06
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002891	0.001429	2.023969	0.0435
EXCESS_MARKET_RETURN	0.943325	0.112265	8.402698	0.0000
DUMMY_2	-0.111910	0.017452	-6.412426	0.0000
EXCESS_MARKET_RETURN*DUMMY_2	-3.599617	1.382039	-2.604571	0.0095

R-squared	0.188405	Mean dependent var	0.001904
Adjusted R-squared	0.183536	S.D. dependent var	0.035315
S.E. of regression	0.031910	Akaike info criterion	-4.043888
Sum squared resid	0.509125	Schwarz criterion	-4.010375
Log likelihood	1023.060	Hannan-Quinn criter.	-4.030742
F-statistic	38.69035	Durbin-Watson stat	2.078954
Prob(F-statistic)	0.000000		

APPENDIX D: Images of CAPM Results for Finansbank

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:02
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004485	0.002873	-1.560866	0.1192
EXCESS_MARKET_RETU...	0.784620	0.100393	7.815512	0.0000

R-squared	0.108286	Mean dependent var	-0.024263
Adjusted R-squared	0.106513	S.D. dependent var	0.032358
S.E. of regression	0.030586	Akaike info criterion	-4.132593
Sum squared resid	0.470560	Schwarz criterion	-4.115862
Log likelihood	1045.480	Hannan-Quinn criter.	-4.126031
F-statistic	61.08223	Durbin-Watson stat	1.683825
Prob(F-statistic)	0.000000		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:16
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.002494	0.003194	-0.780756	0.4353
EXCESS_MARKET_RETU...	0.786782	0.100303	7.844091	0.0000
DUMMY_1	-0.003866	0.002720	-1.421396	0.1558

R-squared	0.111860	Mean dependent var	-0.024263
Adjusted R-squared	0.108322	S.D. dependent var	0.032358
S.E. of regression	0.030555	Akaike info criterion	-4.132650
Sum squared resid	0.468673	Schwarz criterion	-4.107553
Log likelihood	1046.494	Hannan-Quinn criter.	-4.122806
F-statistic	31.61325	Durbin-Watson stat	1.692122
Prob(F-statistic)	0.000000		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:27
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004331	0.002880	-1.504043	0.1332
EXCESS_MARKET_RETU...	0.786090	0.100434	7.826939	0.0000
DUMMY_2	-0.011785	0.013752	-0.856971	0.3919

R-squared	0.109589	Mean dependent var	-0.024263
Adjusted R-squared	0.106041	S.D. dependent var	0.032358
S.E. of regression	0.030594	Akaike info criterion	-4.130095
Sum squared resid	0.469872	Schwarz criterion	-4.104998
Log likelihood	1045.849	Hannan-Quinn criter.	-4.120251
F-statistic	30.89219	Durbin-Watson stat	1.689323
Prob(F-statistic)	0.000000		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:45
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004479	0.002878	-1.556177	0.1203
EXCESS_MARKET_RETURN	0.782310	0.109323	7.155976	0.0000
EXCESS_MARKET_RETURN*DUMMY_1	0.005115	0.095303	0.053668	0.9572

R-squared	0.108291	Mean dependent var	-0.024263
Adjusted R-squared	0.104739	S.D. dependent var	0.032358
S.E. of regression	0.030616	Akaike info criterion	-4.128639
Sum squared resid	0.470557	Schwarz criterion	-4.103542
Log likelihood	1045.481	Hannan-Quinn criter.	-4.118795
F-statistic	30.48201	Durbin-Watson stat	1.684506
Prob(F-statistic)	0.000000		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:46
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003537	0.003962	0.892729	0.3724
EXCESS_MARKET_RETURN	1.024080	0.136481	7.503451	0.0000
DUMMY_1	-0.016702	0.005719	-2.920678	0.0037
EXCESS_MARKET_RETURN*DUMMY_1	-0.509508	0.199987	-2.547708	0.0111

R-squared	0.123220	Mean dependent var	-0.024263
Adjusted R-squared	0.117970	S.D. dependent var	0.032358
S.E. of regression	0.030389	Akaike info criterion	-4.141562
Sum squared resid	0.462679	Schwarz criterion	-4.108100
Log likelihood	1049.744	Hannan-Quinn criter.	-4.128437
F-statistic	23.46963	Durbin-Watson stat	1.676490
Prob(F-statistic)	0.000000		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:13
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004444	0.002880	-1.542911	0.1235
EXCESS_MARKET_RETURN	0.784823	0.100488	7.810129	0.0000
EXCESS_MARKET_RETURN*DUMMY_2	0.159955	0.584713	0.273561	0.7845

R-squared	0.108419	Mean dependent var	-0.024263
Adjusted R-squared	0.104867	S.D. dependent var	0.032358
S.E. of regression	0.030614	Akaike info criterion	-4.128782
Sum squared resid	0.470489	Schwarz criterion	-4.103686
Log likelihood	1045.517	Hannan-Quinn criter.	-4.118938
F-statistic	30.52236	Durbin-Watson stat	1.686823
Prob(F-statistic)	0.000000		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:14
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004087	0.002868	-1.425270	0.1547
EXCESS_MARKET_RETURN	0.795771	0.100025	7.955703	0.0000
DUMMY_2	-0.151684	0.059139	-2.564874	0.0106
EXCESS_MARKET_RETURN*DUMMY_2	-6.110080	2.512786	-2.431596	0.0154

R-squared	0.119974	Mean dependent var	-0.024263
Adjusted R-squared	0.114705	S.D. dependent var	0.032358
S.E. of regression	0.030446	Akaike info criterion	-4.137867
Sum squared resid	0.464392	Schwarz criterion	-4.104405
Log likelihood	1048.811	Hannan-Quinn criter.	-4.124742
F-statistic	22.76722	Durbin-Watson stat	1.670269
Prob(F-statistic)	0.000000		

APPENDIX E: Images of CAPM Results for Garanti

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:04
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.62E-05	0.000384	-0.172418	0.8632
EXCESS_MARKET_RETU...	1.341067	0.033132	40.47672	0.0000

R-squared	0.765103	Mean dependent var	0.000737
Adjusted R-squared	0.764636	S.D. dependent var	0.017774
S.E. of regression	0.008623	Akaike info criterion	-6.664843
Sum squared resid	0.037400	Schwarz criterion	-6.648112
Log likelihood	1684.873	Hannan-Quinn criter.	-6.658281
F-statistic	1638.365	Durbin-Watson stat	1.979619
Prob(F-statistic)	0.000000		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:17
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.03E-05	0.000545	-0.018887	0.9849
EXCESS_MARKET_RETU...	1.341146	0.033169	40.43425	0.0000
DUMMY_1	-0.000111	0.000768	-0.144922	0.8848

R-squared	0.765113	Mean dependent var	0.000737
Adjusted R-squared	0.764177	S.D. dependent var	0.017774
S.E. of regression	0.008631	Akaike info criterion	-6.660924
Sum squared resid	0.037399	Schwarz criterion	-6.635828
Log likelihood	1684.883	Hannan-Quinn criter.	-6.651081
F-statistic	817.5986	Durbin-Watson stat	1.979735
Prob(F-statistic)	0.000000		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:29
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.65E-05	0.000386	-0.068732	0.9452
EXCESS_MARKET_RETU...	1.340267	0.033140	40.44304	0.0000
DUMMY_2	-0.003962	0.003876	-1.022020	0.3073

R-squared	0.765591	Mean dependent var	0.000737
Adjusted R-squared	0.764657	S.D. dependent var	0.017774
S.E. of regression	0.008622	Akaike info criterion	-6.662961
Sum squared resid	0.037322	Schwarz criterion	-6.637865
Log likelihood	1685.398	Hannan-Quinn criter.	-6.653118
F-statistic	819.7773	Durbin-Watson stat	1.987558
Prob(F-statistic)	0.000000		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:48
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9.76E-05	0.000382	-0.255709	0.7983
EXCESS_MARKET_RETURN	1.265295	0.042141	30.02498	0.0000
EXCESS_MARKET_RETURN*DUMMY_1	0.193647	0.067317	2.876637	0.0042

R-squared	0.768912	Mean dependent var	0.000737
Adjusted R-squared	0.767992	S.D. dependent var	0.017774
S.E. of regression	0.008561	Akaike info criterion	-6.677232
Sum squared resid	0.036794	Schwarz criterion	-6.652136
Log likelihood	1689.001	Hannan-Quinn criter.	-6.667389
F-statistic	835.1681	Durbin-Watson stat	1.962437
Prob(F-statistic)	0.000000		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:50
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.08E-05	0.000541	0.038411	0.9694
EXCESS_MARKET_RETURN	1.265001	0.042190	29.98333	0.0000
DUMMY_1	-0.000236	0.000764	-0.308819	0.7576
EXCESS_MARKET_RETURN*DUMMY_1	0.194825	0.067486	2.886899	0.0041

R-squared	0.768956	Mean dependent var	0.000737
Adjusted R-squared	0.767573	S.D. dependent var	0.017774
S.E. of regression	0.008569	Akaike info criterion	-6.673462
Sum squared resid	0.036787	Schwarz criterion	-6.640000
Log likelihood	1689.049	Hannan-Quinn criter.	-6.660337
F-statistic	555.8072	Durbin-Watson stat	1.962796
Prob(F-statistic)	0.000000		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:15
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.70E-05	0.000385	-0.148170	0.8823
EXCESS_MARKET_RETURN	1.339712	0.033207	40.34390	0.0000
EXCESS_MARKET_RETURN*DUMMY_2	0.398569	0.577766	0.689845	0.4906

R-squared	0.765326	Mean dependent var	0.000737
Adjusted R-squared	0.764391	S.D. dependent var	0.017774
S.E. of regression	0.008627	Akaike info criterion	-6.661830
Sum squared resid	0.037365	Schwarz criterion	-6.636734
Log likelihood	1685.112	Hannan-Quinn criter.	-6.651986
F-statistic	818.5669	Durbin-Watson stat	1.976559
Prob(F-statistic)	0.000000		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:16
Sample (adjusted): 2 506
Included observations: 505 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.61E-05	0.000386	-0.067542	0.9462
EXCESS_MARKET_RETURN	1.339569	0.033217	40.32765	0.0000
DUMMY_2	-0.003461	0.004091	-0.846015	0.3979
EXCESS_MARKET_RETURN*DUMMY_2	0.234934	0.609436	0.385494	0.7000

R-squared	0.765660	Mean dependent var	0.000737
Adjusted R-squared	0.764257	S.D. dependent var	0.017774
S.E. of regression	0.008630	Akaike info criterion	-6.659297
Sum squared resid	0.037311	Schwarz criterion	-6.625835
Log likelihood	1685.473	Hannan-Quinn criter.	-6.646173
F-statistic	545.6408	Durbin-Watson stat	1.984154
Prob(F-statistic)	0.000000		

APPENDIX F: Images of CAPM Results for Denizbank

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 18:58
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002560	0.001884	1.359311	0.1747
EXCESS_MARKET_RETU...	0.258780	0.146055	1.771797	0.0770

R-squared	0.006215	Mean dependent var	0.002394
Adjusted R-squared	0.004235	S.D. dependent var	0.042325
S.E. of regression	0.042235	Akaike info criterion	-3.487152
Sum squared resid	0.895485	Schwarz criterion	-3.470396
Log likelihood	880.7624	Hannan-Quinn criter.	-3.480579
F-statistic	3.139266	Durbin-Watson stat	1.663762
Prob(F-statistic)	0.077035		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:14
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002707	0.002663	1.016560	0.3099
EXCESS_MARKET_RETU...	0.258265	0.146349	1.764724	0.0782
DUMMY_1	-0.000294	0.003770	-0.078084	0.9378

R-squared	0.006227	Mean dependent var	0.002394
Adjusted R-squared	0.002260	S.D. dependent var	0.042325
S.E. of regression	0.042277	Akaike info criterion	-3.483196
Sum squared resid	0.895474	Schwarz criterion	-3.458062
Log likelihood	880.7654	Hannan-Quinn criter.	-3.473337
F-statistic	1.569574	Durbin-Watson stat	1.663607
Prob(F-statistic)	0.209156		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:26
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003219	0.001874	1.717549	0.0865
EXCESS_MARKET_RETU...	0.291260	0.144844	2.010851	0.0449
DUMMY_2	-0.064236	0.018825	-3.412203	0.0007

R-squared	0.028785	Mean dependent var	0.002394
Adjusted R-squared	0.024908	S.D. dependent var	0.042325
S.E. of regression	0.041795	Akaike info criterion	-3.506158
Sum squared resid	0.875147	Schwarz criterion	-3.481023
Log likelihood	886.5518	Hannan-Quinn criter.	-3.496299
F-statistic	7.424477	Durbin-Watson stat	1.676493
Prob(F-statistic)	0.000664		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:42
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002524	0.001886	1.338286	0.1814
EXCESS_MARKET_RETURN	0.378151	0.244770	1.544928	0.1230
EXCESS_MARKET_RETURN*DUMMY_1	-0.185471	0.305076	-0.607952	0.5435

R-squared	0.006947	Mean dependent var	0.002394
Adjusted R-squared	0.002983	S.D. dependent var	0.042325
S.E. of regression	0.042262	Akaike info criterion	-3.483921
Sum squared resid	0.894825	Schwarz criterion	-3.458787
Log likelihood	880.9482	Hannan-Quinn criter.	-3.474062
F-statistic	1.752465	Durbin-Watson stat	1.663562
Prob(F-statistic)	0.174407		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:43
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002715	0.002665	1.018705	0.3088
EXCESS_MARKET_RETURN	0.378251	0.245014	1.543797	0.1233
DUMMY_1	-0.000383	0.003775	-0.101551	0.9192
EXCESS_MARKET_RETURN*DUMMY_1	-0.186669	0.305605	-0.610818	0.5416

R-squared	0.006968	Mean dependent var	0.002394
Adjusted R-squared	0.001010	S.D. dependent var	0.042325
S.E. of regression	0.042304	Akaike info criterion	-3.479974
Sum squared resid	0.894807	Schwarz criterion	-3.446461
Log likelihood	880.9534	Hannan-Quinn criter.	-3.466828
F-statistic	1.169440	Durbin-Watson stat	1.663368
Prob(F-statistic)	0.320819		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:10
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002578	0.001888	1.365411	0.1727
EXCESS_MARKET_RETURN	0.262755	0.147793	1.777860	0.0760
EXCESS_MARKET_RETURN*DUMMY_2	-0.187914	1.024286	-0.183458	0.8545

R-squared	0.006281	Mean dependent var	0.002394
Adjusted R-squared	0.002314	S.D. dependent var	0.042325
S.E. of regression	0.042276	Akaike info criterion	-3.483251
Sum squared resid	0.895425	Schwarz criterion	-3.458117
Log likelihood	880.7793	Hannan-Quinn criter.	-3.473392
F-statistic	1.583440	Durbin-Watson stat	1.662885
Prob(F-statistic)	0.206293		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:11
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003200	0.001873	1.708870	0.0881
EXCESS_MARKET_RETURN	0.265507	0.145995	1.818597	0.0696
DUMMY_2	-0.075662	0.020648	-3.664424	0.0003
EXCESS_MARKET_RETURN*DUMMY_2	1.490396	1.110644	1.341921	0.1802

R-squared	0.032271	Mean dependent var	0.002394
Adjusted R-squared	0.026464	S.D. dependent var	0.042325
S.E. of regression	0.041761	Akaike info criterion	-3.505785
Sum squared resid	0.872006	Schwarz criterion	-3.472272
Log likelihood	887.4577	Hannan-Quinn criter.	-3.492639
F-statistic	5.557813	Durbin-Watson stat	1.684819
Prob(F-statistic)	0.000931		

APPENDIX G: Images of CAPM Results for Doğtaş

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:05
Sample (adjusted): 2 504
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001602	0.001082	1.481051	0.1392
EXCESS_MARKET_RETU...	0.410995	0.071223	5.770516	0.0000

R-squared	0.062323	Mean dependent var	0.001822
Adjusted R-squared	0.060451	S.D. dependent var	0.025016
S.E. of regression	0.024249	Akaike info criterion	-4.596953
Sum squared resid	0.294584	Schwarz criterion	-4.580172
Log likelihood	1158.134	Hannan-Quinn criter.	-4.590370
F-statistic	33.29886	Durbin-Watson stat	2.115572
Prob(F-statistic)	0.000000		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:18
Sample (adjusted): 2 504
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002031	0.001527	1.330468	0.1840
EXCESS_MARKET_RETU...	0.410616	0.071290	5.759830	0.0000
DUMMY_1	-0.000863	0.002164	-0.398511	0.6904

R-squared	0.062620	Mean dependent var	0.001822
Adjusted R-squared	0.058871	S.D. dependent var	0.025016
S.E. of regression	0.024269	Akaike info criterion	-4.593295
Sum squared resid	0.294490	Schwarz criterion	-4.568122
Log likelihood	1158.214	Hannan-Quinn criter.	-4.583420
F-statistic	16.70088	Durbin-Watson stat	2.116111
Prob(F-statistic)	0.000000		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:31
Sample (adjusted): 2 504
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001798	0.001085	1.657446	0.0981
EXCESS_MARKET_RETU...	0.411441	0.071062	5.789903	0.0000
DUMMY_2	-0.019710	0.010874	-1.812586	0.0705

R-squared	0.068444	Mean dependent var	0.001822
Adjusted R-squared	0.064718	S.D. dependent var	0.025016
S.E. of regression	0.024193	Akaike info criterion	-4.599527
Sum squared resid	0.292661	Schwarz criterion	-4.574354
Log likelihood	1159.781	Hannan-Quinn criter.	-4.589651
F-statistic	18.36811	Durbin-Watson stat	2.127090
Prob(F-statistic)	0.000000		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:52
Sample (adjusted): 2 504
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001561	0.001076	1.449955	0.1477
EXCESS_MARKET_RETURN	0.597637	0.102987	5.803026	0.0000
EXCESS_MARKET_RETURN*DUMMY_1	-0.354202	0.141839	-2.497212	0.0128

R-squared	0.073873	Mean dependent var	0.001822
Adjusted R-squared	0.070169	S.D. dependent var	0.025016
S.E. of regression	0.024123	Akaike info criterion	-4.605372
Sum squared resid	0.290955	Schwarz criterion	-4.580200
Log likelihood	1161.251	Hannan-Quinn criter.	-4.595497
F-statistic	19.94147	Durbin-Watson stat	2.127087
Prob(F-statistic)	0.000000		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:53
Sample (adjusted): 2 504
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001894	0.001520	1.246408	0.2132
EXCESS_MARKET_RETURN	0.596505	0.103144	5.783216	0.0000
DUMMY_1	-0.000671	0.002155	-0.311238	0.7557
EXCESS_MARKET_RETURN*DUMMY_1	-0.352616	0.142059	-2.482181	0.0134

R-squared	0.074053	Mean dependent var	0.001822
Adjusted R-squared	0.068486	S.D. dependent var	0.025016
S.E. of regression	0.024145	Akaike info criterion	-4.601590
Sum squared resid	0.290898	Schwarz criterion	-4.568027
Log likelihood	1161.300	Hannan-Quinn criter.	-4.588423
F-statistic	13.30259	Durbin-Watson stat	2.127351
Prob(F-statistic)	0.000000		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:18
Sample (adjusted): 2 504
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001605	0.001083	1.482240	0.1389
EXCESS_MARKET_RETURN	0.412103	0.071410	5.770979	0.0000
EXCESS_MARKET_RETURN*DUMMY_2	-0.327161	1.223004	-0.267506	0.7892

R-squared	0.062457	Mean dependent var	0.001822
Adjusted R-squared	0.058707	S.D. dependent var	0.025016
S.E. of regression	0.024271	Akaike info criterion	-4.593120
Sum squared resid	0.294541	Schwarz criterion	-4.567948
Log likelihood	1158.170	Hannan-Quinn criter.	-4.583245
F-statistic	16.65435	Durbin-Watson stat	2.116937
Prob(F-statistic)	0.000000		

- **Model 7:**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:19
Sample (adjusted): 2 504
Included observations: 503 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001798	0.001086	1.655681	0.0984
EXCESS_MARKET_RETURN	0.411664	0.071253	5.777521	0.0000
DUMMY_2	-0.019640	0.010962	-1.791631	0.0738
EXCESS_MARKET_RETURN*DUMMY_2	-0.066212	1.228971	-0.053876	0.9571

R-squared	0.068449	Mean dependent var	0.001822
Adjusted R-squared	0.062849	S.D. dependent var	0.025016
S.E. of regression	0.024218	Akaike info criterion	-4.595556
Sum squared resid	0.292659	Schwarz criterion	-4.561993
Log likelihood	1159.782	Hannan-Quinn criter.	-4.582389
F-statistic	12.22196	Durbin-Watson stat	2.127386
Prob(F-statistic)	0.000000		

APPENDIX H: Images of CAPM Results for Hürriyet

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:08
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000263	0.001490	0.176274	0.8601
EXCESS_MARKET_RETU...	0.927023	0.121393	7.636516	0.0000

R-squared	0.104078	Mean dependent var	0.000136
Adjusted R-squared	0.102293	S.D. dependent var	0.035299
S.E. of regression	0.033445	Akaike info criterion	-3.953891
Sum squared resid	0.561509	Schwarz criterion	-3.937135
Log likelihood	998.3805	Hannan-Quinn criter.	-3.947318
F-statistic	58.31637	Durbin-Watson stat	1.948998
Prob(F-statistic)	0.000000		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:21
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001285	0.002110	0.608777	0.5429
EXCESS_MARKET_RETU...	0.920762	0.121802	7.559501	0.0000
DUMMY_1	-0.002046	0.002990	-0.684270	0.4941

R-squared	0.104914	Mean dependent var	0.000136
Adjusted R-squared	0.101341	S.D. dependent var	0.035299
S.E. of regression	0.033462	Akaike info criterion	-3.950857
Sum squared resid	0.560984	Schwarz criterion	-3.925722
Log likelihood	998.6159	Hannan-Quinn criter.	-3.940997
F-statistic	29.36141	Durbin-Watson stat	1.950694
Prob(F-statistic)	0.000000		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:33
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000120	0.001489	-0.080301	0.9360
EXCESS_MARKET_RETU...	0.943008	0.120868	7.801980	0.0000
DUMMY_2	0.038743	0.014967	2.588659	0.0099

R-squared	0.115903	Mean dependent var	0.000136
Adjusted R-squared	0.112374	S.D. dependent var	0.035299
S.E. of regression	0.033256	Akaike info criterion	-3.963209
Sum squared resid	0.554097	Schwarz criterion	-3.938075
Log likelihood	1001.729	Hannan-Quinn criter.	-3.953350
F-statistic	32.83991	Durbin-Watson stat	1.971786
Prob(F-statistic)	0.000000		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:58
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.09E-05	0.001483	-0.041064	0.9673
EXCESS_MARKET_RETURN	1.409094	0.205638	6.852288	0.0000
EXCESS_MARKET_RETURN*DUMMY_1	-0.735788	0.254321	-2.893144	0.0040

R-squared	0.118800	Mean dependent var	0.000136
Adjusted R-squared	0.115282	S.D. dependent var	0.035299
S.E. of regression	0.033202	Akaike info criterion	-3.966492
Sum squared resid	0.552282	Schwarz criterion	-3.941357
Log likelihood	1002.556	Hannan-Quinn criter.	-3.956632
F-statistic	33.77142	Durbin-Watson stat	1.951003
Prob(F-statistic)	0.000000		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:59
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.000907	0.002099	0.432110	0.6658
EXCESS_MARKET_RETURN	1.401771	0.206063	6.802641	0.0000
DUMMY_1	-0.001936	0.002968	-0.652091	0.5146
EXCESS_MARKET_RETURN*DUMMY_1	-0.733653	0.254488	-2.882853	0.0041

R-squared	0.119549	Mean dependent var	0.000136
Adjusted R-squared	0.114266	S.D. dependent var	0.035299
S.E. of regression	0.033221	Akaike info criterion	-3.963374
Sum squared resid	0.551812	Schwarz criterion	-3.929861
Log likelihood	1002.770	Hannan-Quinn criter.	-3.950228
F-statistic	22.63019	Durbin-Watson stat	1.952467
Prob(F-statistic)	0.000000		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:23
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.66E-05	0.001491	0.051417	0.9590
EXCESS_MARKET_RETURN	0.942013	0.121455	7.756072	0.0000
EXCESS_MARKET_RETURN*DUMMY_2	-2.961293	1.701872	-1.740021	0.0825

R-squared	0.109459	Mean dependent var	0.000136
Adjusted R-squared	0.105904	S.D. dependent var	0.035299
S.E. of regression	0.033377	Akaike info criterion	-3.955948
Sum squared resid	0.558136	Schwarz criterion	-3.930813
Log likelihood	999.8988	Hannan-Quinn criter.	-3.946088
F-statistic	30.78980	Durbin-Watson stat	1.949139
Prob(F-statistic)	0.000000		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:24
Sample (adjusted): 2 505
Included observations: 504 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000120	0.001490	-0.080277	0.9360
EXCESS_MARKET_RETURN	0.941917	0.121132	7.775978	0.0000
DUMMY_2	0.041612	0.021698	1.917751	0.0557
EXCESS_MARKET_RETURN*DUMMY_2	0.449283	2.458407	0.182754	0.8551

R-squared	0.115962	Mean dependent var	0.000136
Adjusted R-squared	0.110658	S.D. dependent var	0.035299
S.E. of regression	0.033288	Akaike info criterion	-3.959308
Sum squared resid	0.554060	Schwarz criterion	-3.925795
Log likelihood	1001.746	Hannan-Quinn criter.	-3.946162
F-statistic	21.86217	Durbin-Watson stat	1.974043
Prob(F-statistic)	0.000000		

APPENDIX I: Images of CAPM Results for Ulusoy

- **Model 1**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:07
Sample (adjusted): 2 500
Included observations: 499 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002190	0.000967	2.264286	0.0240
EXCESS_MARKET_RETU...	0.293262	0.071460	4.103837	0.0000

R-squared	0.032776	Mean dependent var	0.002077
Adjusted R-squared	0.030830	S.D. dependent var	0.021939
S.E. of regression	0.021598	Akaike info criterion	-4.828459
Sum squared resid	0.231831	Schwarz criterion	-4.811575
Log likelihood	1206.701	Hannan-Quinn criter.	-4.821833
F-statistic	16.84148	Durbin-Watson stat	2.038678
Prob(F-statistic)	0.000047		

- **Model 2**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:19
Sample (adjusted): 2 500
Included observations: 499 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002061	0.001369	1.505289	0.1329
EXCESS_MARKET_RETU...	0.292873	0.071590	4.090963	0.0001
DUMMY_1	0.000259	0.001937	0.133754	0.8937

R-squared	0.032811	Mean dependent var	0.002077
Adjusted R-squared	0.028911	S.D. dependent var	0.021939
S.E. of regression	0.021619	Akaike info criterion	-4.824487
Sum squared resid	0.231823	Schwarz criterion	-4.799161
Log likelihood	1206.710	Hannan-Quinn criter.	-4.814548
F-statistic	8.413045	Durbin-Watson stat	2.038804
Prob(F-statistic)	0.000255		

- **Model 3**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/10/20 Time: 19:32
Sample (adjusted): 2 500
Included observations: 499 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002289	0.000972	2.354962	0.0189
EXCESS_MARKET_RETU...	0.291921	0.071469	4.084563	0.0001
DUMMY_2	-0.009929	0.009709	-1.022724	0.3069

R-squared	0.034811	Mean dependent var	0.002077
Adjusted R-squared	0.030919	S.D. dependent var	0.021939
S.E. of regression	0.021597	Akaike info criterion	-4.826558
Sum squared resid	0.231343	Schwarz criterion	-4.801231
Log likelihood	1207.226	Hannan-Quinn criter.	-4.816619
F-statistic	8.944502	Durbin-Watson stat	2.042750
Prob(F-statistic)	0.000153		

- **Model 4**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:55
Sample (adjusted): 2 500
Included observations: 499 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002328	0.000955	2.436786	0.0152
EXCESS_MARKET_RETURN	0.538067	0.096078	5.600325	0.0000
EXCESS_MARKET_RETURN*DUMMY_1	-0.531289	0.141572	-3.752783	0.0002

R-squared	0.059481	Mean dependent var	0.002077
Adjusted R-squared	0.055688	S.D. dependent var	0.021939
S.E. of regression	0.021319	Akaike info criterion	-4.852449
Sum squared resid	0.225430	Schwarz criterion	-4.827123
Log likelihood	1213.686	Hannan-Quinn criter.	-4.842510
F-statistic	15.68410	Durbin-Watson stat	2.035970
Prob(F-statistic)	0.000000		

- **Model 5**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 18:56
Sample (adjusted): 2 500
Included observations: 499 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002290	0.001353	1.692778	0.0911
EXCESS_MARKET_RETURN	0.537885	0.096281	5.586591	0.0000
DUMMY_1	7.69E-05	0.001913	0.040214	0.9679
EXCESS_MARKET_RETURN*DUMMY_1	-0.531144	0.141760	-3.746770	0.0002

R-squared	0.059484	Mean dependent var	0.002077
Adjusted R-squared	0.053784	S.D. dependent var	0.021939
S.E. of regression	0.021340	Akaike info criterion	-4.848444
Sum squared resid	0.225430	Schwarz criterion	-4.814676
Log likelihood	1213.687	Hannan-Quinn criter.	-4.835193
F-statistic	10.43556	Durbin-Watson stat	2.035997
Prob(F-statistic)	0.000001		

- **Model 6**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:20
Sample (adjusted): 2 500
Included observations: 499 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002259	0.000967	2.336197	0.0199
EXCESS_MARKET_RETURN	0.288451	0.071428	4.038336	0.0001
EXCESS_MARKET_RETURN*DUMMY_2	2.469037	1.595283	1.547711	0.1223

R-squared	0.037424	Mean dependent var	0.002077
Adjusted R-squared	0.033543	S.D. dependent var	0.021939
S.E. of regression	0.021567	Akaike info criterion	-4.829269
Sum squared resid	0.230717	Schwarz criterion	-4.803943
Log likelihood	1207.903	Hannan-Quinn criter.	-4.819330
F-statistic	9.642087	Durbin-Watson stat	2.048625
Prob(F-statistic)	0.000078		

- **Model 7**

Dependent Variable: EXCESS_STOCK_RETURN
Method: Least Squares
Date: 04/15/20 Time: 19:21
Sample (adjusted): 2 500
Included observations: 499 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002288	0.000972	2.354777	0.0189
EXCESS_MARKET_RETURN	0.288507	0.071492	4.035509	0.0001
DUMMY_2	-0.003705	0.010989	-0.337154	0.7361
EXCESS_MARKET_RETURN*DUMMY_2	2.183055	1.808028	1.207423	0.2278

R-squared	0.037645	Mean dependent var	0.002077
Adjusted R-squared	0.031813	S.D. dependent var	0.021939
S.E. of regression	0.021587	Akaike info criterion	-4.825490
Sum squared resid	0.230664	Schwarz criterion	-4.791722
Log likelihood	1207.960	Hannan-Quinn criter.	-4.812239
F-statistic	6.454463	Durbin-Watson stat	2.048879
Prob(F-statistic)	0.000272		