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# **Customer reactions to M&As**

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## **Abstract**

Merger and acquisition deals are one of the most important events corporations engage in. After completing mergers the most essential task for executives would be maintaining joint revenue growth in order to provide the deal's success. So, customers' reaction to M&As is a crucial factor for the achievement of goals through M&A. The main purpose of this thesis is to study how customers react when companies get involved in M&A through joint sales dynamics of M&A parties. Our study also includes the characters and the importance of different parameters such as size, brand, industry, location, merger type and customer type for the customers' reactions. A number of relevant hypotheses were developed based on the study of past researches. Quantitative methods of analysis using regression models showed that customers negatively react to merger and acquisition events. Further analysis revealed that size of M&A parties, level of brand, participants location (cross-border versus domestic) and the size of acquirer relative to target are the influential for customers' reactions. On the other hand we found that customer reactions are barely effected by the duration of M&A process, different kinds of industries and the types of merger deals and customers.

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# **1. Introduction**

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*In the first chapter we present the background of the thesis and explain the problem and purpose of the current research. Further, we provide delimitations – the areas out of our research focus and a brief outline of the research paper.*

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## **1.1 Background**

In the modern economies, operational and financial improvements and growth are important to survive the competition. For the last several decades mergers and acquisitions (M&A) have been a major tool for rapid growth for many companies as well as establishing presence in different markets and industries, lowering costs and increasing revenues. When the global M&A activity reached its record high in 2007, 31770 deals were observed with the total volume of 3 trillion 633 billion dollars, of which 643 deals were over \$ 1 billion (Baird research). However, not all the mergers and acquisitions are successful. Marks and Mirvis (2001) claim that three out of four M&A fail to achieve financial and operational objectives. One of those challenges is the customer preference change. According to some researchers (E. Thornton et al, 2004) M&As often make customers dissatisfied. A merger or acquisition of several parties might have a negative or positive effect on customer preference as well as keeping their reactions neutral. This might be a driving force for the success of the deal. Yet we found little research on the customer reaction to M&A.

## **1.2 Problem discussion**

C. Homburg, M. Bucerius (2005) state that revenue side performance has much stronger impact on financial performance after mergers or acquisitions than cost savings. According to Bekier and Shelton (2002) lost revenue growth is one of the main reasons for the failure of mergers. Despite the importance of the issue the literature related to the marketing side of M&A is rather limited. In the Journal of Marketing there were only 2 publications related to M&A field out of 456 works within 2000-2009 timeframe. Those papers focus on brand issues and marketing M&A integration aspects (detailed outlines can be found in the literature review). We have also searched for M&A related studies in the Journal of

Marketing & Communication, Journal of Marketing Management, and Journal of Marketing Research but found no related studies.

Bahadir et al (2008), Homburg and Bucerius (2005), Öberg (2008) all state that there is lack of research regarding marketing aspect of M&A.

Öberg (2008) states that previous researches where customers are regarded as actors that affect and are affected by M&A are rather limited. Author also concludes that none of the publications on actors related to M&As, distinguishes customers from other business partners, customers are not considered separately and customers perspective on M&As is rarely included.

Our study of previous researches indicated that customer reactions to M&A can be approached in different ways. Some researchers (E. Thornton et al, 2004) studied customer reactions through the change in customer satisfaction index after mergers or acquisitions. Observing decline in customer satisfaction index within their sample the authors concluded that customers react negatively to mergers and acquisitions in general.

Other scholars (C. Oberg, 2008) studied customer reactions through case studies where the customer - company relationships are the major research target. The researcher studies the driving forces of customer reactions and the possible reactions in the examples of case studies through qualitative methods. The negative or positive outcome of M&A in terms of marketing is explained whether firms lost their current customers or acquired new ones or kept them after the merger. Thus, the change in the number of customers, especially the migration of large buyers is seen as the reaction of customers.

Another major indicator of customer reaction is the dynamics of revenue figures. In a number of cases (R. Larsson, 1990) customer reactions are measured by the change of sales figures after M&A. Galpin and Herndon (2007) also consider that sales and services are the point of contact with customers.

Since increasing revenues is one of the common motives for mergers and acquisitions, considering reactions of customers before M&A is crucial. The parties that are planning a merger should be able to anticipate their current and potential customers' response to the deal. These points lead us to seek answers for the following research question:

- *How customers react to M&A and how their reactions differ in various parameters related to M&A and participating parties?*

### **1.3 Thesis purpose**

Considering the importance of the subject and implications of past researchers we aim to study customer reactions to M&A. We selected revenue figures as the indicator to customer reactions while also adopted certain methods from the approaches of other authors mentioned above. The main purpose of this thesis is to study how customers react when companies get involved in M&A through joint sales dynamics of M&A parties. Our study also includes the characters and the importance of different parameters such as size, brand, industry, location, merger type and customer type for the customers' reactions.

### **1.4 Delimitations**

We do not separate a merger from acquisition and all the companies in our sample created a new entity or became a single company after the deal. Also, we use the terms “mergers” and “M&A” interchangeably. Moreover, we exclude alliances, joint ventures and partnerships from our study since we were unable to precisely break down the revenues generated by them and quantifying their impact would be impossible through our method of analysis.

We are investigating customer reactions through revenue figures rather than other indicators such as customer satisfaction index or number of customers. As there are some past researches studying customer reactions through the latter two, we decided to follow the way which is still quite under-researched. So, when we say customer reactions to M&A we mean that companies' revenues change over this period. Hence, we are delimitating customer reaction with this single indicator. Also, considering the meaning in the current case we use another phrase “joint sales impact” as an alternative to customer reactions.

As we narrowed our research focus, the impact of marketing activities (promotion, distribution and price innovations) on customer reactions is excluded from our research objective.

We also do not investigate the reasons for customer reactions as it would require collecting qualitative data which would take quite a long time. Nonetheless, we present past researches regarding this aspect.



Another aspect that we do not look into is the impact of firms' purpose of entering M&A on the reactions of customers. Although we provide theoretical background of motives, our research do not take into account and aim to explore whether the purpose of companies are creating synergies through revenue growth or cost reduction or they intend to achieve other goals. Since we generalized the research scope, we collected data that would not allow analyzing these aspects. However, this would be a topic for a future research.

## 1.5 Target audience

The current thesis may be of interest to researchers and practitioners in the field of mergers and acquisitions, to lecturers and students in business schools, to the general academic audience, as well as any other groups that hold a keen interest in the researched topic.

## 1.6 Thesis outline

The thesis consists of 6 chapters (Figure 1.1). It starts with an introduction to the thesis topic which includes the problem discussion, thesis purpose and demarcations. In the next chapter we present the methodology of the research. It contains several subchapters such as data collection, data analysis methods and quality standards. In the third chapter, we review the previous literature on and around the topic as well as describing theoretical framework of the research. The literature review is followed by data presentation, in which we provide the collected data with its various aspects. In the chapter 5, we provide the analysis of data presented in chapter 4. In the last chapter, we provide our conclusions based on the data analysis. Also, it covers our practical and theoretical implications. The overall, illustrative outline of our thesis can be drawn as this table:

**Figure 1.1 Thesis structure**

|  |
|--|
| <i>Chapter 1. Introduction</i>                         |
| <i>Chapter 2. Methodology</i>                          |
| <i>Chapter 3. Literature review</i>                    |
| <i>Chapter 4. Data Presentation</i>                    |
| <i>Chapter 5. Data Analysis</i>                        |
| <i>Chapter 6. Discussion, Findings and Conclusions</i> |

## 2. Literature review

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*In this chapter earlier research papers on and around the current topic are briefly outlined. Further, we present our hypothesis and theoretical framework.*

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### 2.1 Definitions

***Mergers and acquisitions*** - for mergers and acquisitions we basically use the definition by Gaughan (2007). He defines a merger as a two corporations in which only one survives and the merged corporation goes out of existence. Author claims that term “takeover” (acquisition) is more dispersed. Sometimes it is only referred to hostile transactions, sometimes to friendly and unfriendly mergers as well.

In our study we do not distinguish mergers from acquisitions. Sherman and Hart (2006) argue that difference in meaning between merger and acquisition may not really matter since the ultimate goal-common operation in reaching common objectives, is the same in both cases.

Gaughan (2007) differentiates merger from the consolidation. According to the author in the consolidation old entities cease to exist and new entity is formed. In the merger one entity merges in another company without forming a third new one. In M&A practice the terms are used interchangeably and distinctions are often blurred, with the term merger being broadly used both for mergers and consolidations (Gaughan 2007, p.11).

We also follow Arnold’s (2002) definitions of merger types:

***Horizontal merger*** – a horizontal merger is a combination of two companies with similar line activities. Motives for this type of merger are: possible increase in economies of scale; possible gain in market power.

***Vertical merger*** – a merger deal of two companies with different stages of production chain. Motives for this type of mergers are: reduced uncertainty of supply outlet; reduced costs of search, contracting advertising etc.; increase in market power.

***Conglomerate merger*** - a conglomerate merger is the combining of two companies which operate in unrelated business areas. Motives to conglomerate are to achieve a diversification to reduce risk, cost reduction and improved efficiency.

**Cross-border M&A** – Shimuzu et al (2004) define cross-border M&As as mergers or acquisitions that involve an acquirer firm and a target firm whose headquarters are located in different home countries.

**Domestic M&A** – Caiazza et al (2009) define domestic M&A as M&A deal that involves an acquirer and target company of one nationality and with headquarters in the same country.

**Brand** – Kotler and Keller (2006) define brand as “a name, term, sign, symbol, design or a combination of them, intended to identify the goods or services of one seller or group of sellers and to differentiate them from competitors (Koller & Keller, “Marketing Management, 2006).

**Customer satisfaction index** – As explained in [www.theacsi.com](http://www.theacsi.com) we define customer satisfaction index as the weighted scores of companies in a 0 to 100 range according to customer expectations, perceived quality, perceived value, customer complaints and customer loyalty. The index gives quantified measure of customer satisfaction of certain companies.

## **2.2 Motives for M&As**

There is a long list of literature studying why companies are engaged in M&A. We provide some of the researchers’ thoughts on M&A motives.

### **2.2.1 Merger motives**

Gaughan (2007) underlines the possible motives for the merger and acquisitions: expansion, operating synergistic benefits for the acquirer, M&A as a part of diversification program, financial factors such as a target company being undervalued or possible taxation benefits (Gaughan 2007, p14).

Hayward and Hambrick (1997) name synergies, poor management performance of target company, and management hubris as the main motives for mergers and acquisitions.

Larsson and Finkelstein (1999) based on previous researches have analyzed several theoretical lenses through which mergers and acquisitions have been studied. According to authors Management field have studied M&A as a method of diversification, focusing on motives and performance effects for different types of M&A; Economics based research has

emphasized on economies of scale and market power as a motive for merger; finance based research has primarily studied acquisition performance based on stock market measures; organizational research has focused on the post-combination integration process; human resource management has emphasized psychological issues.

Some researchers (K. Gugler et al 2003, R. Larsson, 1990) divide the M&A motives into three major groups. Two of these motives are presumed that managers seek shareholder wealth maximization through mergers while the last group of motives argues that a merger can be followed for the manager's personal benefits.

Kustatscher and Cooper (2005) mention synergy effects, economies of scale and scope, product diversification, access to each other's technology, increase of market share as main motives for M&A.

Trautwein (1990) classifies merger motives into seven groups as theories and relates them to prescriptions for merger strategies. The following theories are identified: efficiency theory, monopoly theory (to achieve market power), Valuation theory implies that managers that execute deal have better information on company's value than market. Empire building theory states that managers execute mergers to maximize their own utility and not shareholder's value. Process theory describes strategic decisions not as rational choices but as results of processes governed by certain influences like limited information, multiplicity of participants and their limited rationality, political tactics. Raider theory is seldom stated openly but is implied in the term 'raider'. Trautwein refers Holderness and Sheehan (1985) who interpret the term as a person who causes wealth transfers from the stockholders of the companies he bids for. However, Trautwein states that wealth transfer hypothesis is illogic and that raider theory has unfavorable evidence. Disturbance theory implies that economic disturbances cause changes in ordering of individual expectations and, thus result in a merger wave.

### **2.2.2 Customer related motives**

From the analyzed literature on M&A motives we have found very few indications and direct references to customers as a motive for M&A. Öberg 2008 states that despite customers are common for M&A motives, they are regarded indirectly as markets to enter, positions to enter that implies that they are not regarded as M&A actors. (Öberg 2008, p. 8)

Öberg (2004) has analyzed a number of press releases on M&A and the most frequent motive was new geographical markets. Öberg (2008) studied customer reaction to M&A through case studies and found three different types of customer related motives in M&A:

- Targeting acquired company's customers: either by cross selling or replacing products;
- Targeting acquirer's customers: to sell the acquired party's product to the own customers or to provide products on new locations;
- Both M&A parties aim to establish in a new market.

Öberg (2008) refers to Mazur (2001) who states that the true benefit of M&A is customer value despite the main focus of value creation are synergies.

Galpin and Herndon (2007) provide a comparison of motives of M&As in 1980s and now. According to authors, acquiring hard assets was the main motive in 1980's while nowadays it is 4Cs (customers, channels, competencies, content). Nowadays M&A transactions are of more strategic and operational nature unlike 80's financial transactions aiming to gain controls on undervalued assets. Authors state that today managers pay for installed customer base, better distribution channels, and geographical markets as well as for gaining control over competitors' products and services.

In its turn customers are the most valuable assets of acquired companies, being value drivers of business operations and growth. Lajoux (2006) claims that it is usually easier and cheaper to keep existing customer base than attracting new ones. Customer base as a direct motive for M&A can be an important topic for further research.

## **2.3 Human elements related to M&A**

We found a number of past researches on the issues of human elements connected to M&A. Below we present some of the studies on the employee – M&A and customer – M&A relationships.

### **2.3.1 Employees and M&A**

There is also significant relation between post merger integration process and customer reactions. If the employees are uncertain about their future career, busy with internal

resistance that might be happening in the company, then dealing with concerns of customers becomes not their priority.

Hitt et al (1990) state that during the integration phase energy of managers is often absorbed by internal issues, which can lead managers to neglect customer-related tasks.

Haldevang (2009) claims that ignoring human element in M&A integration led to problems and did not let to achieve planned value. Author states that maintaining performance regarding to customers, service, quality, and output are the biggest challenges after M&A. Without proper integration strategy to influence employees, their productivity will fall and customers will suffer as a result.

Kusstascher and Cooper (2005) state that mergers often fail to reach planned common goals due to underestimated human factors. Authors refer to Dannermiller Tyson (200) and Davy et al (1989) who stated that employee problems cause from one third to one half of all merger failures.

Seo and Hill (2005) claim that several types of role conflict can occur during M&A. For instance, employees may experience conflict between remaining loyal to old customers or coworkers and implementing changes in terms of M&A integration process.

Larsson (1990) states that majority of employees are on the negative side on a reaction scale after the M&A. Author offers an acquired employee resistance as a common denominator for the human side of M&A. This term can be explained as “the opposition of acquired employees against the combination and subsequent integration of the joining firms”. Larsson also concludes that cultural clashes between merging companies have some negative effects like losses of identity, morale, loyalty, key personnel, and productivity and are often considered as main reasons for poor performances of M&A.

Due to lack of time for the given research and main topic being customer reactions to M&A, we were unable to study the correlation between employee reactions to M&A and customer reactions to M&A. However, this area can be of great interest for future researches as it will allow analyzing in what extent employee resistance correlates with customer reactions.

### **2.3.2 Customers and M&A**

Although customer reaction to M&A is a rather under-researched topic, there is a quite long list of literature focusing on the relations between customers and M&A parties. Below we provide brief summaries of some of the researches where customers and M&A parties' relationship and customer reaction to merger deals are discussed.

Öberg (2008) refers to Mazur (2001) who states that if new entity cannot create more customer value than separate parts it will fail as a company; also she says that the role of marketing is rather undervalued during mergers and acquisitions.

According to Homburg and Bucerius (2005), previous research has not paid any attention to the marketing aspects of mergers and acquisitions. Their study analyzes the effects of post merger integration in marketing on M&A performance. Authors have studied to what extent marketing integration process affects integration outcomes; how these relationships are affected by customer orientation to integration, market growth, industry type, size of the company; and how important market-related performance compared to cost savings for M&A performance. Having analyzed a survey of 232 M&A authors concluded that market related performance had more substantial impact on financial performance than cost savings. They have also suggested that research should devote more attention to marketing issues in the M&A context as it has been understudied.

Bahadir et al (2008) have studied target and acquirer firm characteristics that affect the value of the brand in target company. Authors identify brands as critical assets in M&A transactions when firms pay significant premiums to acquire brands (Kraft, Compaq, Gillette brands). The result of the study based on 133 M&A transactions is that acquirer company marketing efforts have positive effect on the brand value of the target company. Authors, however, do not include customer dimension and its reactions in the study of M&A branding. They suggest that further research could focus on the value of customer relationship in influencing firm's acquisition value.

Gugler et al (2002) tried to determine if mergers increase market power studying impacts on company sales and profits by separating mergers in those that increase profits and those that reduce them. Although sales dynamics is analyzed, the research did not intend to analyze customer reactions to M&A.

R. Larsson (1990) analyzed revenue figure changes in the companies engaged in M&A through case studies. His findings show that sales figures dropped in the early years after the acquisition.

E. Thornton et al (2004) of Business Week studied 28 big companies that are included in American Customer Satisfaction Index and were involved in M&A from 1997 to 2002. Their research showed that customers are less satisfied after merger. Customer satisfaction index of those companies remained lower even 2 years after the deal was completed. According to their study, customer satisfaction change was different in different industries and with different merger experiences. They give a number of examples how negatively customers react to cost cutting that happens after the merger. Particularly, banks in 1990s used to cut costs to earn back high premiums they had to pay during mergers. They have changed their strategy when realized how costly it is to lose customers. However, authors also provide examples of positive customer reactions after the mergers when post merger integration was implemented smoothly and in align with customer needs. The conclusion of the analysis by Business Week is that mergers often make customers dissatisfied and it takes long time to regain lost share for managers.

As stated above, we found little research studying directly customer reaction to M&A. One of the few researches on this topic was conducted by C. Öberg (2008) based on case studies of 8 merger deals. The author also states that previous research in which customers are regarded as actors that affect and are affected by M&A is rather limited. She claims that researchers often avoid learning direct relationship of customers and M&A activities and the most commonly researches are focused on customers as markets, market shares, geographical markets or strengthening of positions which emphasize customer factor. Based on her study of previous research, C. Öberg concludes that there seems to be an assumption that customers are controllable and transferrable between companies and its products where control implies customers will continue to buy as previously (C. Öberg 2008, p 3)

Customer relationships and the driving forces for customer reaction take major position in C. Öberg's work. Her research shows that the driving forces can be divided into two categories. The first category covers M&A as activity and includes the following driving forces:

- 1) Customers not seeing the benefits of the M&A
- 2) Uncertainty
- 3) Turbulence.



The second category of the driving forces is connected to the actors in the M&A and it has the following forces:

- 1) Impossible relationships
- 2) Enabled relationships
- 3) Reputation
- 4) Earlier experience

After a number of interviews the author concludes that customers are likely not to see any benefits from the M&A and were little reluctant to establish relationships with the new parties. The possible reactions were classified as non-reaction, incremental reaction and radical reaction. Her research also involves the integration from both the M&A parties and the customers' perspectives through case studies.

Galpin and Herndon (2007) state that many organizations suffer from lower sales and complaints of poor service shortly after merger. Consequently, when sales and services suffer, customers and other affected parties tend to blame merger and tend to question the availability of the merger. Moreover, they may switch to competitor's products and services. Authors recommend to maintain the standards of sales and services customers expect and to sustain good relationships with customers during post-merger period.

## **2.4 Theoretical framework and hypotheses**

Based on the reviewed literature and our research purpose, we present our hypotheses. Since we are investigating customer reactions to M&A through different parameters, we developed several hypotheses involving these parameters.

### ***General customer reactions***

Our studies of the previous researches (C. Öberg, 2008; R. Larsson, 1990; E. Thornton et al, 2004) show that customers often feel uncertain and distrustful about merger deals. This may result negative changes in the post-merger sales. Bearing this in mind, we first decided to test the following hypothesis with a larger number of cases:

*H1: Customers react negatively to M&A with reduced joint sales;*

### ***Reactions between announcement and completion dates***

In some cases, there is a quite long time frame between the announcement and completion of deals. This might cause even more uncertainty for their customers and cause higher drop in revenues.

*H2: The longer the announcement-completion period of M&A the more negative joint sales impact.*

### ***Size***

Considering that bigger companies have larger customer base and more power to influence customers we assume that M&A participants' size may affect their reactions:

*H3: The smaller the M&A parties the more negative customer reactions;*

### ***Equality***

When a the size of the target is insignificant relative to the size of the acquirer, there is barely little change in customer relationship as the merged firm will mainly have the former customers of the acquiring party (C. Öberg 2008).

*H4: The larger the acquirer than the target the less negative joint sales impact after to M&A.*

### ***Merger types***

Companies may acquire a competitor; a supplier or another company which does not have any relationship. These different mergers will result building different relationships with customers (C. Öberg 2008). While horizontal mergers bring companies familiar to customers in the business, vertical and conglomerate mergers may cause uncertainty and turbulence among customers.

*H5: Customers react more negatively to vertical and conglomerate mergers than horizontal M&A.*

### ***Industries***

As mentioned above we divided all companies into two sectors: service and manufacturing. According to the findings of previous researchers (E. Thornton et al, 2004) and our

assumption, M&As of different sectors may have different impact on customers' mind. The previous researches showed service companies are more sensitive than manufacturing firms:

*H6: Service companies face more negative customer reactions than manufacturing firms after M&A;*

### **Brands**

Brands are an important factor for the choice of customers. One of the Öberg's cases (2008) shows that customers remained loyal to the brand and the branded company managed to keep most of its customers. We analyze how changes of growth rates in sales figures differ after mergers of those companies with renowned brands (at least one of the parties) from the less renowned branded companies.

*H7: The higher the brand values of the parties the more positive customer reaction to M&A;*

### **Cross-border versus home M&A**

Companies seeking establishment in another country face certain challenges (Gaughan, 2007). As well as operational difficulties (building relationships with suppliers, hiring right management team and employees, etc) they might also suffer from revenue drops as customers might be not familiar with them in the new geographical market.

*H8: Customer reaction is more negative to cross-border M&A than domestic M&A.*

### **Customer type**

Research (C. Öberg, 2008) shows that corporate customers are more aware of companies' restructurings than individual customers. Many individual customers even might not notice that companies get involved in merger deals. The following hypothesis can be developed as an outcome of this statement:

*H9: Corporate customers react to M&A more negatively than individual customers.*

We further present our empirical data and their analysis. The above hypotheses are tested using the data from M&A deals completed in 2005-2006 through the methods that we describe in the following chapter.

### **3. Methodology**

---

*In the previous chapter we presented introduction to the research topic. In this chapter we discuss the research methodology. It includes an overview on research, data collection and data analysis methods as well as quality standards.*

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#### **3.1 Research method**

In this paper we aim to investigate how customers react to M&A and how their reactions differ in various parameters related to M&A and participating parties? In order to be able to analyze and have a conclusion we collected revenue data from 122 companies involved in 61 M&A deals. We decided to take the changes in the absolute and growth rate in revenue figures to see how customers will be buying from the merged companies after the deals completed. We are going to investigate the customer reactions in different groups of mergers considering the size, equality, industry, location and brand, merger and customer type factors. By analyzing the empirical data we test a number of hypotheses which we developed based on the studied literature and our research purpose. The empirical findings should confirm or reject the hypothesis which eventually will answer the research question.

These steps will be accomplished by statistical research where relevant data are collected and analyzed. Thus our research method can be classified as quantitative research method.

#### **3.2 Sample selection**

We collected data from companies involved in mergers and acquisitions within 2005 and 2006. The sample selection only includes the completed deals. Most of the companies are incorporated in the US, Canada, Japan and Europe as the data would be easier to collect.

The reason why we chose this period is that we need to analyze at least 3-4 years of pre-merger and 2-3 years of post-merger performance. Collecting data of these years' deals would allow us avoiding the financial crises of 2008 which would give a misleading conclusion if used. Also, gathering data from non-existent companies would be difficult for earlier years.

In order to be able to compare the data we took M&A where one party ceases to exist or where a new entity is created. Furthermore, we excluded M&A deals where there are more than one acquiring or acquired parties since this would not allow measuring the effect in the revenue change.

### **3.3 Data Collection**

**Revenue data** - Since the changes in revenue growth represent the customer reaction in our research, we gathered revenue data from the annual reports of the chosen companies. The data was collected mainly through Thompson Reuters DataStream and from the financial statements in the annual reports of companies directly on their websites. Most of the acquired (thus non-existent) companies closed their websites, so we searched their data from their 10-K form through the Securities and Exchange Committee webpage (secinfo.com). In order to be able to draw a clearer picture, we took data for four years prior to the mergers and acquisitions and 2-3 years after the M&A.

**Brand data** – In order to separate the levels of brands in our sample, we used the “Best Global Brands” list created by Interbrand in co-operation with BusinessWeek (2005-2006). We felt it would be more reliable since the list is created by a third party. The list ranks companies according to brand value. We took those companies both listed in our sample and in the top brand list as the most renowned brands.

**Customer satisfaction index data** – We collected customer satisfaction index data on the American customer satisfaction index database (www.theacsi.com). We only took complete data for the entire period of the study, so the indices which were not calculated for some of the research period were excluded.

### **3.4 Data analysis**

In order to see the customer reaction to the M&A of our sample companies, we use their revenue figures prior to and after the deal. We analyze the growth rate in joint revenue figures of the M&A parties to see the average annual growth in revenues. Then we compare these rates to the post merger sales growth rates.

One of the methods to study if M&A influences the customer reaction is to make a regression analysis. This method helps us see if there are changes in customer satisfaction between different variables for different periods. We chose to use a multiple linear regression model which in practice is a very quite frequent and is often used to study the relationship between variables in a common task.

The regression model describes the relationship between dependent variable and independent variables if there are many. Variables can be of different types depending on the researcher's needs – quantitative and qualitative. Usually there are not any problems with defining the quantitative variables. To get qualitative variables we have to use dummies in regression model. Dummies help to code data so that we can see the qualitative data representation in the regression model. To use dummy we have to define data in a dichotomic way; that is one quality have to be coded as 1, and 0 represents other qualities. The multiple linear regression model can be written in the form of equation, but it contains the residual term which differs the regression from the mathematical equation:

$$Y = b_1 + b_2 * X_1 + b_3 * X_2 + b_4 * \text{Dummy}_1 + b_5 * \text{Dummy}_2 + u,$$

Where  $b_1$  - intercept of regression;

$b_2, b_3, b_4, b_5$  - partial slopes of the regression;

$u$  – residual.

The regression model written above can include other variables. As mentioned above, it varies depending on the researcher's needs.

If the researcher wants to use the regression model, it has to satisfy certain assumptions about dependent variables and the residual. We consider that readers are conscious about these assumption and we provide explanations in chapter 5 (Data Analysis) where we test each hypotheses by regression. One thing has to be mentioned about using only dummy variables in regression is that there is a risk of an omitted variable, e.g. covariate leading to different results in regression. In our thesis we try to fill this with other tools of analysis.

We also widely use descriptive statistics to describe the customer reaction in different groupings. They include trends, weighted average, median, maximum, minimum, shares of companies with distinctive performances and others.

### **3.5 Quality standards: reliability and validity**

Joppe defines reliability as the extent to which results are consistent over time and the total population is presented accurately; also if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable. According to Joppe validity determines whether the research truly measures which it was intended to measure or how truthful the research results are (quoted by N. Golafshani, 2003).

In order to provide the reliability of the results we collected data from 2005 so that the sales figures in the following two years would not be affected by the global financial crises of 2008. One might question the reliability of the research results since we are analyzing a limited number of only large deals (122 companies involving in 61 M&A). However, we found researches (Thornton, 2004) conducted through even smaller samples (28 deals). One of the reasons that we ended up with smaller number of samples than we intended is that we tried to provide the reliability of data by excluding any cases that contains factors which may affect results.

We feel that the sources of data are not an issue for questioning reliability since we used DataStream and SEC database as well as annual reports. Also, we use the relevant regression models for the significance and other tests which persuade us expect that our work will give reliable results.

Since customers' reactions are affected by quite many factors, we are not totally confident that the parameters we have chosen best explain how customers react to mergers. However, since we found theoretical background (i.e. past researches) for selecting revenue changes and the current parameters as the forces affecting customers' reaction we believe that our work meets the requirements of validity.

## **4. Data Presentation**

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*Since we classified our sample companies into different groups according to certain criteria, we felt that presenting them as a separate chapter would be necessary. Below, we provide collected and classified data for analysis.*

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### **4.1 Revenue data**

Since we took the changes in revenue figures of companies as customer reaction we collected revenue data from the companies involved in M&A deals within our research period. A total of 61 mergers and acquisitions within the period of completion in 2005-2006 are presented. Both, acquirer's and target's revenues were collected starting from year 2000 until 2007.

Mergers were classified according to absolute acquirer's size, size of acquirer relative to target, industry type (service or manufacturing), type of merger, brand value, cross border and home country mergers, time gap between merger announcement and completion. Below, we present the classified groups (The full list of companies can be found in Appendix 1).

#### **4.1.1 Classification according to duration of M&A process**

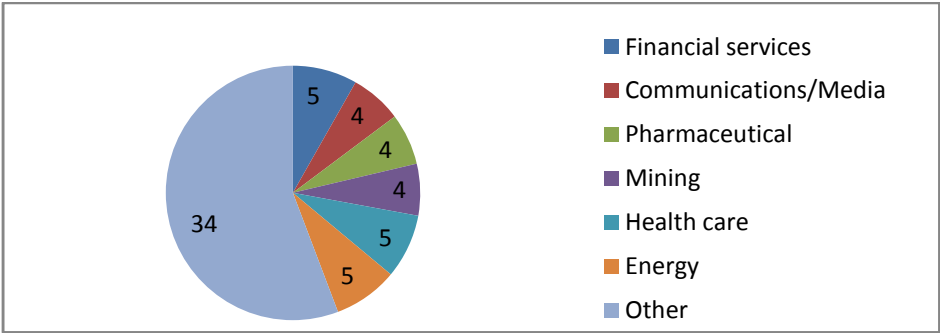
Different mergers have different time gaps between merger announcement and merger completion due to a number of reasons including price negotiating, waiting for shareholder or government approval. We have separated mergers within our sample into two categories based on the time gap of announcement and completion. We decided to classify mergers that accomplished within six month after the announcement as the first group and deals that took more than six month as the second group. There are 47 mergers in the first group and 14 mergers that have time gap more than six months.

#### **4.1.2 Classifying into industries**

Companies in our sample selection are from different industries. More specific industries classification looks like the following:



**Figure 4.1 Industrial classifications of companies in sample merger deals**

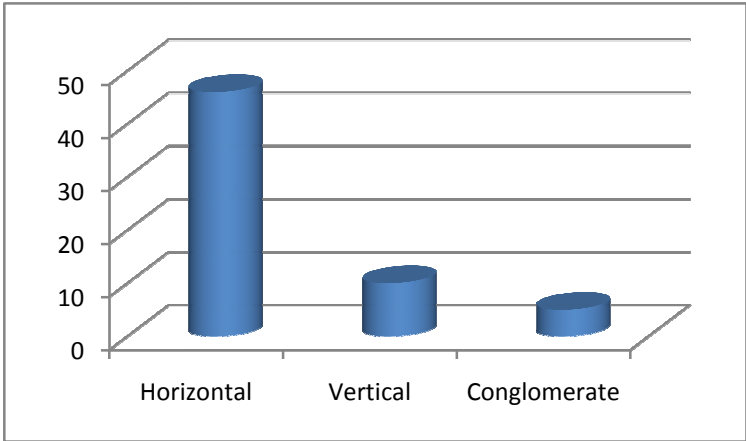


In order to see the difference in customer reaction in different sectors we grouped them into two major sectors: service and manufacturing. Those which are related to production such as mining and industrials are considered manufacturing while service related companies such as financial institutions, healthcare and communications were listed in the service sector. According to the industry classification, there are 37 mergers analyzed in the service industry and 24 mergers in the manufacturing industry out of our 61 sample M&A deals.

**4.1.3 Classification according to merger types**

As mentioned above M&A can be characterized as horizontal, vertical or conglomerate mergers. We divided all 61 deals into three groups according to these criteria to be able to compare the customer reaction in these groups. As the chart below shows, there are 46 horizontal, 10 vertical and 5 conglomerate merger types within analyzed sample of M&A.

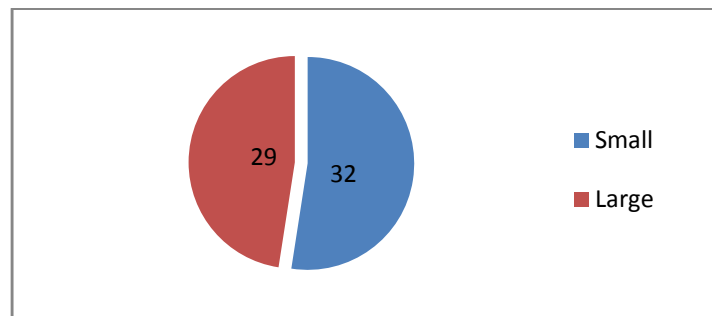
**Figure 4.2 Merger types**



#### 4.1.4 Classification according to size

We have defined size of the acquirers and targets based on their sales figures. In our analysis small companies are those that have revenues less than \$10 billion and large companies have revenues over \$10 billion. We used the years of 2005 or 2006 as the base year for defining revenue sizes as these are the first year after the M&As. The result of this classification can be seen in the following chart:

*Figure 4.3 Size of companies in the sample merger deals*



#### 4.1.5 Classification according to equality

We also divided our samples into two groups according to the size of the acquirer relative to target's size. The first group is the M&A of equal sized companies. We defined revenue size as the basic indicator. According to our classification, when the acquirer's revenues are less than 2 times of the target's the merger is considered as the deal of equal sized companies. When it is more than 2x times, thus the sizes of the M&A parties are significant it is defined as a large company acquiring a small one. The base year for revenue comparison was the year prior the merger deal. There are 17 mergers with less than 2X difference in revenues and 43 companies where acquirer's revenues exceed target's revenues more than 2X.

#### 4.1.6 Classification according to Brand groups

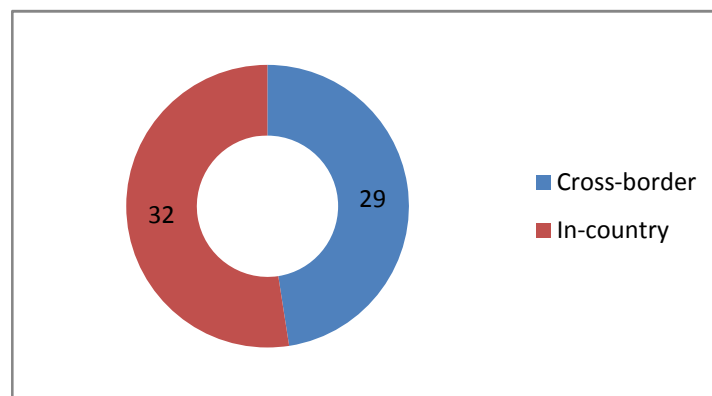
We have also separated mergers where companies with high brand values participated. We used "Best global brands 2006" , "2007 Global Financial Brands" rankings in order to collect companies with valuable brands within our M&A sample. This classification will allow seeing the difference of customer reactions between high branded companies and companies

with lower brand values involved in the M&A. We found only 5 high branded companies which were involved mergers within our sample and rest of the companies was classified as the lower brand value group.

#### 4.1.7 Cross-border versus domestic M&A

In our sample 29 of the mergers are cross border, while 32 merger deals were held within one country. From domestic mergers 25 were carried out in the USA, 2 in Japan, 2 in Australia, 1 in Germany and 1 in Canada. In the 29 cross-border mergers 22 US firms, 8 UK firms, 6 Canadian companies, 4 German, 3 French, 2 companies from Australia, Italy, Japan, Spain and Switzerland and one firm from Denmark, Israel, Belgium, Poland and Luxemburg participated. Wide spectrum of the sample allows better analyzing customer reactions within cross border and domestic acquisitions.

*Figure 4.4 Domestic versus cross-border mergers*



#### 4.1.8 Customer type: individual or corporate

Companies within the mergers were also classified according to customer type. We have considered customers as corporate when company receives the major part of its revenue (more than 50%) from corporate customers such as investment banks, industry machinery manufacturers and others. Similarly, if company gets its more than 50% revenues from individual customers, such as retail banks, telecommunication service companies we considered them as individual customer types. As the base year we took the year just after the merger so that we could sort the merged company into groups. Out of 61 companies, there are 29 companies with individual customers and 32 firms with corporate.

## 4.2 Customer satisfaction data

Customer satisfaction data was collected to check the connection between customer satisfaction change and revenue change (which we defined as customer reaction). Analyzing this data also may give explanation on how customer satisfaction changes after M&A. All seven companies are based in the USA (Table 4.1).

*Table 4.1 Customer satisfaction indices for available companies*

| No | Companies          | Pre-merger |    |    |    | After merger |    |
|----|--------------------|------------|----|----|----|--------------|----|
| 1  | Procter & Gamble   | 82         | 81 | 85 | 86 | 82           | 84 |
| 2  | Bank of America    | 68         | 70 | 74 | 72 | 72           | 72 |
| 3  | Duke Energy Corp   | 79         | 77 | 78 | 78 | 80           | 79 |
| 4  | Hewlett-Packard    | 71         | 70 | 71 | 73 | 75           | 76 |
| 5  | Home Depot         | 71         | 73 | 73 | 67 | 70           | 67 |
| 6  | Unitedhealth group | 66         | 68 | 64 | 66 | 64           | 68 |
| 7  | Whirlpool          | 83         | 82 | 83 | 81 | 82           | 84 |

However, we were able to find data for only seven companies which could not provide strong reliability. The data were collected for pre-merger and post-merger periods to be able to analyze and compare with the revenue data presented above.

## 5. Data analysis

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*In this chapter we provide the analysis of data presented in the previous chapter. It is divided into three parts. The first part contains general customer reaction analysis while the second part investigates customer reaction in different grouping according to the classification provided earlier in the previous chapter.*

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### 5.1 Customer reactions to M&A

*H1: Customers react negatively to M&A with reduced joint sales.*

Based on our methodology and data presented above we start the analysis of general customer reactions to M&A. As we have set certain hypothesis, our analysis will seek answers for those hypotheses. The hypotheses are tested using regression models and descriptive statistical tools.

We begin by analyzing the general customer reactions to M&A. Here we test if there is a significant difference between revenues of companies before the M&A and revenues after the merger and acquisition completion. As mentioned earlier the data for periods before M&A is pooled and defined as pre-merger revenues. These data represent differences in revenues for period consisting of 4 years i.e. 2001, 2002, 2003 and 2004. Differences are taken between revenues in 2001 and 2000, 2002 and 2001, 2003 and 2002, and 2004 and 2003 for pre-merge period; for post-merger period the similar variables are taken. Testing the significance between pre-merger and post-merger performance would give us the overall picture of revenue change after M&A.

The regression model which we use in testing Hypothesis 1 has the following construction:

$$Y = b_1 + b_2 * \text{Dummy} + u,$$

Where  $b_1$  is the intercept of regression;

$b_2$  is the slope of regression;

“Dummy” represents the dummy for post-merge period:

1 is for post-merge period, and 0 is for pre-merge period.

Y equals pooled data for all differences in revenues ranged between 2001 and 2007.

First of all, the intercept of the regression which consists of one variable in this case, describes the average revenues of companies before the merger and acquisition completion. The slope of regression shows how much post-merge revenues differ on average from the pre-merge revenues. By using statistical software Eviews we have the following estimation of the model:

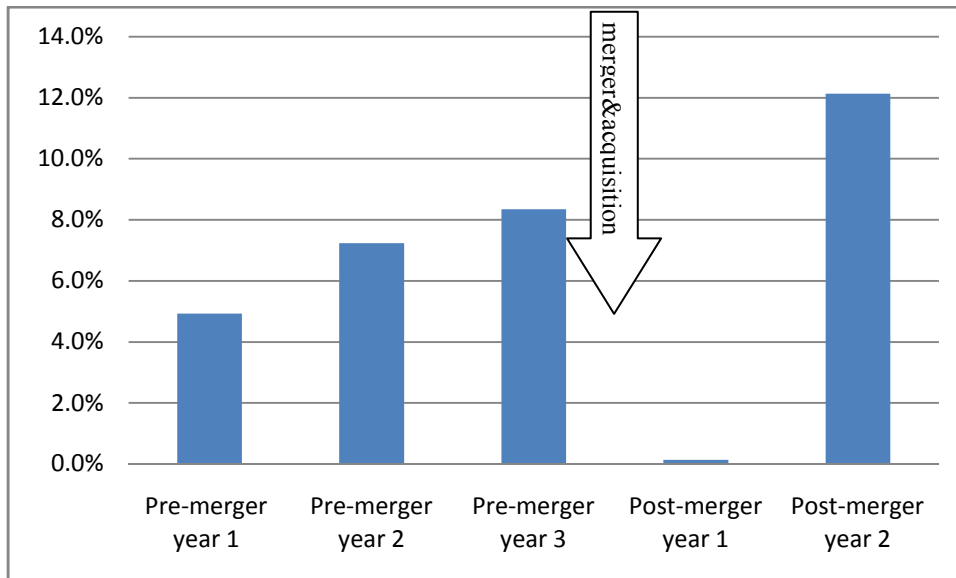
$$\text{REVENUES} = -2183821.56831 * \text{POST\_MERGE} + 2232763.22404$$

Model with estimated coefficients says that on average post-merger period differs from pre-merge period by about 2200 million dollars. The difference between periods is statistically significant which supports our first hypothesis which claims that customers react negatively to M&A, i.e. revenues drop significantly in the following year after M&A event. The regression coefficient is statistically significant at 5 % and 1% significance level resulting in probability t-statistics of 0,18 %. Observations are normally distributed which is showed in normality test. Normality Test shows that Skewness and Kurtosis deviate from the level when observations can be treated as normal distributed but it is of very low importance in this case just because of a big sample size. The assumption about big sample size is satisfied when the sample consists of more than 30 observations (in our case 244 observations). Heteroskedasticity Test shows if the residual coefficient suffers of heteroskedasticity problem. One of the regression model’s assumptions is that residuals are homoskedastic where probability of F-statistic shows that we accept the null hypothesis that residuals are stable in regression model. There are also representations over autocorrelation. The detailed results (probability statistics for variables, normality test, Heteroskedasticity White Test and Breusch-Godfrey Serial test for autocorrelation over estimation outputs) are presented in Appendix 2.

As the analysis above shows accumulated revenues of the sample companies grew constantly for three years prior to the M&A point. This created wide difference between revenues of a certain year with the prior one. The chart of the revenue dynamics shows that after the merger

deals take place revenues growth declined significantly for the first year (Figure 5.1). Our sample analysis demonstrated that merged companies managed to increase their revenues

**Figure 5.1 Revenue growth dynamics before and after M&A**



in the second year which implies that customer reactions change to better from the this year onwards.

Table 5.1 also reveals that companies in our sample experienced negative reactions in terms that the revenues growth dropped in the first year after the M&A. The total sales of almost half of the companies decreased and more than two third of the total sample performed well below than the average level of previous years.

**Table 5.1 Selected indicators of performance: total sample**

| Indicators                            |  | Total sample |
|---------------------------------------|--|--------------|
| Pre-merger 3 year average growth rate |  | 6,8%         |
| Post-merger growth<br>%(1st yr)       | Weighted average                               | 0,1%         |
|                                       | Median   | 0,3%         |
|                                       | Highest  | 69,5%        |
|                                       | Lowest   | -66,3%       |
|                                       | Companies with negative growth (as % of total) | 49,2%        |
|                                       | Companies with above-average growth (%)        | 27,9%        |

Further, we analyze the relationship between customer reactions expressed as the change in revenues with the customer satisfaction indices of smaller number of companies. We aim to confirm the negative customer reactions by another indicator – Customer satisfaction index. In this case we decided to take the customer satisfaction index as the dependent variable rather than explanatory. Thus we can see if customers' reaction influences the customer satisfaction in general expressed as index. The model has the following outcomes:

$$\text{INDEX} = 1.97191704439 * \text{POST\_MERGER} - 1.06668088126e-07 * \text{REVENUES} + 80.0370023782$$

The regression model shows that holding dummy variable constant there is a negative relationship between customer reaction and index. It means that customer expectations are reflected by a drop in index and this drop is related to a pre-merger activity. This drop is statistically significant at 5% significance level. Looking at the relationship after M&A, it can be seen that even as revenues are negatively related to index, we observe a positive result by about 0,9 units to customer satisfaction index.

This result quite contradicts the conclusions of past researchers (E. Thornton et al, 2004) since customers are getting more satisfied as the revenues drop. However, the sample is relatively small (7 companies) and this does not allow to concluding that there is reverse correlation between revenues and customer satisfaction. Readers can find other results of this regression model and its residuals in Appendix 2.

## **5.2 Different parameters affecting customer reactions**

As we can see in the subchapter 5.1 that customers react negatively to M&A in general. Now we analyze how customers react to merger deals in various groups M&A. We categorized the companies based on certain criteria in order to test the hypotheses developed earlier in Chapter 2. Below we provide the analysis of customer reactions in those groups. The groups are created according to the following parameters: duration of the process of deals from announcement till completion (long versus short); size of parties (small versus large); equality of participating entities (equal versus unequal); brand value of firms (high brand value versus low brand value); industry (service versus manufacturing); merger type (horizontal, vertical and conglomerate); customer type (individual versus corporate) and location (domestic versus cross-border).



### 5.2.1 Duration effect

*H2: The longer the announcement-completion period of M&A the more negative joint sales impact.*

As stated in the hypotheses development, we anticipated that as the time period between announcement and completion dates of M&A revenues tend to drop significantly since long term process causes uncertainty among customers.

According to certain indicators, M&A that took longer time to complete performed worse than those that accomplished the deal in a shorter period. More than 57% of companies in this grouped experienced negative revenue growth and in total they saw positive growth in the first post-merger year. The companies that accomplished in a shorter time frame had negative growth in less than half of the total sample. Also, total revenues of the group declined by 3% in the first year of mergers and acquisitions. (Table 5.2).

***Table 5.2 Selected indicators of short term versus long-term processed M&A firms' performance.***

| <b>Indicators</b>                     |  | <b>Short-term</b> | <b>Long-term</b> |
|---------------------------------------|--|-------------------|------------------|
| Pre-merger 3 year average growth rate |  | 13,6%             | 2,5%             |
| Post-merger<br>growth<br>% (1st yr)   | Weighted average                               | 4,1%              | -3,0%            |
|                                       | Median   | 4,0%              | -7,1%            |
|                                       | Highest  | 69,5%             | 12,9%            |
|                                       | Lowest   | -61,2%            | -66,3%           |
|                                       | Companies with negative growth (as % of total) | 46,8%             | 57,1%            |
|                                       | Companies with above-average growth (%)        | 17,0%             | 21,4%            |

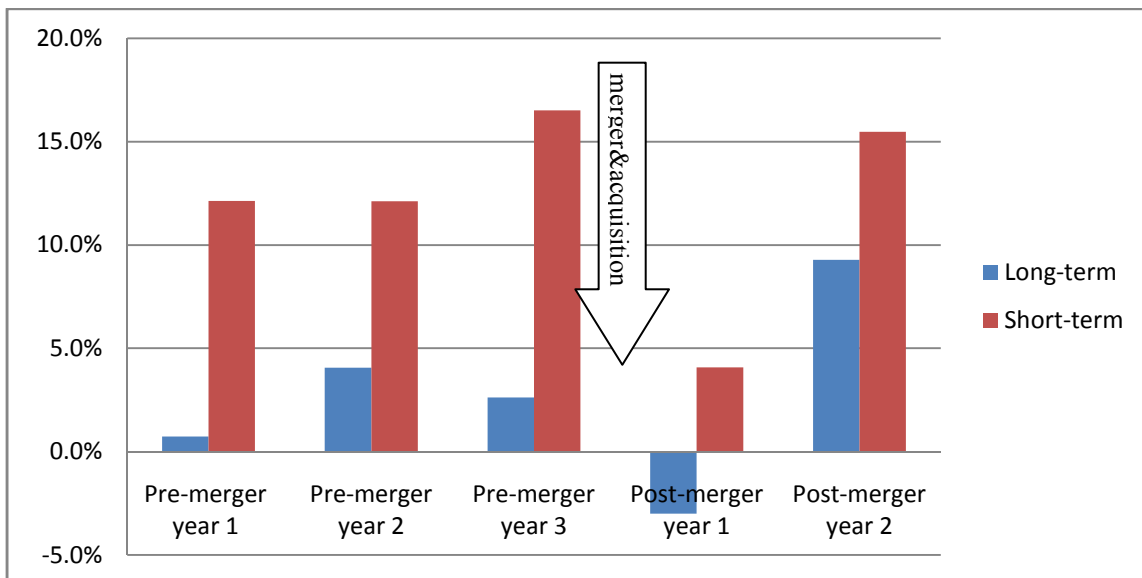
Next, we test the significance between long-processed and short-processed M&A using our regression model. The regression model consists of two dummy variables i.e. dummy for time defining if period describes the pre-merger revenues versus post-merger revenues, and dummy for deal time that is if deal time is more than six months versus less than six months. Data sample includes revenues for 61 merger and acquisition companies which are divided into two groups: mergers that had announcement – completion period of 6 months or more and M&A deals that took less than 6 months. In regression model we look at differences between periods of revenues that is period t minus period t-1. In total we have 244 observations. The regression model has the following appearance:

$$\text{REVENUES} = 1008390.92097 * \text{LESS\_THAN\_SIX\_MONTH} - 2183821.56831 * \text{POST\_MERCER} + 1455806.28493$$

Where Dummy 1 - less than six months: if 1=less than six months  
 If 0=more than six months  
 Dummy 2 - post-merger: if 1=post-merger customer reaction  
 If 0=pre-merger customer reaction

The result above shows that M&As that had deal time between announcement date and completion date longer than six months has more negative customer reactions by almost \$1 billion on average compared to M&As with less than six months deals. However, this difference is not statistically significant at 5% significance level (see Appendix 3).

**Figure 5.2 Sales growth dynamics in companies engaged in long-term versus short-term processed M&A deals (in %)**



Although the revenues of the short processed M&A companies remained positive even after the merger it significantly decreased from the previous years' mark. The other group also saw similar drop ending up with negative growth rate in after the merger (Figure 5.2).

The results of the regression suggest that our hypothesis which says the longer the announcement-completion period of M&A, the more negative customer reaction is not supported as the difference is not significant enough.

As it was in the case of total sample, companies in both groups managed to grow their revenues in the second year of M&A, so the negative reactions only remained during the first year of the deal.

### 5.2.2 Size effect

*H3: The smaller the M&A parties the more negative customer reactions*

We selected the size of the participant parties as another potential factor for customers' reaction to M&A. From the Table 5.3 and Figure 5.3 we can notice that historically small size companies in our sample had higher average revenue growth rates (10.9%) than large size companies (6.5%). However, revenue growth of small size companies turned out to be more vulnerable after M&A and dropped to negative level of -16.7% from 14.7% in pre merger level. Big size companies were more stable after M&A and their revenues grew by 1.6% in first year after M&A. This might be explained by the fact that big size companies usually have more spare cash to maintain unpredictable operational and strategic issues that companies might face after the M&A, while small size companies often do not have resources for it and lose in sales.

In general, during 1<sup>st</sup> year of post merger period 37.9% of large size companies and 59.4% of small size companies experienced negative growth. Majority of companies (62.1% of large size companies and 84.4% of small size companies) performed worse than average.

**Table 5.3 Selected indicators of large versus small firms' performance.**

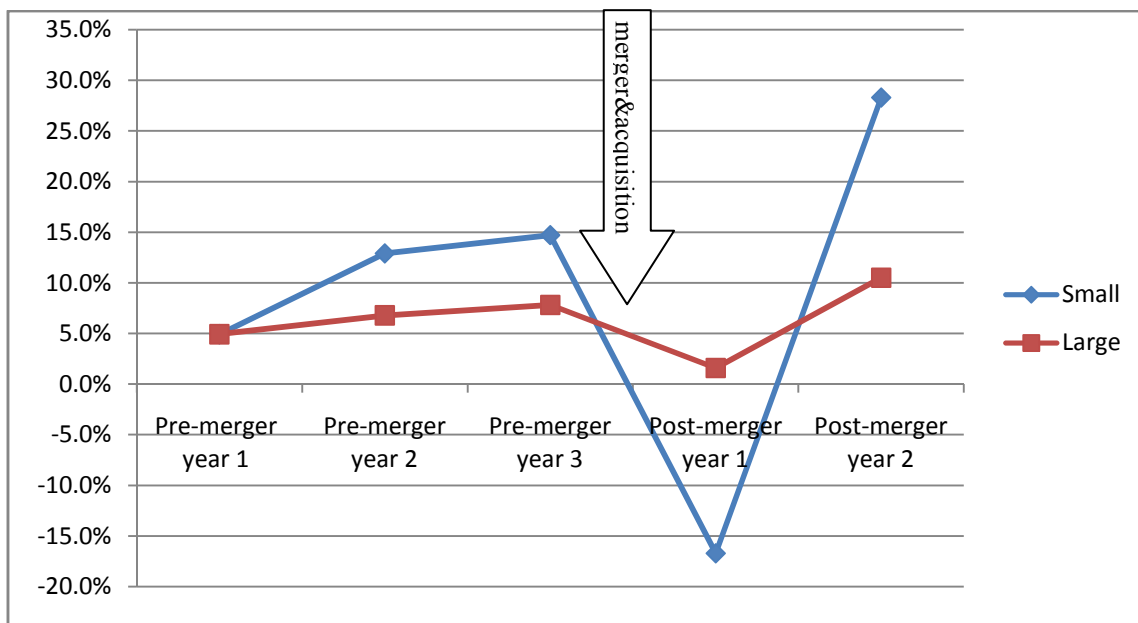
| Indicators                            |  | Large  | Small  |
|---------------------------------------|--|--------|--------|
| Pre-merger 3 year average growth rate |  | 6,5%   | 10,9%  |
| Post-merger growth %<br>(1st yr)      | Weighted average                               | 1,6%   | -16,7% |
|                                       | Median   | 4,5%   | -8,8%  |
|                                       | Highest  | 69,5%  | 63,6%  |
|                                       | Lowest   | -39,5% | -66,3% |
|                                       | Companies with negative growth (as % of total) | 37,9%  | 59,4%  |
|                                       | Companies with above-average growth (%)        | 37,9%  | 15,6%  |

Below we test our hypothesis which claims that the smaller the M&A parties the more negative customer reaction. The analysis is held through the regression model mentioned earlier. It consists of two dummy variables – one for size and one for time. Data consists of differences in revenues for pre-merger and post-merger activity. The result of the regression model has the following result:

$$\text{REVENUES} = -2760184.25052 * \text{SMALL} - 2106970.65591 * \text{POST\_MERGER} + 3507675.90617$$

Holding post-merger dummy variable constant we see that small size companies differ negatively from big size companies on average by about \$2,8 billion. This difference is statistically significant at 5% significance level, which supports our hypothesis that there is a significant difference between companies with respect to size. In Appendix 4 we can see that residuals are normally distributed and that model does not suffer from heteroskedasticity problem.

**Figure 5.3 Growth dynamics in small versus large companies**



As it was in the total sample revenues noticeably grew in the second year of M&A. Here we can see that smaller companies experience higher volatility than larger companies.

### 5.2.3 Equality effect

*H4: The larger the acquirer than the target the less negative customer reactions to M&A.*

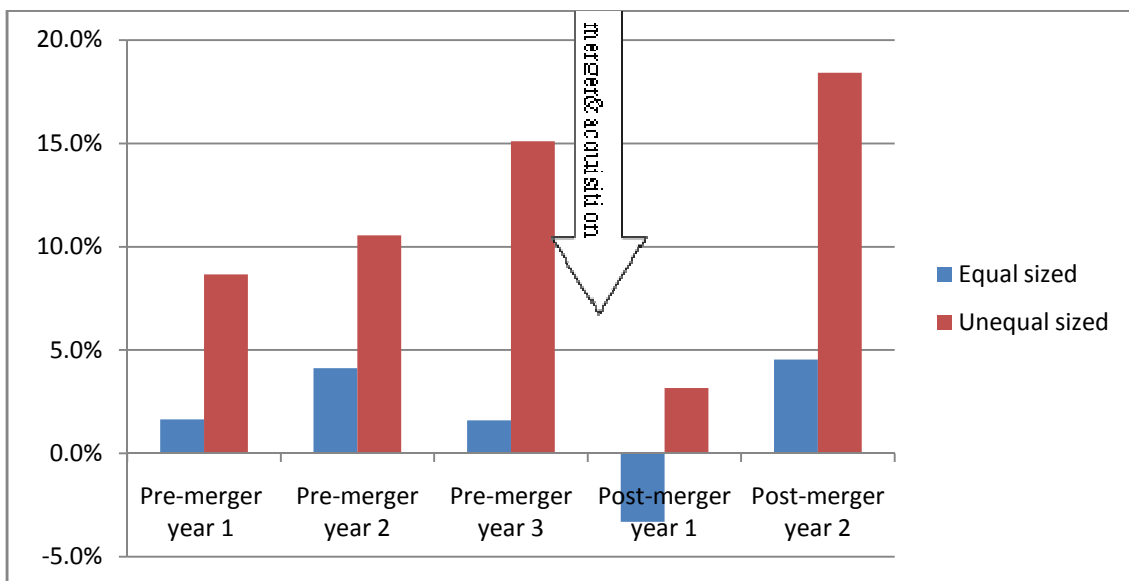
The next hypothesis suggests that the size of the acquiring party relative to the target may be an important factor for customers' reaction. Some statistical indicators also demonstrate that even though mergers and acquisitions cause negative customer reactions, they are differently strong in the merger of equal sized companies and unequal sized companies. Unequal sized companies continued to grow while the revenues of equal sized companies decreased in absolute amount after the M&As. The strong distinction can also be observed by the share of companies that had negative growth rate in the first year of M&A (Table 5.4).

**Table 5.4 Main indicators for equal versus unequal firms' M&A**

| Indicators                            |  | Equal  | Unequal |
|---------------------------------------|--|--------|---------|
| Pre-merger 3 year average growth rate |  | 2,5%   | 11,4%   |
| Post-merger growth %<br>(1st yr)      | Weighted average                               | -3,3%  | 3,2%    |
|                                       | Median   | -13,1% | 4,8%    |
|                                       | Highest  | 36,9%  | 69,5%   |
|                                       | Lowest   | -66,3% | -33,9%  |
|                                       | Companies with negative growth (as % of total) | 76,5%  | 37,2%   |
|                                       | Companies with above-average growth (%)        | 17,6%  | 25,6%   |

These indicators and the Figure 5.4 hint that the merger of equal sized companies brings relatively higher negative customer reaction. However, one needs to test the significance using regression models to see the true picture of the matter. Below we present our test for significance of customers' reactions between M&A the two groups of companies where the acquirer is two times larger than the target company and other M&A companies.

**Figure 5.4 Revenue growth dynamics in equal versus unequal companies (in %)**



The regression model consists of two dummy variables. The first one is for the size of the acquirer company in relation to the target company and the second dummy variable is represents the time which defines if it is the pre-merger period revenues or the post-merger period revenues. The result of the regression model has the following appearance:

$$\text{REVENUES} = 1586450.19836 * \text{LARGER\_THEN\_TARGET} - 2219647.95556 * \text{POST\_MERGER} + 1132811.43007$$

In the regression model we can observe that M&As where the acquirer is considerably larger than target company differ from other M&A companies by about \$1,6 billion when we do not take into account the dummy variable for time. This difference is statistically significant at 5% significance level. It means that we have a strong support for our hypothesis which implies that when the acquirer is too large than the target customers' negative reactions are not noticeable. The full results of regression analysis can be found in Appendix 5.

#### 5.2.4 Merger type effect

*H5: Customers react more negatively to vertical and conglomerate mergers than horizontal M&A.*

Considering the characteristics of horizontal, vertical and conglomerate mergers we can anticipate that they have different effects on customers. The calculation of certain indicators proves that there are a number of differences in the dynamics of growth of those groups (Table 5.5). Although, the same fraction of companies (50%) ended up with negative sales growth, horizontal mergers maintained positive growth of revenues in total unlike vertical and conglomerate mergers. These indicators propose that companies getting involved in horizontal mergers are affected by negative customer reactions relatively lower than those of vertical and conglomerate deals. We next check this difference through regression analysis.

**Table 5.5 Main indicators of growth in horizontal, vertical and conglomerate M&A**

| <b>Indicators</b>                     |  | <b>Horizontal</b> | <b>Vertical</b> | <b>Conglomerate</b> |
|---------------------------------------|--|-------------------|-----------------|---------------------|
| Pre-merger 3 year average growth rate |  | 5,6%              | 13,7%           | 12,7%               |
| Post-merger growth %<br>(1st yr)      | Weighted average                               | 1,4%              | -8,8%           | -1,6%               |
|                                       | Median   | 0,0%              | 1,6%            | 4,7%                |
|                                       | Highest  | 69,5%             | 46,4%           | 29,3%               |
|                                       | Lowest   | -57,2%            | -66,3%          | -28,3%              |
|                                       | Companies with negative growth (as % of total) | 50,0%             | 50,0%           | 40,0%               |
|                                       | Companies with above-average growth (%)        | 34,8%             | 10,0%           | 20,0%               |

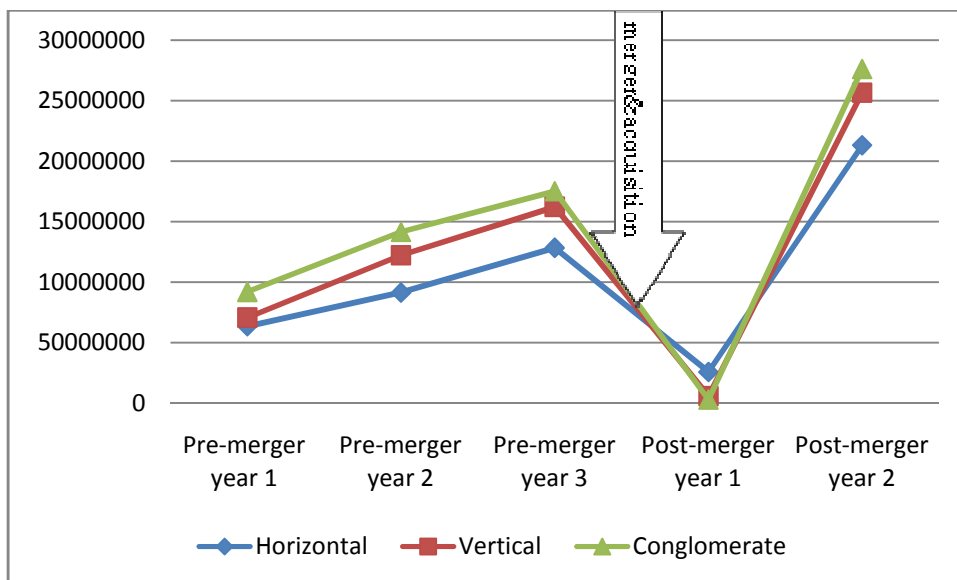
In the regression model we test if there are significant differences in customer reactions to the above mentioned merger types. To investigate this true we use a regression model that consists of two dummy variables – one for merger type i.e. if it is horizontal or other merger type, and second dummy for time i.e. if it is the pre-merger period event or post-merger

period event. Totally we have 244 observations. As usual we provide the final outcome of the regression model:

$$\text{REVENUES} = -33522.6402174 * \text{HORIZONTAL} - 2183821.56831 * \text{POST\_MERGER} + 2258042.59208$$

In the model we that see that horizontal M&As differ from other types by about \$33 millions. If we take the post-merger dummy we see that this negative difference becomes stronger and the new difference is about \$2,033 billion. However, the detailed tables in Appendix 6 show that this difference is statistically insignificant. The significance result (96%) is far below the accepted significance level of five percent (Figure 5.5).

**Figure 5.5 Growth dynamics in horizontal, vertical and conglomerate M&A0 (growth in absolute amount).**



The model suggests our hypothesis is not confirmed. This in turn means that the type of mergers does not have considerable influence on customer reactions. These confirmations can be seen in the full regression results which are provided in Appendix 6.

### 5.2.5 Industry effect

*H6: Service companies face more negative customer reactions than manufacturing firms after M&A.*

Service and manufacturing companies' relationship with customers differ in product characteristics, delivery, post-sales service and more importantly, in contact. Service

companies are more involved in direct contact with customers than manufacturing firms (Ober, 2008). Thus, one can expect more sensitive customer reactions to the restructurings of service companies than manufacturing firms.

The descriptive statistical tools show that service firms are more prone to negative customer reactions than manufacturing companies (Table 5.6). Despite maintaining higher growth rates prior to mergers and acquisitions service companies' revenues dropped below the zero line in the first year of M&A while manufacturing firms managed to keep slightly positive growth. Moreover, more than half of the companies in the total sample of service firms saw negative growth rates and 86.5% of firms performed below average in the first year of M&A. These indicators are relatively better in manufacturing companies where more than half achieved positive growth and more than 41% managed to do better than previous 3 year average.

**Table 5.6 Selected indicators of service and manufacturing firms' performance**

| <b>Indicators</b>                     |  | <b>Service</b> | <b>Manufacturing</b> |
|---------------------------------------|--|----------------|----------------------|
| Pre-merger 3 year average growth rate |  | 9,7%           | 5,2%                 |
| Post-merger growth<br>% (1st yr)      | Weighted average                               | -0,7%          | 0,7%                 |
|                                       | Median   | -0,4%          | 2,5%                 |
|                                       | Highest  | 69,5%          | 63,6%                |
|                                       | Lowest   | -61,2%         | -66,3%               |
|                                       | Companies with negative growth (as % of total) | 51,4%          | 45,8%                |
|                                       | Companies with above-average growth (%)        | 13,5%          | 41,7%                |

Further, we test the current hypotheses using our regression model. Here we aim to check if there is any significant difference in customer reactions between service and manufacturing firms. This regression model consists of two dummy variables: the first dummy defines periods i.e. post-merger and pre-merger, and the second dummy divides data in sectors i.e. manufacturing and service. It follows that the intercept describes in this case two reference categories i.e. pre-merge revenues for manufacturing industry. The regression model has the following appearance:

$$\text{REVENUES} = -2183821.56831 \cdot \text{POST\_MERGE} - 743680.832489 \cdot \text{SERVICE} + 2683848.31916$$

Where Y=change in revenues, i.e. revenue for period 1 equals revenue at t minus revenue at t-1,

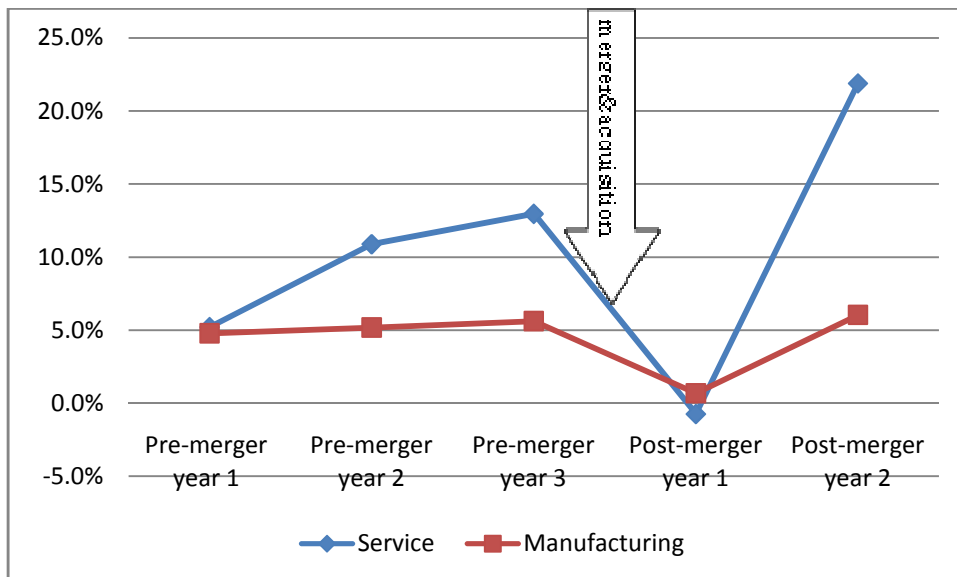


Dummy1: post-merge: 1= post-merger 0=pre-merger

Dummy2: service: 1=service industry 0=manufacturing industry

Holding the post-merger dummy constant, regression model indicates that companies in service industry differs from companies in manufacturing industry by about \$ 744 million on average. However, as can we see in Appendix 7 these results are not statistically significant at 5 % significance level. It implies that even if there is a difference in absolute values on average, this difference is not confirmed statistically and we cannot argue that customers' reaction is significantly sensitive to the service sector than the group of manufacturing companies (Figure 5.6). The detailed results such as the statistics over regression outcomes, normality test, heteroskedasticity test and autocorrelation tests are presented in Appendix 7.

**Figure 5.6 Growth dynamics in service versus manufacturing firms (in %)**



### 5.2.6 Brand effect

*H7: The higher the brand values of the parties the more positive customer reactions to M&A.*

As stated in the literature (Kotler P. & Keller K., 2006; Oberg, 2008) companies with renowned brands may enjoy customer loyalty and brand awareness. Our sample is classified into two groups according to brand values and the certain indicators suggest that brand is factor for positive customer reactions (Table 5.7).

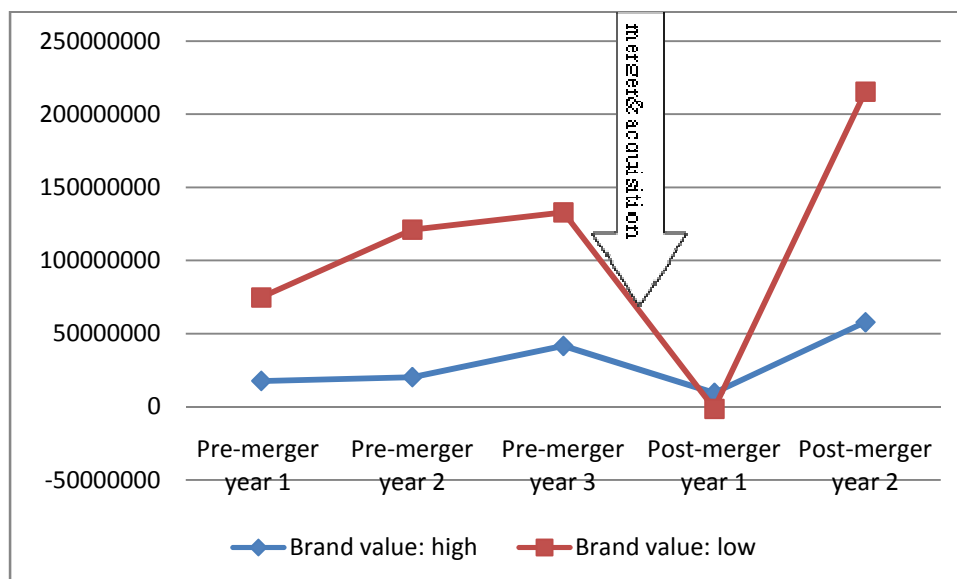
In total, companies with higher brand values maintained positive growth after M&A unlike lower branded companies which experienced negative growth in revenues. Also, the majority of companies in the lower brand value group ended up with decline in sales figures in the first year of M&A while this indicator was only 20% in the group of companies with high brand values.

**Table 5.7 Selected indicators of high brand value versus low brand value firms**

| Indicators                            |  | High brand value | Low brand value |
|---------------------------------------|--|------------------|-----------------|
| Pre-merger 3 year average growth rate |  | 11,1%            | 6,3%            |
| Post-merger growth %<br>(1st yr)      | Weighted average                               | 3,2%             | -0,1%           |
|                                       | Median   | 4,8%             | -0,4%           |
|                                       | Highest  | 8,7%             | 69,5%           |
|                                       | Lowest   | -8,3%            | -66,3%          |
|                                       | Companies with negative growth (as % of total) | 20,0%            | 50,9%           |
|                                       | Companies with above-average growth (%)        | 0,0%             | 32,1%           |

Despite the fact that the indicators in the table show the pre-eminence of the first group, one needs to test its significance through regression analysis. Further, we test if higher brand value companies have more positive customer reactions to mergers and acquisitions than lower brand value companies using regression analysis.

**Figure 5.7 Growth dynamics in high brand value versus low brand value firms (growth in absolute amount)**



As illustrated in Data Presentation chapter, we classified the total sample into two unequal groups where brand value was the major criteria. Totally, we got 240 observations out of this sample. The regression model consists of two dummy variables of which one is for if a company is defined as high-values brand or not and the second dummy is about time i.e. if it is pre-merger period or post-merger period. The regression model gives the following result:

$$\text{REVENUES} = 2967183.86818 * \text{BRAND} - 2130596.91667 * \text{POST\_MERGER} + 2020291.56098$$

In regression model above we see that high-value branded companies experienced positive customer reactions. Coefficients in regression model are statistically significant at 5% significance level, which means that our hypotheses regarding brand can be approved. Readers can find the detailed regression results about residuals (e.g. normality test, heteroskedasticity test and autocorrelation test) in Appendix 6.

The Figure 5.7 demonstrates that the lower brand companies had more volatile revenues which saw significant drop after M&A completed. Although, the higher brand companies also saw negative customer reactions, it was relatively low in comparison to the other group.

### **5.2.7 Location effect**

*H8: Customer reactions are more negative to cross-border M&A than domestic M&A.*

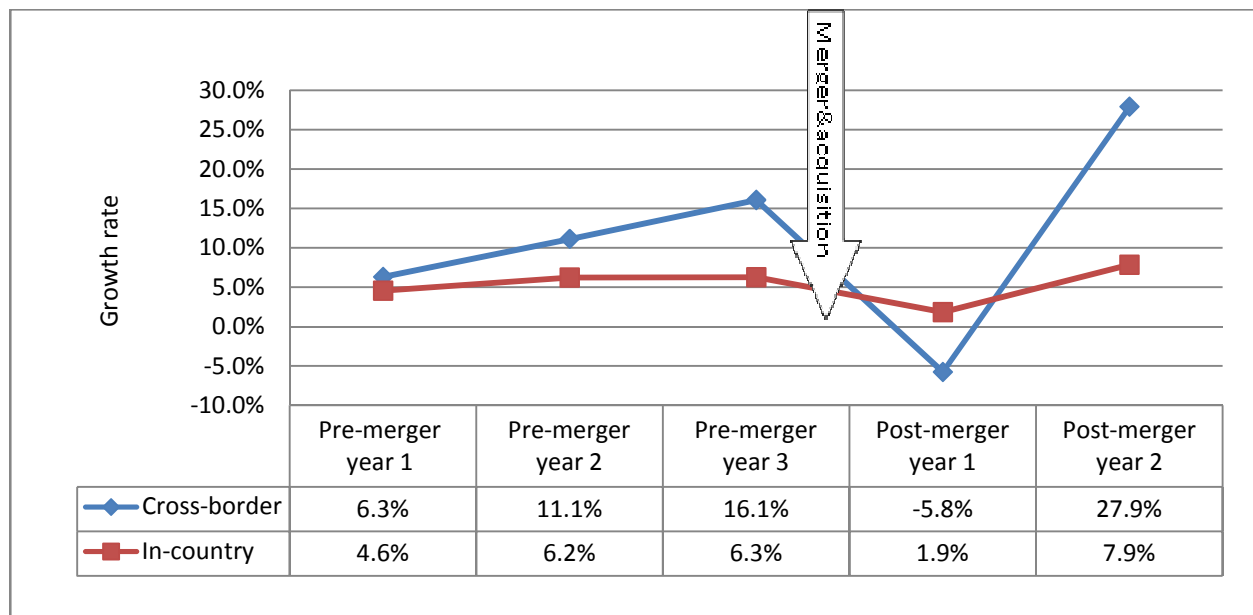
To test this hypothesis we first view some basic indicators regarding the pre-merger and post-merger performance of these two groups. Companies that were involved in cross border M&A had higher average revenue growth rate before the merger (11.2%) than those companies which later engaged in domestic M&A (5.7%). Domestic M&As show more stable revenue dynamics and do not decrease to negative level in the first year of post-merger period despite dropping to 1.9%. In its turn, companies that were involved in cross-border M&A had their revenues drop to -5.8% in the first year after M&A. Both groups of companies recover in the second year (Figure 5.8) where domestic mergers preserve better results again. 40.6% and 24.1% of companies managed to perform above the average level in the domestic M&As and cross-border M&A respectively (Table 5.8).

**Table 5.8 Selected indicators of revenue growth in cross-border versus domestic firms**

| Indicators                            |  | Cross-border | Domestic |
|---------------------------------------|--|--------------|----------|
| Pre-merger 3 year average growth rate |  | 11,2%        | 5,7%     |
| Post-merger growth % (1st yr)         | Weighted average                               | -5,8%        | 1,9%     |
|                                       | Median   | -2,1%        | 3,4%     |
|                                       | Highest  | 63,6%        | 69,5%    |
|                                       | Lowest   | -66,3%       | -31,5%   |
|                                       | Companies with negative growth (as % of total) | 55,2%        | 43,8%    |
|                                       | Companies with above-average growth (%)        | 24,1%        | 40,6%    |

To test hypothesis 8 we use a regression model which consists of two dummy variables – dummy for time if it is post- or pre-merger revenues and dummy for cross-border versus in-country merger and acquisition.

**Figure 5.8 Growth dynamics in cross-border versus domestic M&A**



The data we use in regression is represented by the differences in revenues i.e. revenues for year t minus revenues for year t-1 for each period. Totally, we have got three differences for pre-merger revenues and one difference for post-merger revenues which together result in 244 observations. The final regression model has the following appearance:

$$\text{REVENUES} = 1412090.84887 * \text{HOME} - 2183821.56831 * \text{POST\_MERGER} + 1491994.25415$$

Where Dummy1 - Home: if 1=domestic M&A;  
 If 0=cross-border M&A;  
 Dummy2 – post-merger: if 1=post-merger customer reaction;  
 if 0=pre-merger customer reaction.

Looking at the regression model we can spot that when we hold the dummy variable for time constant customer reactions in domestic mergers are significantly higher than cross-border mergers by \$ 1.41 billion. In fact, taking the time-dummy variable into account we see that post-merger customer reaction for domestic M&A differs from post-merger customer reaction for cross-border M&A by about \$ 0.8 billion. This is within the 5 % significance level which implies that customer reactions after M&A are significantly positive to domestic M&A than to cross-border M&A. This test supports our hypothesis which states that customer reactions are more negative to cross-border M&A than domestic M&A. In the Appendix 8 we present the detailed outcomes and tests of the regression model.

### 5.2.8 Customer type effect

*H9: Corporate customers react to M&A more negatively than individual customers.*

Our last hypothesis focuses on the type of customers of M&A parties. Like in the previous assessments, we first address some statistical indicators as an initial step. Here we can see that revenues of companies with corporate customers are more volatile than individual customer companies. While their average joint sales were way too high before the merger, the M&A deals caused negative revenues growth. Unlikely, companies with individual customers continued to grow even after M&A (Table 5.9). Around half of the companies in both customer type companies went through negative growth rate and only few of them (24.1% of individual customer firms, 18.8% of companies with majority corporate customers) performed better than average after corporate restructurings. Although there was overall decline in sales in these groups during the first post-merger year, the second year saw sharp rise in the performance of both groups (Figure 5.9).

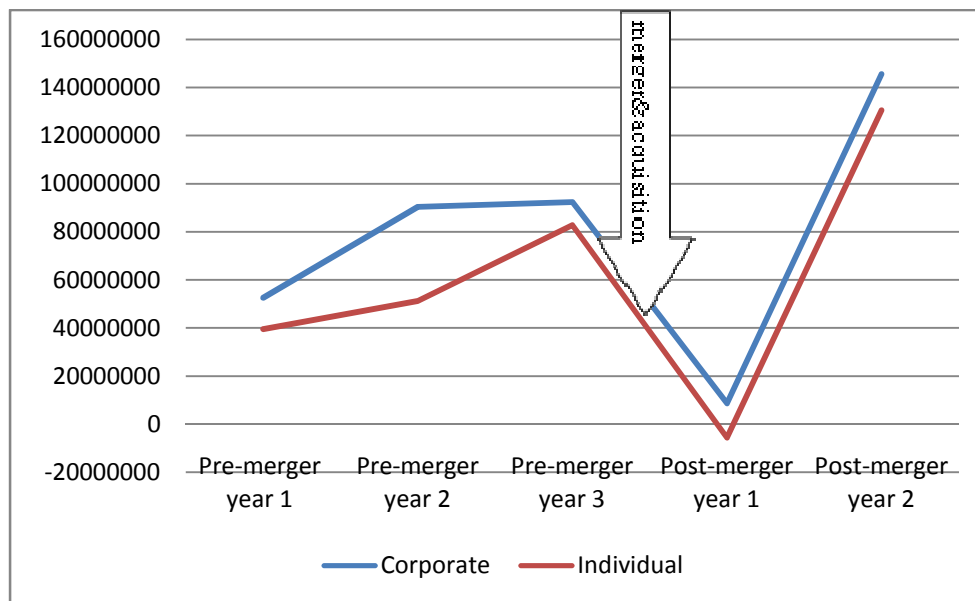
However, these indicators are not sufficient to conclude about the effect of customer types to post-merger customer reactions. Below we test this notion through our regression model using the data classified according to customer type criteria.

**Table 5.9 Selected indicators of companies with individual versus corporate customers**

| Indicators                            |  | Individual | Corporate |
|---------------------------------------|--|------------|-----------|
| Pre-merger 3 year average growth rate |  | 4,8%       | 15,8%     |
| Post-merger growth % (1st yr)         | Weighted average                               | 0,5%       | -1,1%     |
|                                       | Median   | -0,4%      | 4,4%      |
|                                       | Highest  | 69,5%      | 63,6%     |
|                                       | Lowest   | -57,2%     | -66,3%    |
|                                       | Companies with negative growth (as % of total) | 51,7%      | 46,9%     |
|                                       | Companies with above-average growth (%)        | 24,1%      | 18,8%     |

Here we test if there is any significant difference between customer reactions to M&A among corporate and individual customers. The regression model consists of two dummies – the first

**Figure 5.9 Growth dynamics in corporate versus individual customer firms**



one specifies the type of customers (e.g. corporate or individual) second for time specification (pre-merger period or post-merger period).

Data sample is limited to M&A companies where the acquirer and target company are equally classified; those that have different classification are excluded.

In total we gathered 168 observations. The regression model brought the following result:

$$\text{REVENUES} = -916971.361111 * \text{CORPORATE} - 964148.436508 * \text{POST\_MERGER} + 2159093.59524$$

From the regression model we can see that corporate customers show negative reactions to mergers and acquisitions by about \$0.9 billion on average. However, when we checked the significance level (Appendix 9) this difference is not statistically significant. The means that regression results reject our hypothesis which claims that companies with corporate customer suffer from negative customer reaction more than individual customer companies. The correlation is best illustrated in Figure 5.9 where the lines representing the two groups are almost parallel to each other. The detailed results of regression analysis can be found in Appendix 9.

## **6. Discussion, findings, conclusion and implications**

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*We have presented Introduction, Methodology, Literature Review, Data Presentation and Analysis in the previous chapters. Now we provide our final discussion and findings. Based on them, we make our conclusions on the research and give implications to future researchers and practitioners.*

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### **6.1 Discussions : Reflections on past researches and findings**

The purpose of this thesis is how customers react when companies get involved in M&A through a sample of M&A completed within 2005-2006. We tried to reach the research purpose by the research following research question: *How customers react to M&A and how their reactions differ in various parameters related to M&A and participating parties?* A number of hypotheses were tested accordingly.

Revenue and customer satisfaction data were collected to analyze. In total the sample consists of 122 companies involving in 61 M&A deals. In order to be able to analyze the wider scope of the issue 4 years of data until and 2 years after the M&A deals collected. The impact that might have come from the Global Financial Crisis of 2008 was considered and the data for this period is excluded.

Our findings show that customers negatively react to mergers and acquisitions in general. This confirms previous researchers' conclusions. However, earlier researchers state that customers remain skeptical and dissatisfied during the first several years of M&A (C. Homburg, M. Bucerius, 2005; R. Larsson 1990). In our research we observed positive customer reactions from the second year of mergers and acquisitions onwards (Table 6.1).

Another contradicting result reached when we analyzed customer satisfaction index change after M&A. Although an earlier research (E. Thornton et al, 2004) pointed out that customer satisfaction index depresses after the mergers and acquisitions, our analysis showed that customer satisfaction index slightly increased after mergers even there was a negative revenue growth. The reason for this might be that we only used customer satisfaction index data for a small group of companies (7 companies) due to data unavailability for other firms.



The data would only be found for acquiring companies and since we did not consider the target company's customer satisfaction index the overall result might have been seriously affected.

**Table 6.1 Change of customer reactions in terms of revenue growth: summary**

| Groups        | Subgroups |                    | 3 year average growth rate till M&A | Weighted average growth rate after M&A |          |
|---------------|-----------|--------------------|-------------------------------------|--|----------|
|               |           |                    |                                     | 1st year                               | 2nd year |
| <b>Total</b>  |           |                    | 6,8%                                | 0,1%                                   | 12,1%    |
| Size          | a         | Large              | 6,5%                                | 1,6%                                   | 10,5%    |
|               | c         | Small              | 10,9%                               | -16,7%                                 | 28,3%    |
| Equality      | a         | Equal sized        | 2,5%                                | -3,3%                                  | 4,5%     |
|               | b         | Unequal sized      | 11,4%                               | 3,2%                                   | 18,4%    |
| Brand         | a         | High brand         | 11,1%                               | 3,2%                                   | 19,0%    |
|               | b         | Low brand          | 6,3%                                | -0,1%                                  | 11,0%    |
| Location      | a         | Cross-border       | 11,2%                               | -5,8%                                  | 27,9%    |
|               | b         | Domestic           | 5,7%                                | 1,9%                                   | 7,9%     |
| Merger Type   | a         | Horizontal         | 5,6%                                | 1,4%                                   | 11,2%    |
|               | b         | Vertical           | 13,7%                               | -8,8%                                  | 21,0%    |
|               | c         | Conglomerate       | 12,7%                               | -1,6%                                  | 11,2%    |
| Sector        | a         | Service            | 9,7%                                | -0,7%                                  | 21,9%    |
|               | b         | Manufacturing      | 5,2%                                | 0,7%                                   | 6,0%     |
| Time          | a         | Long-term process  | 2,5%                                | -3,0%                                  | 9,3%     |
|               | b         | Short-term process | 13,6%                               | 4,1%                                   | 15,5%    |
| Customer type | a         | Corporate          | 4,8%                                | -1,1%                                  | 27,0%    |
|               | b         | Individual         | 15,8%                               | 0,5%                                   | 8,1%     |

We also found that customers' reactions are different in various grouping of companies according to certain criteria. The summarized customer reaction in these classifications of M&A can be seen in Table 6.1.

Our analysis revealed that larger companies experience less negative joint sales impact than small companies while the mergers where the acquirer is significantly larger than the target brought more positive customer reactions than equal sized companies' merger. Similarly, companies with renowned brands also have advantages in customer reaction over less known branded companies when entering M&A deals.

When we analyzed the performance of two companies from different countries engaging in mergers and acquisitions we found that they suffered from negative revenue growth in the first year after the deal while domestic mergers managed to keep their revenues relatively higher.

The research also gave some attention-grabbing findings. Although the characteristics of merger types in relation with customers are different horizontal, vertical and conglomerate mergers are all suffer from negative customer reactions almost in the same level after the merger.

Also, we found out that types of customers are not an affecting factor of negative sales impact as both types had almost the same trend after M&A event (Figure 5.9). This statement is also relevant to the type of industries of M&A parties since both service and manufacturing firms experienced insignificantly different revenue reduction. Finally, the analysis revealed that there is not considerable distinction in customer reactions between M&A processes that take longer time and merger deals that are accomplished immediately after their announcement.

## **6.2 Limitations**

We learned changes in revenues in relationship with M&A rather than other forms of firms' indicators that would related to customers' reactions such as spending on marketing, number of customers and others.

We collected data from the large mergers and acquisitions accomplished in 2005 and 2006 since our method of analysis required several years before and after the merger. Overall, we could gather data from 122 companies involving in 61 merger deals and our results are only based on these sample companies. Even though we checked over 500 merger and acquisition deals we had to exclude most of them due to data unavailability, incompleteness and irrelevance.

There are certain aspects that may affect the result of customer satisfaction index analysis. Indices for target companies were unable and we only analyzed acquiring companies' pre-merger and post-merger customer index dynamics.

For deciding the difference of reactions in the different groups of M&A parties we selected 5% significance level which is used commonly rather than other levels, such as, 10% or 1%.

### **6.3 Conclusions**

Now as we completed analysis and discussions we can draw relevant conclusions. Our research is intended to study how customers react with respect to M&A event and how these reactions would be affected by various factors. To investigate the reactions we selected revenue figures as the main indicator and developed nine hypotheses which in general related to different qualitative dimensions that an organization can be described e.g. size, industry, brand groups, customer types, etc. Our analysis of overall joint revenue trend approved the following hypothesis:

*H1: Customers negatively react to M&A with reduced joint sales* - Overall we found that customers negatively react to M&A deals which confirms past researchers' findings.

Based on the analysis, we can conclude that the following hypotheses are also approved:

*H3: The smaller the M&A parties the more negative customer reaction;*

*H4: The larger the acquirer than the target the less negative customer reactions to M&A.*

*H7: The higher the brand values of the parties the more positive customer reaction to M&A;*

*H8: Customer reaction is more negative to cross-border M&A than domestic M&A.*

Although our analysis showed that there are slight differences between the dynamics of revenue figures among the groups of below hypotheses, the distinctions were not statistically significant, thus we conclude that these hypotheses are rejected:

*H2: The longer the announcement-completion period of M&A the more negative joint sales impact.*

*H5: Customers react more negatively to vertical and conglomerate mergers than horizontal M&A.*

*H6: Service companies face more negative customer reactions than manufacturing firms after M&A;*

*H9: Corporate customers react to M&A more negatively than individual customers.*

## **6.4 Implications**

Based on the discussions and conclusions above we made following implications for practitioners and future researchers.

### **6.4.1 Implications for practitioners**

As a result of our analysis and conclusions a number of implications for practitioners can be outlined. They may be considered as recommendations for managers and directors working with these issues.

When planning a merger or acquisition, managers and directors of acquiring firms or merging parties should be aware that they might suffer from sales declines at least for the first year. It might require additional investments in marketing to regain customers' positive considerations. The research revealed that smaller companies may be prone to negative reactions of customers to their M&A, so it is important to weigh the possible benefits (synergies) against the risk of possible sales drops in these firms. Another factor to take into account would be that the potential strong customer dissatisfaction may be observed when the size of the target relative to the acquirer is similar. Also, it must be considered that merging or acquiring overseas companies might bring stronger uncertainty and turbulence among customers than domestic mergers. Moreover, the study demonstrated that the recognition of companies' brand also plays an important role in customers' choice after mergers and acquisitions, thus managers and directors should consider possible negative revenue impact when acquiring less renowned brand.

### **6.4.2 Implications for future research**

Throughout this thesis we have been investigating how customers react to M&A and how their reactions differ in various parameters related to M&A and participating parties. Since it is very broad subject and is quite under-explored many researches can be conducted in future.

Future researchers may study the following areas:

- a) The reasons for customer reactions;
- b) The study of customer reactions through other indicators (sales dynamics of each parties after M&A; change in the number of customers, etc);
- c) Customer reactions to hostile takeovers and friendly acquisitions;
- d) Market expectations of customer reactions to M&A;
- e) Correlation between employee reactions and customer reactions to M&A;
- f) Customers' reaction when M&A parties seek synergies through cost reduction versus revenue growth.

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## APPENDICES

### Appendix1. Detailed information of sample companies

| No | Company<br>(acquirer first,<br>target second) | Pre-merger revenues |           |           |           | After merger<br>revenues |           | Country | M&A<br>year | Industry | Custo<br>mer<br>type |
|----|---|---------------------|-----------|-----------|-----------|--------------------------|-----------|---------|-------------|----------|----------------------|
|    |   | Year 1              | Year 2    | Year 3    | Year 4    | Year 1                   | Year 2    |         |             |          |                      |
| 1  | Procter & Gamble                              | 39244000            | 40238000  | 43377010  | 51407010  | 56741010                 | 68222000  | USA     | 2005        | Manuf.   | Indv.                |
|    | Gillette                                      | 8961000             | 8453000   | 9252000   | 10477000  |                          |           |         |             | USA      | Manuf.               |
| 2  | Bank of America                               | 53116000            | 46444000  | 49006000  | 65910000  | 85064000                 | 116574000 | USA     | 2006        | Service  | Indv.                |
|    | MBNA Inc                                      | 10144720            | 10430990  | 11684360  | 12327010  |                          |           |         |             | USA      | Service              |
| 3  | Duke Energy Corp                              | 15663000            | 22529010  | 22503010  | 16746000  | 15184000                 | 12720000  | USA     | 2006        | Service  | Indv.                |
|    | Cinergy Corp                                  | 11960080            | 4415877   | 4687950   | 5409848   |                          |           |         |             | USA      | Service              |
| 4  | Valero Energy Corp                            | 14988000            | 26976210  | 37968610  | 54618610  | 82162000                 | 91833010  | USA     | 2005        | Manuf.   | Corp.                |
|    | Premcor Inc                                   | 6417500             | 6772800   | 8803900   | 15334800  |                          |           |         |             | USA      | Manuf.               |
| 5  | Sankyo  | 548892900           | 569926900 | 596345100 | 587830000 | 925918000                | 929506000 | Japan   | 2005        | Manuf.   | Indv.                |
|    | Daiichi Pharm Co                              | 332752900           | 322010900 | 322767100 | 328534000 |                          |           |         |             | Japan    | Manuf.               |
| 6  | BHP Billition                                 | 20698000            | 30298260  | 26506750  | 32235200  | 39205760                 | 42870560  | Aus     | 2005        | Manuf.   | Corp.                |
|    | WMC Resources                                 | 2817000             | 1456300   | 3001300   | 3828400   |                          |           |         |             | Aus      | Manuf.               |
| 7  | Washington Mutual                             | 17692000            | 24590000  | 20699010  | 17071010  | 21325010                 | 26291010  | USA     | 2005        | Service  | Indv.                |
|    | Providian Financial Corp                      | 5529908             | 3670730   | 2781408   | 2600015   |                          |           |         |             | USA      | Service              |
| 8  | News Corporation                              | 13643050            | 15222200  | 17613660  | 21094880  | 23859010                 | 25327010  | USA     | 2005        | Service  | Indv.                |
|    | Fox entertainment                             | 8414000             | 9725000   | 11002000  | 12175000  |                          |           |         |             | USA      | Service              |
| 9  | Medco Health Solutions                        | 29070590            | 32958500  | 34264500  | 35351890  | 37870900                 | 42543700  | USA     | 2005        | Service  | Indv.                |
|    | Accredo Health                                | 460992              | 651506    | 1371396   | 1513797   |                          |           |         |             | USA      | Service              |
| 10 | BAE systems                                   | 12995530            | 11849910  | 13542480  | 16319150  | 20854540                 | 22927650  | UK      | 2005        | Manuf.   | Corp.                |
|    | United defense                                | 1318538             | 1725346   | 2052591   | 2292355   |                          |           |         |             | USA      | Manuf.               |
| 11 | Liberty global                                | 139535              | 103855    | 108634    | 2644284   | 5151332                  | 6487500   | USA     | 2005        | Service  | Indv.                |
|    | UnitedGlobalCom Inc.                          | 1561894             | 1515021   | 1891530   | 2525446   |                          |           |         |             | USA      | Service              |
| 12 | American tower                                | 1134191             | 788420    | 715144    | 706660    | 944786                   | 1317385   | USA     | 2005        | Service  | Corp.                |
|    | Spectrasite                                   | 472972              | 309334    | 315371    | 355148    |                          |           |         |             | USA      | Service              |
| 13 | Moeller Maersk                                | 10565000            | 11460000  | 13676000  | 16269000  | 20454000                 | 24296000  | Denmark | 2005        | Service  | Corp.                |
|    | Royal P&O Ned                                 | 4726189             | 4486199   | 5475234   | 5059272   |                          |           |         |             | UK       | Service              |
| 14 | Foster's group                                | 2168769             | 2461290   | 3015630   | 2840423   | 3086068                  | 3783629   | Aus     | 2005        | Manuf.   | Indv.                |
|    | Southcorp Ltd                                 | 1298147             | 1078232   | 704180    | 772007    |                          |           |         |             | Aus      | Manuf.               |
| 15 | Aviva PLC                                     | 51709010            | 47803150  | 58423040  | 70682830  | 75668020                 | 81093620  | UK      | 2005        | Service  | Indv.                |
|    | RAC PLC                                       | 1688801             | 1786290   | 1898563   | 2093408   |                          |           |         |             | UK       | Service              |
| 16 | IAC/Interactive                               | 5284807             | 4621224   | 6328118   | 4188279   | 5753671                  | 6277638   | USA     | 2005        | Service  | Corp.                |
|    | Ask Jeeves                                    | 66551               | 74136     | 107292    | 261327    |                          |           |         |             | USA      | Service              |
| 17 | Grupo Ferrovial                               | 6835338             | 8778179   | 11447580  | 15598040  | 19686820                 | 21972220  | Spain   | 2006        | Service  | Corp.                |
|    | BAA PLC                                       | 3071158             | 3529386   | 4002847   | 4229338   |                          |           |         |             | UK       | Service              |
| 18 | Anadarko Petroleum                            | 3860000             | 5122000   | 6067000   | 7100000   | 10187000                 | 15892000  | USA     | 2006        | Manuf.   | Corp.                |
|    | Kerr-McGee                                    | 3700000             | 4185000   | 5157000   | 5927000   |                          |           |         |             | USA      | Manuf.               |
| 19 | Regions financial corp                        | 3760276             | 3571443   | 4402635   | 5957965   | 7678838                  | 10930498  | USA     | 2006        | Service  | Corp.                |
|    | Amsouth Bancorp                               | 2997677             | 2942229   | 3197803   | 3396284   |                          |           |         |             | USA      | Service              |



|    |                       |          |          |          |          |          |           |         |      |         |       |
|----|-----------------------|----------|----------|----------|----------|----------|-----------|---------|------|---------|-------|
| 20 | Goldcorp              | 185121   | 258681   | 179378   | 869835   | 1744636  | 2116178   | Canada  | 2006 | Manuf.  | Corp. |
|    | Glamis Gold           | 80768    | 82733    | 88930    | 196594   |          |           | USA     |      | Manuf.  | Corp. |
| 21 | Walt Disney           | 25329010 | 27061010 | 30752000 | 31944000 | 34285010 | 35510000  | USA     | 2006 | Service | Indv. |
|    | Pixar                 | 181624   | 262498   | 273472   | 289116   |          |           | USA     |      | Service | Indv. |
| 22 | Advanced Micro        | 2697029  | 3519168  | 5001435  | 5847577  | 5649000  | 6013000   | USA     | 2006 | Manuf.  | Corp. |
|    | ATI technologies      | 1024065  | 1446958  | 1926899  | 2186646  |          |           | Canada  |      | Manuf.  | Corp. |
| 23 | Anadarko              | 3860000  | 5122000  | 6067000  | 7100000  | 10187000 | 15892000  | USA     | 2006 | Manuf.  | Corp. |
|    | Western Gas           | 2489698  | 2874010  | 3069713  | 3958658  |          |           | USA     |      | Manuf.  | Corp. |
| 24 | BASF                  | 29510530 | 37842500 | 45334580 | 54910160 | 67015310 | 78740900  | Germ.   | 2006 | Manuf.  | Corp. |
|    | Engelhard             | 3753600  | 3714500  | 4166420  | 4597016  |          |           | USA     |      | Manuf.  | Corp. |
| 25 | Lottomatica           | 1085392  | 1471678  | 731136   | 1195964  | 2257401  | 3202568   | Italy   | 2006 | Service | Indv. |
|    | Gtech                 | 978790   | 1051330  | 1257235  | 1304806  |          |           | USA     |      | Service | Indv. |
| 26 | Hewlett-Packard       | 56588000 | 73061010 | 79905010 | 86696000 | 91658000 | 104286000 | USA     | 2006 | Manuf.  | Indv. |
|    | Mercury Interactive   | 400122   | 506473   | 685547   | 843147   |          |           | USA     |      | Service | Indv. |
| 27 | Home Depot            | 58247010 | 64816000 | 73094000 | 81511010 | 90837010 | 77349010  | USA     | 2006 | Service | Indv. |
|    | Hughes Supply         | 3066341  | 3253400  | 4422600  | 5437700  |          |           | USA     |      | Service | Indv. |
| 28 | Hankyu                | 4050523  | 4301449  | 4548579  | 4327330  | 6183204  | 7203519   | Japan   | 2006 | Service | Indv. |
|    | Hanshin Elec Railroad | 2434761  | 2804340  | 2853566  | 2788214  |          |           | Japan   |      | Service | Indv. |
| 29 | Centro Properties     | 10249    | 12930    | 19721    | 253254   | 258732   | 314315    | Aus     | 2006 | Service | Indv. |
|    | Heritage Property     | 278019   | 300998   | 327026   | 351416   |          |           | UK      |      | Service | Indv. |
| 30 | Oshkosh corp          | 1926010  | 2262305  | 2959900  | 3427388  | 6307300  | 7138300   | USA     | 2006 | Manuf.  | Corp. |
|    | JLG Industries        | 759789   | 1193962  | 1735030  | 2289400  |          |           | USA     |      | Manuf.  | Corp. |
| 31 | Tenaris               | 3102774  | 3159417  | 3998139  | 6989728  | 7774111  | 9890084   | Luxemb. | 2006 | Manuf.  | Corp. |
|    | Maverick Tube         | 452913   | 884317   | 1456264  | 1785233  |          |           | USA     |      | Manuf.  | Corp. |
| 32 | Fortress Investment   | 346210   | 351378   | 1004862  | 1521304  | 1236015  | 731800    | USA     | 2006 | Service | Corp. |
|    | Intrawest             | 1155223  | 1505924  | 1676768  | 1664376  |          |           | Canada  |      | Service | Corp. |
| 33 | CB Richard Ellis      | 1170277  | 1630074  | 2365096  | 2910641  | 4032027  | 6034249   | USA     | 2006 | Service | Corp. |
|    | Trammel Crow          | 737143   | 707832   | 778426   | 895950   |          |           | USA     |      | Service | Corp. |
| 34 | Banco Bilbao Vizca    | 21019760 | 19910900 | 21682210 | 33560350 | 38680100 | 51965100  | Spain   | 2006 | Service | Corp. |
|    | Texas regional bank   | 241708   | 259567   | 346495   | 440030   |          |           | USA     |      | Service | Corp. |
| 35 | WPP                   | 4553315  | 5792051  | 5723311  | 6534903  | 7679334  | 10170260  | UK      | 2005 | Service | Corp. |
|    | Grey Global           | 1247448  | 1217013  | 1199708  | 1307266  |          |           | USA     |      | Service | Corp. |
| 36 | Toppan Printing       | 10671180 | 10130870 | 10759550 | 11590270 | 13490290 | 13780840  | Japan   | 2005 | Service | Corp. |
|    | Dupont photomasks     | 407946   | 341911   | 323118   | 353794   |          |           | USA     |      | Service | Corp. |
| 37 | Nortel Networks       | 17569860 | 10523390 | 10077790 | 9180902  | 10211050 | 11649270  | Canada  | 2005 | Service | Corp. |
|    | PEC Solutions         | 109213   | 182185   | 172043   | 202695   |          |           | USA     |      | Service | Corp. |
| 38 | Access Co             | 39579    | 60749    | 78556    | 108295   | 153718   | 217695    | Japan   | 2005 | Service | Corp. |
|    | Palmsource            | 44950    | 73414    | 73117    | 71911    |          |           | USA     |      | Service | Corp. |
| 39 | Extendicare           | 1208893  | 1107828  | 1117635  | 1229891  | 1262221  | 1584513   | USA     | 2005 | Service | Indv. |
|    | Assisted living       | 139423   | 150678   | 146269   | 168012   |          |           | USA     |      | Service | Indv. |
| 40 | Glaxosmithkline       | 29508260 | 31062830 | 34124430 | 36363200 | 40993700 | 43176430  | UK      | 2005 | Manuf.  | Indv. |
|    | Corixa Corporation    | 58065    | 48738    | 50710    | 24956    |          |           | USA     |      | Manuf.  | Indv. |
| 41 | Diageo                | 15415000 | 15788910 | 9643069  | 10814580 | 11934720 | 12735300  | UK      | 2005 | Manuf.  | Indv. |
|    | Chalone wine          | 51497    | 58025    | 67005    | 67383    |          |           | USA     |      | Manuf.  | Indv. |
| 42 | Stantec               | 231991   | 272748   | 328003   | 376382   | 496641   | 736610    | Canada  | 2005 | Service | Corp. |
|    | Keith companies       | 69455    | 91598    | 90744    | 96754    |          |           | USA     |      | Service | Corp. |
| 43 | Aixtron               | 141027   | 214002   | 137552   | 103645   | 166741   | 179076    | Germ.   | 2005 | Manuf.  | Corp. |
|    | Genus                 | 40638    | 48739    | 39767    | 56861    |          |           | UK      |      | Manuf.  | Corp. |
| 44 | Naturex               | 16124    | 29587    | 28132    | 34805    | 50147    | 66162     | France  | 2005 | Manuf.  | Corp. |

|    |  |          |          |          |          |          |           |         |      |         |       |
|----|--|----------|----------|----------|----------|----------|-----------|---------|------|---------|-------|
|    | Pure world                             | 18212    | 18144    | 21771    | 37068    |          |           | USA     |      | Manuf.  | Corp. |
| 45 | Xyratex                                | 173432   | 250214   | 332638   | 459014   | 677006   | 981174    | USA     | 2005 | Service | Corp. |
|    | Nstor technologies                     | 17886    | 10790    | 12602    | 10286    |          |           | USA     |      | Service | Corp. |
| 46 | Suez                                   | 44987070 | 48519460 | 53296700 | 56416500 | 64669410 | 104591200 | France  | 2006 | Service | Corp. |
|    | Electracabel                           | 12313670 | 14467560 | 15695270 | 17205490 |          |           | Belgium |      | Service | Corp. |
| 47 | Barrick gold                           | 2062351  | 2096037  | 1941179  | 2280335  | 5750156  | 6097122   | Canada  | 2006 | Manuf.  | Corp. |
|    | Placer dome                            | 1206865  | 1743071  | 1763690  | 1919363  |          |           | Canada  |      | Manuf.  | Corp. |
| 48 | Unitedhealth group                     | 23454000 | 25020000 | 28823010 | 37218000 | 45365010 | 71546000  | USA     | 2005 | Service | Indv. |
|    | Pacificare health                      | 11732710 | 11092000 | 10937000 | 12187990 |          |           | USA     |      | Service | Indv. |
| 49 | Teva pharmaceuticals                   | 2077368  | 2518599  | 3276398  | 4798902  | 5250402  | 8407994   | Israel  | 2006 | Manuf.  | Indv. |
|    | Ivax corp                              | 1215377  | 1197244  | 1420339  | 1837418  |          |           | USA     |      | Manuf.  | Indv. |
| 50 | Deutsche post                          | 29756850 | 35818900 | 45435790 | 51411820 | 57285520 | 77123490  | Germ.   | 2005 | Service | Indv. |
|    | Exel                                   | 6469953  | 6751173  | 7936263  | 11144550 |          |           | USA     |      | Service | Indv. |
| 51 | Wellpoint                              | 10448600 | 13281600 | 16797410 | 20815900 | 45150800 | 57009200  | USA     | 2005 | Service | Indv. |
|    | Wellchoice                             | 4624406  | 5097889  | 5381191  | 5826264  |          |           | USA     |      | Service | Indv. |
| 52 | Alliance boots                         | 7802758  | 8475321  | 9510979  | 10350810 | 9346186  | 22956260  | Switz.  | 2006 | Manuf.  | Corp. |
|    | Alliance chemical                      | 11749610 | 14004520 | 15893430 | 17357390 |          |           | USA     |      | Manuf.  | Corp. |
| 53 | Novartis                               | 20278610 | 25011520 | 26852660 | 33254960 | 36867870 | 37753360  | Switz.  | 2006 | Manuf.  | Indv. |
|    | Chiron Corp                            | 1276280  | 1766361  | 1713255  | 1919679  |          |           | USA     |      | Manuf.  | Indv. |
| 54 | Fresenius Medical                      | 4880860  | 5497585  | 5936715  | 7026690  | 8620999  | 9597384   | Germ.   | 2006 | Service | Indv. |
|    | Renal Care Group                       | 903387   | 1005319  | 1345047  | 1570226  |          |           | USA     |      | Service | Indv. |
| 55 | Whirlpool                              | 11016000 | 12176000 | 13220000 | 14317000 | 18080000 | 19408000  | USA     | 2006 | Manuf.  | Indv. |
|    | Maytag Corp                            | 4666031  | 4791866  | 4721538  | 4901115  |          |           | USA     |      | Manuf.  | Indv. |
| 56 | Adobe systems                          | 1164788  | 1294749  | 1666581  | 1966321  | 2575300  | 3157881   | USA     | 2005 | Service | Indv. |
|    | Macromedia inc                         | 324794   | 336913   | 369786   | 436168   |          |           | USA     |      | Service | Indv. |
| 57 | Talisman Energy                        | 2637452  | 2783148  | 3138528  | 3808051  | 6333978  | 7062539   | Canada  | 2005 | Manuf.  | Corp. |
|    | Paladin Resources                      | 150808   | 249310   | 426811   | 517974   |          |           | Aus     |      | Manuf.  | Corp. |
| 58 | Bayer AG                               | 28958000 | 28566990 | 29758000 | 27382990 | 28956000 | 32384990  | Germ.   | 2006 | Manuf.  | Indv. |
|    | Schering AG                            | 5023000  | 4828000  | 4907000  | 5308000  |          |           | Germ.   |      | Manuf.  | Indv. |
| 59 | Alcatel                                | 15727260 | 14284720 | 15323890 | 16261130 | 15551840 | 24546190  | France  | 2006 | Service | Indv. |
|    | Lucent Technologies Inc                | 12321000 | 8470000  | 9045000  | 9441000  |          |           | USA     |      | Service | Indv. |
| 60 | Fidelity National Information Services | 619723   | 1830924  | 2331527  | 2766085  | 4132602  | 4758016   | USA     | 2006 | Service | Corp. |
|    | Certegy Inc                            | 1007968  | 1015464  | 1039506  | 1117141  |          |           | USA     |      | Service | Corp. |
| 61 | Unicredito Italiano                    | 10099000 | 10465000 | 10203000 | 11024000 | 10206000 | 13346000  | Italy   | 2006 | Service | Corp. |
|    | Bank BPH                               | 4903726  | 4013497  | 4497880  | 4414157  |          |           | Poland  |      | Service | Corp. |

## Appendix 2: Regression analysis results for Hypothesis 1

### a. Statistics of the model

Dependent Variable: REVENUES

Method: Least Squares

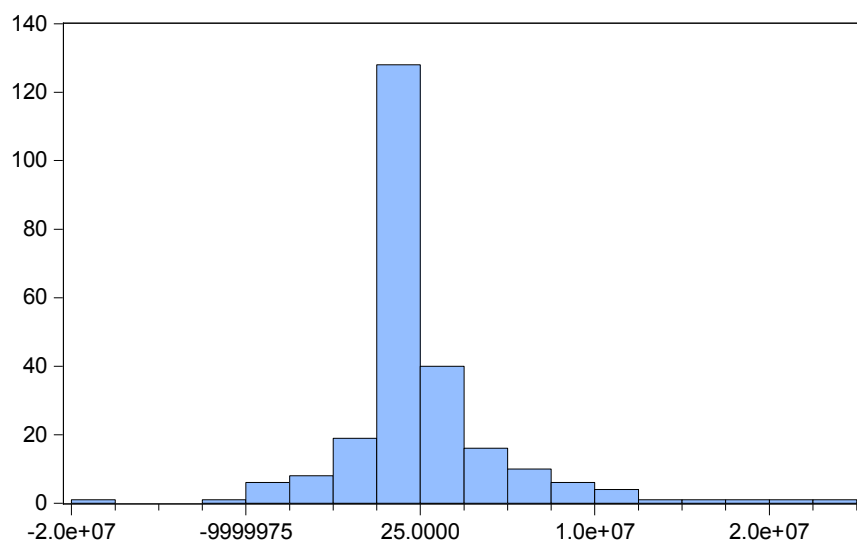
Sample: 1 244

Included observations: 244

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
|----------|-------------|------------|-------------|-------|

|                    |           |                       |           |               |
|--------------------|-----------|-----------------------|-----------|---------------|
| <b>POST_MERGE</b>  | -2183822. | 691519.8              | -3.158003 | <b>0.0018</b> |
| C                  | 2232763.  | 345759.9              | 6.457554  | 0.0000        |
| R-squared          | 0.039580  | Mean dependent var    |           | 1686808.      |
| Adjusted R-squared | 0.035611  | S.D. dependent var    |           | 4762928.      |
| S.E. of regression | 4677353.  | Akaike info criterion |           | 33.56253      |
| Sum squared resid  | 5.29E+15  | Schwarz criterion     |           | 33.59119      |
| Log likelihood     | -4092.628 | Hannan-Quinn criter.  |           | 33.57407      |
| F-statistic        | 9.972982  | Durbin-Watson stat    |           | 2.123055      |
| Prob(F-statistic)  | 0.001790  |                       |           |               |

**b. Normality Test**



|                   |           |
|-------------------|-----------|
| Series: Residuals |           |
| Sample 1 244      |           |
| Observations 244  |           |
| Mean              | -6.11e-11 |
| Median            | -990915.7 |
| Maximum           | 24941637  |
| Minimum           | -18410956 |
| Std. Dev.         | 4667719.  |
| Skewness          | 1.477610  |
| Kurtosis          | 9.490186  |
| Jarque-Bera       | 517.0344  |
| Probability       | 0.000000  |

**c. Heteroskedasticity Test: White**

|                     |          |                     |               |
|---------------------|----------|---------------------|---------------|
| F-statistic         | 0.430966 | Prob. F(1,242)      | <b>0.5121</b> |
| Obs*R-squared       | 0.433755 | Prob. Chi-Square(1) | 0.5102        |
| Scaled explained SS | 1.811269 | Prob. Chi-Square(1) | 0.1784        |

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Sample: 1 244  
 Included observations: 244  
 Collinear test regressors dropped from specification

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.         |
|--------------------|-------------|-----------------------|-------------|---------------|
| C                  | 2.02E+13    | 4.69E+12              | 4.299469    | 0.0000        |
| <b>POST_MERGE</b>  | 6.16E+12    | 9.38E+12              | 0.656480    | <b>0.5121</b> |
| R-squared          | 0.001778    | Mean dependent var    |             | 2.17E+13      |
| Adjusted R-squared | -0.002347   | S.D. dependent var    |             | 6.34E+13      |
| S.E. of regression | 6.34E+13    | Akaike info criterion |             | 66.40791      |
| Sum squared resid  | 9.74E+29    | Schwarz criterion     |             | 66.43658      |
| Log likelihood     | -8099.765   | Hannan-Quinn criter.  |             | 66.41946      |
| F-statistic        | 0.430966    | Durbin-Watson stat    |             | 1.566081      |
| Prob(F-statistic)  | 0.512139    |                       |             |               |

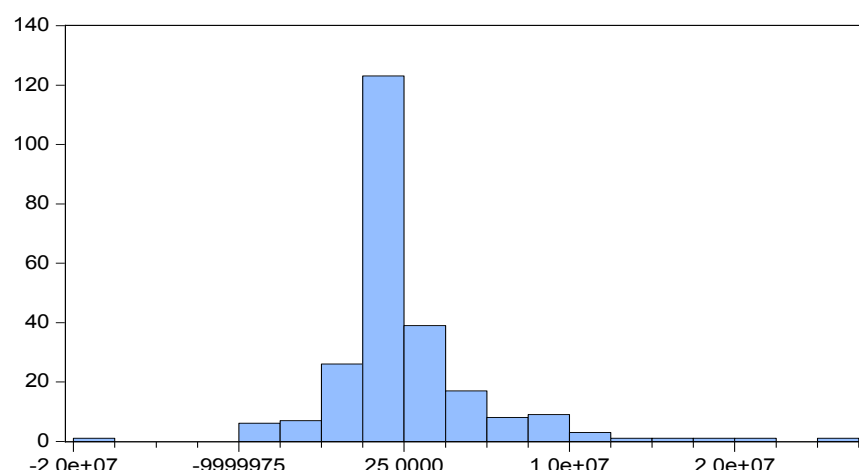
## Appendix 3: Regression analysis results for Hypothesis 2

### a. Statistics of the model

Dependent Variable: REVENUES  
 Method: Least Squares  
 Sample: 1 244  
 Included observations: 244

| Variable            | Coefficient | Std. Error            | t-Statistic | Prob.         |
|---------------------|-------------|-----------------------|-------------|---------------|
| LESS_THAN_SIX_MONTH | 1008391.    | 710582.2              | 1.419105    | <b>0.1572</b> |
| POST_MERGER         | -2183822.   | 690075.8              | -3.164611   | 0.0018        |
| C                   | 1455806.    | 647151.4              | 2.249561    | 0.0254        |
| R-squared           | 0.047539    | Mean dependent var    |             | 1686808.      |
| Adjusted R-squared  | 0.039634    | S.D. dependent var    |             | 4762928.      |
| S.E. of regression  | 4667586.    | Akaike info criterion |             | 33.56240      |
| Sum squared resid   | 5.25E+15    | Schwarz criterion     |             | 33.60540      |
| Log likelihood      | -4091.613   | Hannan-Quinn criter.  |             | 33.57972      |
| F-statistic         | 6.014312    | Durbin-Watson stat    |             | 1.867986      |
| Prob(F-statistic)   | 0.002826    |                       |             |               |

### b. Normality test



| Series: Residuals<br>Sample 1 244<br>Observations 244 |           |
|---|-----------|
| Mean  | 2.51e-10  |
| Median  | -882436.7 |
| Maximum   | 25718594  |
| Minimum   | -17633999 |
| Std. Dev.   | 4648338.  |
| Skewness  | 1.601341  |
| Kurtosis  | 9.812683  |
| Jarque-Bera   | 576.1432  |
| Probability   | 0.000000  |

### c. Heteroskedasticity Test: White

|                     |          |                     |               |
|---------------------|----------|---------------------|---------------|
| F-statistic         | 1.668340 | Prob. F(3,240)      | <b>0.1745</b> |
| Obs*R-squared       | 4.984490 | Prob. Chi-Square(3) | 0.1729        |
| Scaled explained SS | 21.42660 | Prob. Chi-Square(3) | 0.0001        |

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Sample: 1 244

Included observations: 244

Collinear test regressors dropped from specification

| Variable            | Coefficient | Std. Error | t-Statistic | Prob.  |
|---------------------|-------------|------------|-------------|--------|
| C                   | 3.16E+13    | 9.84E+12   | 3.213057    | 0.0015 |
| LESS_THAN_SIX_MONTH | -1.47E+13   | 1.12E+13   | -1.310943   | 0.1911 |

|                                 |           |                       |           |        |
|---------------------------------|-----------|-----------------------|-----------|--------|
| LESS_THAN_SIX_MONTH*POST_MERGER | -1.90E+13 | 2.24E+13              | -0.847802 | 0.3974 |
| POST_MERGER                     | 1.96E+13  | 1.97E+13              | 0.994649  | 0.3209 |
| R-squared                       | 0.020428  | Mean dependent var    | 2.15E+13  |        |
| Adjusted R-squared              | 0.008184  | S.D. dependent var    | 6.40E+13  |        |
| S.E. of regression              | 6.37E+13  | Akaike info criterion | 66.42608  |        |
| Sum squared resid               | 9.75E+29  | Schwarz criterion     | 66.48341  |        |
| Log likelihood                  | -8099.982 | Hannan-Quinn criter.  | 66.44917  |        |
| F-statistic                     | 1.668340  | Durbin-Watson stat    | 2.035605  |        |
| Prob(F-statistic)               | 0.174465  |                       |           |        |

#### d. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 0.856731 | Prob. F(2,239)      | 0.4258 |
| Obs*R-squared | 1.736855 | Prob. Chi-Square(2) | 0.4196 |

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Sample: 1 244

Included observations: 244

Presample missing value lagged residuals set to zero.

| Variable            | Coefficient | Std. Error            | t-Statistic | Prob.  |
|---------------------|-------------|-----------------------|-------------|--------|
| LESS_THAN_SIX_MONTH | -8698.002   | 711292.1              | -0.012228   | 0.9903 |
| POST_MERGER         | 8430.385    | 690625.2              | 0.012207    | 0.9903 |
| C                   | 5462.301    | 647670.2              | 0.008434    | 0.9933 |
| RESID(-1)           | 0.069391    | 0.064597              | 1.074223    | 0.2838 |
| RESID(-2)           | -0.052882   | 0.064730              | -0.816965   | 0.4148 |
| R-squared           | 0.007118    | Mean dependent var    | 2.51E-10    |        |
| Adjusted R-squared  | -0.009499   | S.D. dependent var    | 4648338.    |        |
| S.E. of regression  | 4670363.    | Akaike info criterion | 33.57165    |        |
| Sum squared resid   | 5.21E+15    | Schwarz criterion     | 33.64331    |        |
| Log likelihood      | -4090.741   | Hannan-Quinn criter.  | 33.60051    |        |
| F-statistic         | 0.428365    | Durbin-Watson stat    | 2.011883    |        |
| Prob(F-statistic)   | 0.788087    |                       |             |        |

### Appendix 4: Regression results for hypothesis 3

#### a. Statistics of the model

Dependent Variable: REVENUES

Method: Least Squares

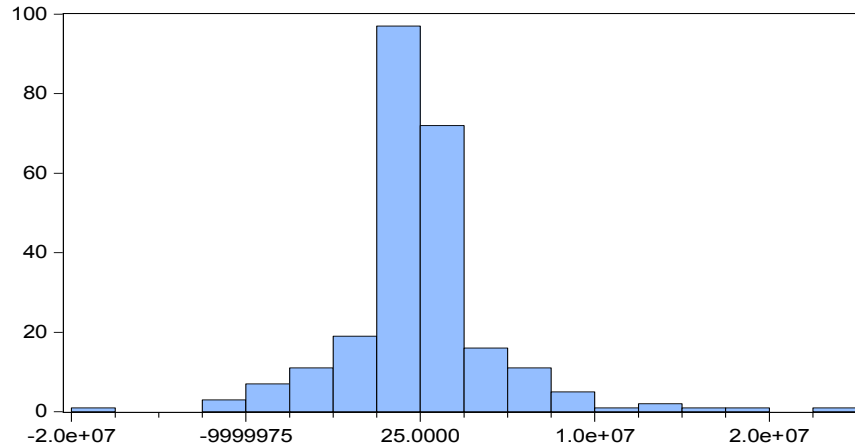
Sample: 1 248

Included observations: 248

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.         |
|--------------------|-------------|-----------------------|-------------|---------------|
| <b>SMALL</b>       | -2760184.   | 568109.1              | -4.858546   | <b>0.0000</b> |
| POST_MERGER        | -2106971.   | 655654.4              | -3.213538   | 0.0015        |
| C                  | 3507676.    | 427827.1              | 8.198817    | 0.0000        |
| R-squared          | 0.121651    | Mean dependent var    | 1645360.    |               |
| Adjusted R-squared | 0.114480    | S.D. dependent var    | 4751190.    |               |
| S.E. of regression | 4470967.    | Akaike info criterion | 33.47613    |               |

|                   |           |                      |          |
|-------------------|-----------|----------------------|----------|
| Sum squared resid | 4.90E+15  | Schwarz criterion    | 33.51863 |
| Log likelihood    | -4148.040 | Hannan-Quinn criter. | 33.49324 |
| F-statistic       | 16.96615  | Durbin-Watson stat   | 1.461875 |
| Prob(F-statistic) | 0.000000  |                      |          |

**b. Normality Test**



|                   |           |
|-------------------|-----------|
| Series: Residuals |           |
| Sample 1 248      |           |
| Observations 248  |           |
| Mean              | 4.70e-10  |
| Median            | -295653.3 |
| Maximum           | 23666724  |
| Minimum           | -19762719 |
| Std. Dev.         | 4452829.  |
| Skewness          | 0.867577  |
| Kurtosis          | 9.743262  |
| Jarque-Bera       | 500.9843  |
| Probability       | 0.000000  |

**c. Heteroskedasticity Test: White**

|                     |          |                     |               |
|---------------------|----------|---------------------|---------------|
| F-statistic         | 8.712109 | Prob. F(3,244)      | <b>0.0000</b> |
| Obs*R-squared       | 23.99459 | Prob. Chi-Square(3) | 0.0000        |
| Scaled explained SS | 102.3730 | Prob. Chi-Square(3) | 0.0000        |

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Sample: 1 248  
 Included observations: 248  
 Collinear test regressors dropped from specification

| Variable          | Coefficient | Std. Error | t-Statistic | Prob.  |
|-------------------|-------------|------------|-------------|--------|
| C                 | 3.16E+13    | 5.71E+12   | 5.533602    | 0.0000 |
| SMALL             | -2.97E+13   | 8.21E+12   | -3.623857   | 0.0004 |
| SMALL*POST_MERGER | -1.84E+13   | 1.64E+13   | -1.120544   | 0.2636 |
| POST_MERGER       | 1.91E+13    | 1.14E+13   | 1.670455    | 0.0961 |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.096752  | Mean dependent var    | 1.97E+13 |
| Adjusted R-squared | 0.085647  | S.D. dependent var    | 5.85E+13 |
| S.E. of regression | 5.59E+13  | Akaike info criterion | 66.16478 |
| Sum squared resid  | 7.64E+29  | Schwarz criterion     | 66.22145 |
| Log likelihood     | -8200.433 | Hannan-Quinn criter.  | 66.18759 |
| F-statistic        | 8.712109  | Durbin-Watson stat    | 1.795032 |
| Prob(F-statistic)  | 0.000016  |                       |          |

**d. Autocorrelation test**

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 9.626283 | Prob. F(2,243)      | 0.0001 |
| Obs*R-squared | 18.20625 | Prob. Chi-Square(2) | 0.0001 |

Test Equation:  
 Dependent Variable: RESID

Method: Least Squares  
Sample: 1 248  
Included observations: 248  
Presample missing value lagged residuals set to zero.

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.    |
|--------------------|-------------|-----------------------|-------------|----------|
| SMALL              | 50485.10    | 549868.7              | 0.091813    | 0.9269   |
| POST_MERGER        | -29954.00   | 634208.4              | -0.047231   | 0.9624   |
| C                  | -14435.18   | 413568.8              | -0.034904   | 0.9722   |
| RESID(-1)          | 0.256959    | 0.064098              | 4.008816    | 0.0001   |
| RESID(-2)          | 0.041744    | 0.064304              | 0.649164    | 0.5168   |
| R-squared          | 0.073412    | Mean dependent var    |             | 4.70E-10 |
| Adjusted R-squared | 0.058160    | S.D. dependent var    |             | 4452829. |
| S.E. of regression | 4321402.    | Akaike info criterion |             | 33.41601 |
| Sum squared resid  | 4.54E+15    | Schwarz criterion     |             | 33.48685 |
| Log likelihood     | -4138.586   | Hannan-Quinn criter.  |             | 33.44453 |
| F-statistic        | 4.813142    | Durbin-Watson stat    |             | 1.992468 |
| Prob(F-statistic)  | 0.000940    |                       |             |          |

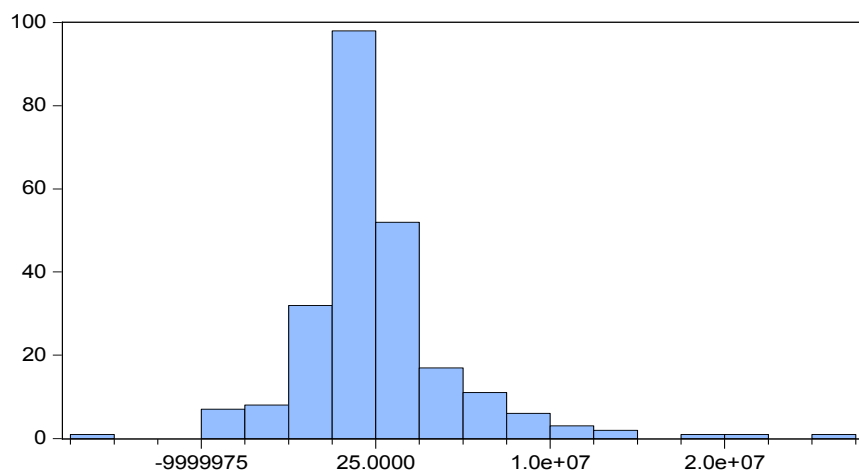
## Appendix 5: Regression analysis results for hypothesis 4

### a. Statistics of the model

Dependent Variable: REVENUES  
Method: Least Squares  
Sample: 1 240  
Included observations: 240

| Variable                  | Coefficient | Std. Error            | t-Statistic | Prob.         |
|---------------------------|-------------|-----------------------|-------------|---------------|
| <b>LARGER_THEN_TARGET</b> | 1586450.    | 668187.7              | 2.374258    | <b>0.0184</b> |
| POST_MERGER               | -2219648.   | 695352.9              | -3.192117   | 0.0016        |
| C                         | 1132811.    | 591771.3              | 1.914272    | 0.0568        |
| R-squared                 | 0.062599    | Mean dependent var    |             | 1714855.      |
| Adjusted R-squared        | 0.054689    | S.D. dependent var    |             | 4797600.      |
| S.E. of regression        | 4664569.    | Akaike info criterion |             | 33.56131      |
| Sum squared resid         | 5.16E+15    | Schwarz criterion     |             | 33.60482      |
| Log likelihood            | -4024.357   | Hannan-Quinn criter.  |             | 33.57884      |
| F-statistic               | 7.913358    | Durbin-Watson stat    |             | 1.979371      |
| Prob(F-statistic)         | 0.000471    |                       |             |               |

### b. Normality Test



|                   |           |
|-------------------|-----------|
| Series: Residuals |           |
| Sample 1 240      |           |
| Observations 240  |           |
| Mean              | 1.86e-10  |
| Median            | -754288.5 |
| Maximum           | 26041589  |
| Minimum           | -17275177 |
| Std. Dev.         | 4645011.  |
| Skewness          | 1.513563  |
| Kurtosis          | 9.798968  |
| Jarque-Bera       | 553.8947  |
| Probability       | 0.000000  |

### c. Heteroskedasticity Test: White

|                     |          |                     |               |
|---------------------|----------|---------------------|---------------|
| F-statistic         | 0.296330 | Prob. F(3,236)      | <b>0.8280</b> |
| Obs*R-squared       | 0.900665 | Prob. Chi-Square(3) | 0.8253        |
| Scaled explained SS | 3.864017 | Prob. Chi-Square(3) | 0.2765        |

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Sample: 1 240

Included observations: 240

Collinear test regressors dropped from specification

| Variable                       | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------------------------|-------------|------------|-------------|--------|
| C                              | 1.74E+13    | 8.98E+12   | 1.932799    | 0.0545 |
| LARGER_THEN_TARGET             | 3.95E+12    | 1.06E+13   | 0.372633    | 0.7098 |
| LARGER_THEN_TARGET*POST_MERGER | -1.64E+13   | 2.12E+13   | -0.773039   | 0.4403 |
| POST_MERGER                    | 1.69E+13    | 1.80E+13   | 0.941637    | 0.3473 |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.003753  | Mean dependent var    | 2.15E+13 |
| Adjusted R-squared | -0.008911 | S.D. dependent var    | 6.39E+13 |
| S.E. of regression | 6.42E+13  | Akaike info criterion | 66.43895 |
| Sum squared resid  | 9.71E+29  | Schwarz criterion     | 66.49696 |
| Log likelihood     | -7968.674 | Hannan-Quinn criter.  | 66.46233 |
| F-statistic        | 0.296330  | Durbin-Watson stat    | 1.845657 |
| Prob(F-statistic)  | 0.828034  |                       |          |

### d. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 0.490395 | Prob. F(2,235)      | 0.6130 |
| Obs*R-squared | 0.997494 | Prob. Chi-Square(2) | 0.6073 |

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Sample: 1 240

Included observations: 240

Presample missing value lagged residuals set to zero.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
|----------|-------------|------------|-------------|-------|



|                    |           |          |           |        |
|--------------------|-----------|----------|-----------|--------|
| LARGER_THEN_TARGET | 17820.08  | 669871.0 | 0.026602  | 0.9788 |
| POST_MERGER        | -35122.06 | 697908.5 | -0.050325 | 0.9599 |
| C                  | -11504.87 | 593162.6 | -0.019396 | 0.9845 |
| RESID(-1)          | 0.003930  | 0.065673 | 0.059846  | 0.9523 |
| RESID(-2)          | 0.067119  | 0.067802 | 0.989926  | 0.3232 |

---

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.004156  | Mean dependent var    | 1.86E-10 |
| Adjusted R-squared | -0.012794 | S.D. dependent var    | 4645011. |
| S.E. of regression | 4674631.  | Akaike info criterion | 33.57381 |
| Sum squared resid  | 5.14E+15  | Schwarz criterion     | 33.64633 |
| Log likelihood     | -4023.857 | Hannan-Quinn criter.  | 33.60303 |
| F-statistic        | 0.245197  | Durbin-Watson stat    | 1.983806 |
| Prob(F-statistic)  | 0.912377  |                       |          |

## Appendix 6: Regression analysis results for hypothesis 5

### a. Statistics of the model

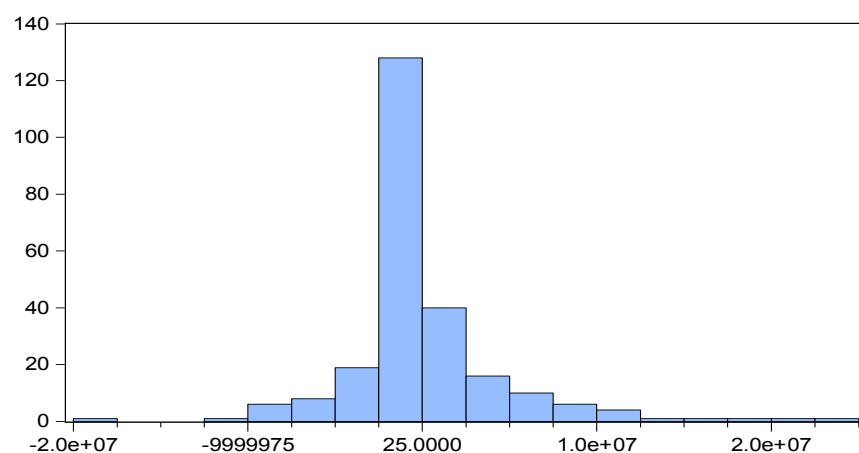
Dependent Variable: REVENUES  
Method: Least Squares  
Sample: 1 244  
Included observations: 244

| Variable          | Coefficient | Std. Error | t-Statistic | Prob.         |
|-------------------|-------------|------------|-------------|---------------|
| <b>HORIZONTAL</b> | -33522.64   | 696799.2   | -0.048109   | <b>0.9617</b> |
| POST_MERGER       | -2183822.   | 692949.7   | -3.151486   | 0.0018        |
| C                 | 2258043.    | 629402.8   | 3.587595    | 0.0004        |

---

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.039589  | Mean dependent var    | 1686808. |
| Adjusted R-squared | 0.031619  | S.D. dependent var    | 4762928. |
| S.E. of regression | 4687025.  | Akaike info criterion | 33.57071 |
| Sum squared resid  | 5.29E+15  | Schwarz criterion     | 33.61371 |
| Log likelihood     | -4092.627 | Hannan-Quinn criter.  | 33.58803 |
| F-statistic        | 4.967091  | Durbin-Watson stat    | 1.875408 |
| Prob(F-statistic)  | 0.007693  |                       |          |

### b. Normality test



|                   |           |
|-------------------|-----------|
| Series: Residuals |           |
| Sample 1 244      |           |
| Observations 244  |           |
| Mean              | -1.07e-10 |
| Median            | -1000276. |
| Maximum           | 24949880  |
| Minimum           | -18436235 |
| Std. Dev.         | 4667697.  |
| Skewness          | 1.477343  |
| Kurtosis          | 9.504053  |
| Jarque-Bera       | 518.8343  |
| Probability       | 0.000000  |

### c. Heteroskedasticity Test: White

|               |          |                     |               |
|---------------|----------|---------------------|---------------|
| F-statistic   | 0.632031 | Prob. F(3,240)      | <b>0.5950</b> |
| Obs*R-squared | 1.912584 | Prob. Chi-Square(3) | 0.5907        |

Scaled explained SS                      7.933611    Prob. Chi-Square(3)                      0.0474

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Sample: 1 244  
 Included observations: 244  
 Collinear test regressors dropped from specification

| Variable               | Coefficient | Std. Error            | t-Statistic | Prob.    |
|------------------------|-------------|-----------------------|-------------|----------|
| C                      | 1.64E+13    | 9.47E+12              | 1.731310    | 0.0847   |
| HORIZONTAL             | 4.97E+12    | 1.09E+13              | 0.455689    | 0.6490   |
| HORIZONTAL*POST_MERGER | -2.61E+13   | 2.18E+13              | -1.197722   | 0.2322   |
| POST_MERGER            | 2.59E+13    | 1.89E+13              | 1.366854    | 0.1730   |
| R-squared              | 0.007838    | Mean dependent var    |             | 2.17E+13 |
| Adjusted R-squared     | -0.004564   | S.D. dependent var    |             | 6.34E+13 |
| S.E. of regression     | 6.35E+13    | Akaike info criterion |             | 66.41983 |
| Sum squared resid      | 9.69E+29    | Schwarz criterion     |             | 66.47716 |
| Log likelihood         | -8099.219   | Hannan-Quinn criter.  |             | 66.44292 |
| F-statistic            | 0.632031    | Durbin-Watson stat    |             | 1.780599 |
| Prob(F-statistic)      | 0.595001    |                       |             |          |

**d. Autocorrelation Test**

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 2.358577 | Prob. F(2,239)      | 0.0968 |
| Obs*R-squared | 4.722628 | Prob. Chi-Square(2) | 0.0943 |

Test Equation:  
 Dependent Variable: RESID  
 Method: Least Squares  
 Sample: 1 244  
 Included observations: 244  
 Presample missing value lagged residuals set to zero.

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.     |
|--------------------|-------------|-----------------------|-------------|-----------|
| HORIZONTAL         | -36493.97   | 693125.7              | -0.052651   | 0.9581    |
| POST_MERGER        | -9054.665   | 689119.0              | -0.013139   | 0.9895    |
| C                  | 33770.20    | 626103.2              | 0.053937    | 0.9570    |
| RESID(-1)          | 0.053288    | 0.064280              | 0.828997    | 0.4079    |
| RESID(-2)          | 0.125728    | 0.064303              | 1.955240    | 0.0517    |
| R-squared          | 0.019355    | Mean dependent var    |             | -1.07E-10 |
| Adjusted R-squared | 0.002943    | S.D. dependent var    |             | 4667697.  |
| S.E. of regression | 4660824.    | Akaike info criterion |             | 33.56756  |
| Sum squared resid  | 5.19E+15    | Schwarz criterion     |             | 33.63923  |
| Log likelihood     | -4090.243   | Hannan-Quinn criter.  |             | 33.59642  |
| F-statistic        | 1.179288    | Durbin-Watson stat    |             | 1.992804  |
| Prob(F-statistic)  | 0.320533    |                       |             |           |

**Appendix 7: Regression analysis results for hypothesis 6**

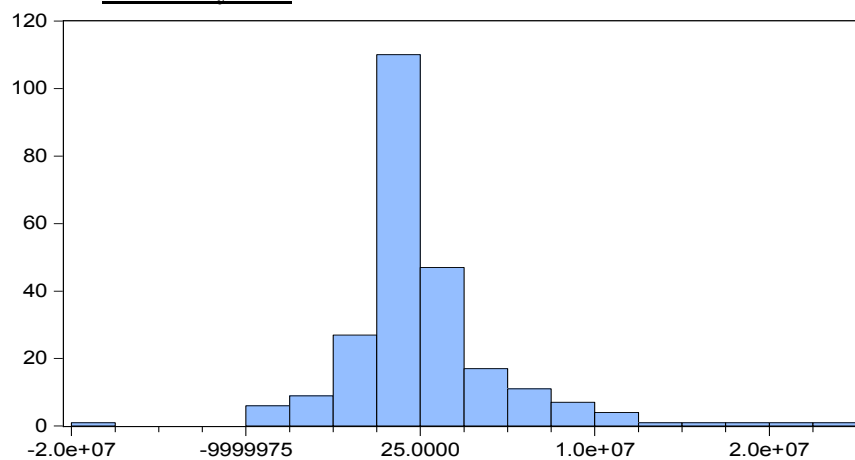
**a. Statistics of the model**

Dependent Variable: REVENUES  
 Method: Least Squares  
 Sample: 1 244

Included observations: 244

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.         |
|--------------------|-------------|-----------------------|-------------|---------------|
| <b>SERVICE</b>     | -743680.8   | 612354.5              | -1.214461   | <b>0.2258</b> |
| POST_MERGE         | -2183822.   | 690842.3              | -3.161100   | 0.0018        |
| C                  | 2683848.    | 507222.5              | 5.291265    | 0.0000        |
| R-squared          | 0.045422    | Mean dependent var    |             | 1686808.      |
| Adjusted R-squared | 0.037500    | S.D. dependent var    |             | 4762928.      |
| S.E. of regression | 4672771.    | Akaike info criterion |             | 33.56462      |
| Sum squared resid  | 5.26E+15    | Schwarz criterion     |             | 33.60762      |
| Log likelihood     | -4091.884   | Hannan-Quinn criter.  |             | 33.58194      |
| F-statistic        | 5.733735    | Durbin-Watson stat    |             | 1.808291      |
| Prob(F-statistic)  | 0.003692    |                       |             |               |

**b. Normality Test**



| Series: Residuals<br>Sample 1 244<br>Observations 244 |           |
|---|-----------|
| Mean  | -4.92e-10 |
| Median  | -1058154. |
| Maximum   | 24490552  |
| Minimum   | -18862041 |
| Std. Dev.   | 4653501.  |
| Skewness  | 1.443597  |
| Kurtosis  | 9.373096  |
| Jarque-Bera   | 497.6812  |
| Probability   | 0.000000  |

**c. Heteroskedasticity test: White**

Heteroskedasticity Test: White

|                     |          |                     |               |
|---------------------|----------|---------------------|---------------|
| F-statistic         | 0.547132 | Prob. F(3,240)      | <b>0.6505</b> |
| Obs*R-squared       | 1.657418 | Prob. Chi-Square(3) | 0.6464        |
| Scaled explained SS | 6.769281 | Prob. Chi-Square(3) | 0.0796        |

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Sample: 1 244

Included observations: 244

Collinear test regressors dropped from specification

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.    |
|--------------------|-------------|-----------------------|-------------|----------|
| C                  | 2.57E+13    | 7.39E+12              | 3.481016    | 0.0006   |
| SERVICE            | -9.43E+12   | 9.49E+12              | -0.993687   | 0.3214   |
| SERVICE*POST_MERGE | 2.06E+12    | 1.90E+13              | 0.108560    | 0.9136   |
| POST_MERGE         | 4.99E+12    | 1.48E+13              | 0.337608    | 0.7360   |
| R-squared          | 0.006793    | Mean dependent var    |             | 2.16E+13 |
| Adjusted R-squared | -0.005622   | S.D. dependent var    |             | 6.25E+13 |
| S.E. of regression | 6.27E+13    | Akaike info criterion |             | 66.39318 |
| Sum squared resid  | 9.44E+29    | Schwarz criterion     |             | 66.45051 |

|                   |           |                      |          |
|-------------------|-----------|----------------------|----------|
| Log likelihood    | -8095.968 | Hannan-Quinn criter. | 66.41627 |
| F-statistic       | 0.547132  | Durbin-Watson stat   | 1.855316 |
| Prob(F-statistic) | 0.650532  |                      |          |

#### d. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 1.014208 | Prob. F(2,239)      | 0.3642 |
| Obs*R-squared | 2.053424 | Prob. Chi-Square(2) | 0.3582 |

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Sample: 1 244

Included observations: 244

Presample missing value lagged residuals set to zero.

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.     |
|--------------------|-------------|-----------------------|-------------|-----------|
| SERVICE            | -2432.799   | 612331.2              | -0.003973   | 0.9968    |
| POST_MERGE         | -6124.066   | 690821.2              | -0.008865   | 0.9929    |
| C                  | 1741.796    | 507194.3              | 0.003434    | 0.9973    |
| RESID(-1)          | 0.090275    | 0.064781              | 1.393539    | 0.1648    |
| RESID(-2)          | -0.027023   | 0.064796              | -0.417045   | 0.6770    |
| R-squared          | 0.008416    | Mean dependent var    |             | -4.92E-10 |
| Adjusted R-squared | -0.008180   | S.D. dependent var    |             | 4653501.  |
| S.E. of regression | 4672495.    | Akaike info criterion |             | 33.57256  |
| Sum squared resid  | 5.22E+15    | Schwarz criterion     |             | 33.64423  |
| Log likelihood     | -4090.853   | Hannan-Quinn criter.  |             | 33.60143  |
| F-statistic        | 0.507104    | Durbin-Watson stat    |             | 1.990780  |
| Prob(F-statistic)  | 0.730556    |                       |             |           |

## Appendix 8: Regression analysis results for hypothesis 7

### a. Statistics of the model

Dependent Variable: REVENUES

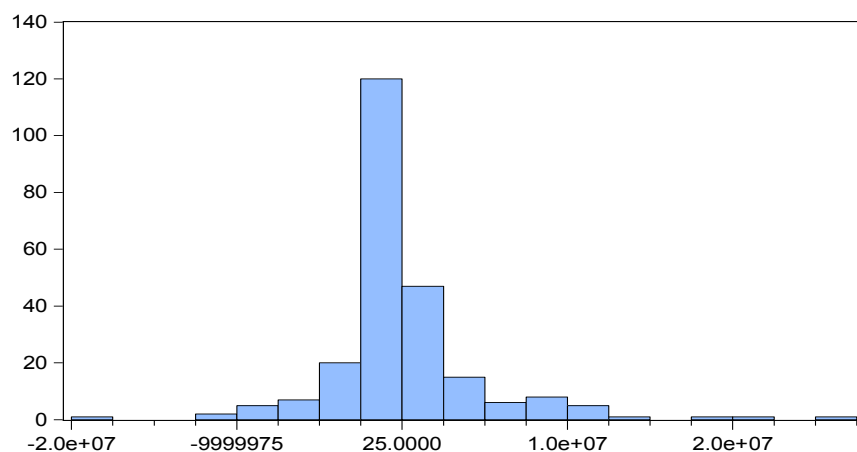
Method: Least Squares

Sample: 1 240

Included observations: 240

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.         |
|--------------------|-------------|-----------------------|-------------|---------------|
| <b>BRAND</b>       | 2967184.    | 1082397.              | 2.741309    | <b>0.0066</b> |
| POST_MERGER        | -2130597.   | 690877.3              | -3.083901   | 0.0023        |
| C                  | 2020292.    | 357020.8              | 5.658751    | 0.0000        |
| R-squared          | 0.067022    | Mean dependent var    |             | 1734908.      |
| Adjusted R-squared | 0.059149    | S.D. dependent var    |             | 4778005.      |
| S.E. of regression | 4634545.    | Akaike info criterion |             | 33.54840      |
| Sum squared resid  | 5.09E+15    | Schwarz criterion     |             | 33.59190      |
| Log likelihood     | -4022.807   | Hannan-Quinn criter.  |             | 33.56593      |
| F-statistic        | 8.512610    | Durbin-Watson stat    |             | 2.167360      |
| Prob(F-statistic)  | 0.000269    |                       |             |               |

### b. Normality Test



|                   |           |
|-------------------|-----------|
| Series: Residuals |           |
| Sample 1 240      |           |
| Observations 240  |           |
| Mean              | -3.21e-10 |
| Median            | -835218.6 |
| Maximum           | 25154108  |
| Minimum           | -18251709 |
| Std. Dev.         | 4615113.  |
| Skewness          | 1.446903  |
| Kurtosis          | 9.918886  |
| Jarque-Bera       | 562.4509  |
| Probability       | 0.000000  |

### c. Heteroskedasticity Test: White

|                     |          |                     |               |
|---------------------|----------|---------------------|---------------|
| F-statistic         | 0.472972 | Prob. F(3,236)      | <b>0.7014</b> |
| Obs*R-squared       | 1.434342 | Prob. Chi-Square(3) | 0.6975        |
| Scaled explained SS | 6.237458 | Prob. Chi-Square(3) | 0.1006        |

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Sample: 1 240

Included observations: 240

Collinear test regressors dropped from specification

| Variable          | Coefficient | Std. Error | t-Statistic | Prob.  |
|-------------------|-------------|------------|-------------|--------|
| C                 | 1.83E+13    | 4.96E+12   | 3.687347    | 0.0003 |
| BRAND             | 1.57E+13    | 1.72E+13   | 0.912555    | 0.3624 |
| BRAND*POST_MERGER | -2.59E+13   | 3.44E+13   | -0.755010   | 0.4510 |
| POST_MERGER       | 8.65E+12    | 9.92E+12   | 0.872354    | 0.3839 |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.005976  | Mean dependent var    | 2.12E+13 |
| Adjusted R-squared | -0.006659 | S.D. dependent var    | 6.35E+13 |
| S.E. of regression | 6.37E+13  | Akaike info criterion | 66.42442 |
| Sum squared resid  | 9.57E+29  | Schwarz criterion     | 66.48243 |
| Log likelihood     | -7966.931 | Hannan-Quinn criter.  | 66.44780 |
| F-statistic        | 0.472972  | Durbin-Watson stat    | 1.570571 |
| Prob(F-statistic)  | 0.701401  |                       |          |

### d. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 1.175262 | Prob. F(2,235)      | 0.3105 |
| Obs*R-squared | 2.376762 | Prob. Chi-Square(2) | 0.3047 |

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Sample: 1 240

Included observations: 240

Presample missing value lagged residuals set to zero.

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
|----------|-------------|------------|-------------|-------|

|                    |           |                       |           |           |
|--------------------|-----------|-----------------------|-----------|-----------|
| BRAND              | 25086.23  | 1082062.              | 0.023184  | 0.9815    |
| POST_MERGER        | -12982.58 | 691648.3              | -0.018770 | 0.9850    |
| C                  | -1165.033 | 356909.2              | -0.003264 | 0.9974    |
| RESID(-1)          | -0.079184 | 0.065187              | -1.214722 | 0.2257    |
| RESID(-2)          | 0.054581  | 0.065908              | 0.828133  | 0.4084    |
| R-squared          | 0.009903  | Mean dependent var    |           | -3.21E-10 |
| Adjusted R-squared | -0.006950 | S.D. dependent var    |           | 4615113.  |
| S.E. of regression | 4631122.  | Akaike info criterion |           | 33.55511  |
| Sum squared resid  | 5.04E+15  | Schwarz criterion     |           | 33.62762  |
| Log likelihood     | -4021.613 | Hannan-Quinn criter.  |           | 33.58433  |
| F-statistic        | 0.587631  | Durbin-Watson stat    |           | 1.990295  |
| Prob(F-statistic)  | 0.671904  |                       |           |           |

## Appendix 9: Regression analysis results for hypothesis 8

### a. Statistics of the model

Dependent Variable: REVENUES

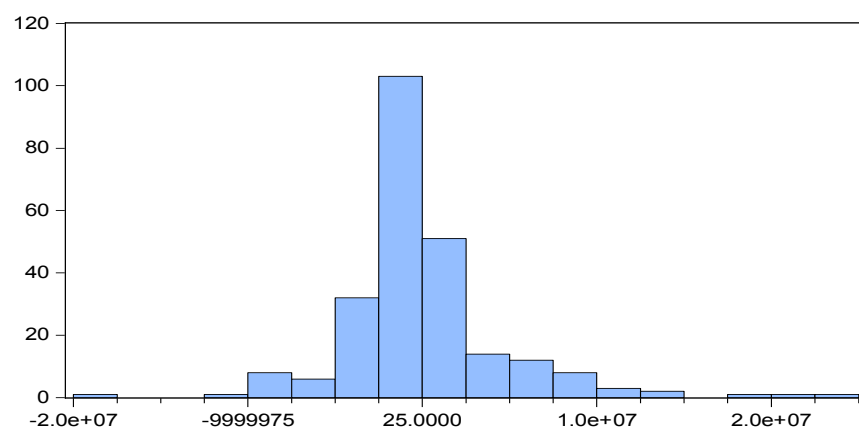
Method: Least Squares

Sample: 1 244

Included observations: 244

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.         |
|--------------------|-------------|-----------------------|-------------|---------------|
| <b>HOME</b>        | 1412091.    | 593916.9              | 2.377590    | <b>0.0182</b> |
| POST_MERGER        | -2183822.   | 684966.3              | -3.188218   | 0.0016        |
| C                  | 1491994.    | 462996.9              | 3.222471    | 0.0014        |
| R-squared          | 0.061591    | Mean dependent var    |             | 1686808.      |
| Adjusted R-squared | 0.053803    | S.D. dependent var    |             | 4762928.      |
| S.E. of regression | 4633026.    | Akaike info criterion |             | 33.54754      |
| Sum squared resid  | 5.17E+15    | Schwarz criterion     |             | 33.59054      |
| Log likelihood     | -4089.800   | Hannan-Quinn criter.  |             | 33.56485      |
| F-statistic        | 7.908834    | Durbin-Watson stat    |             | 2.000795      |
| Prob(F-statistic)  | 0.000471    |                       |             |               |

### b. Normality test



|                   |           |
|-------------------|-----------|
| Series: Residuals |           |
| Sample 1 244      |           |
| Observations 244  |           |
| Mean              | -2.29e-10 |
| Median            | -867070.3 |
| Maximum           | 24270315  |
| Minimum           | -17670187 |
| Std. Dev.         | 4613921.  |
| Skewness          | 1.359810  |
| Kurtosis          | 8.829526  |
| Jarque-Bera       | 420.6937  |
| Probability       | 0.000000  |

### c. Heteroskedasticity Test: White

|             |          |                |               |
|-------------|----------|----------------|---------------|
| F-statistic | 1.849136 | Prob. F(3,240) | <b>0.1389</b> |
|-------------|----------|----------------|---------------|

|                     |          |                     |        |
|---------------------|----------|---------------------|--------|
| Obs*R-squared       | 5.512449 | Prob. Chi-Square(3) | 0.1379 |
| Scaled explained SS | 21.05254 | Prob. Chi-Square(3) | 0.0001 |

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Sample: 1 244  
 Included observations: 244  
 Collinear test regressors dropped from specification

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.    |
|--------------------|-------------|-----------------------|-------------|----------|
| C                  | 9.46E+12    | 6.34E+12              | 1.492231    | 0.1370   |
| HOME               | 1.97E+13    | 8.75E+12              | 2.253588    | 0.0251   |
| HOME*POST_MERGER   | -1.59E+13   | 1.75E+13              | -0.908880   | 0.3643   |
| POST_MERGER        | 1.39E+13    | 1.27E+13              | 1.097318    | 0.2736   |
| R-squared          | 0.022592    | Mean dependent var    |             | 2.12E+13 |
| Adjusted R-squared | 0.010374    | S.D. dependent var    |             | 5.94E+13 |
| S.E. of regression | 5.91E+13    | Akaike info criterion |             | 66.27586 |
| Sum squared resid  | 8.39E+29    | Schwarz criterion     |             | 66.33319 |
| Log likelihood     | -8081.654   | Hannan-Quinn criter.  |             | 66.29894 |
| F-statistic        | 1.849136    | Durbin-Watson stat    |             | 1.815683 |
| Prob(F-statistic)  | 0.138899    |                       |             |          |

#### d. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 0.278658 | Prob. F(2,239)      | 0.7570 |
| Obs*R-squared | 0.567652 | Prob. Chi-Square(2) | 0.7529 |

Test Equation:  
 Dependent Variable: RESID  
 Method: Least Squares  
 Sample: 1 244  
 Included observations: 244  
 Presample missing value lagged residuals set to zero.

| Variable           | Coefficient | Std. Error            | t-Statistic | Prob.     |
|--------------------|-------------|-----------------------|-------------|-----------|
| HOME               | -561.8987   | 595712.5              | -0.000943   | 0.9992    |
| POST_MERGER        | 1234.405    | 687045.1              | 0.001797    | 0.9986    |
| C                  | -988.6252   | 464391.1              | -0.002129   | 0.9983    |
| RESID(-1)          | -0.000442   | 0.064613              | -0.006845   | 0.9945    |
| RESID(-2)          | 0.048325    | 0.064736              | 0.746498    | 0.4561    |
| R-squared          | 0.002326    | Mean dependent var    |             | -2.29E-10 |
| Adjusted R-squared | -0.014371   | S.D. dependent var    |             | 4613921.  |
| S.E. of regression | 4646956.    | Akaike info criterion |             | 33.56160  |
| Sum squared resid  | 5.16E+15    | Schwarz criterion     |             | 33.63327  |
| Log likelihood     | -4089.515   | Hannan-Quinn criter.  |             | 33.59046  |
| F-statistic        | 0.139329    | Durbin-Watson stat    |             | 1.993929  |
| Prob(F-statistic)  | 0.967510    |                       |             |           |

## Appendix 10: Regression analysis results for hypothesis 9

### a. Statistics of the model

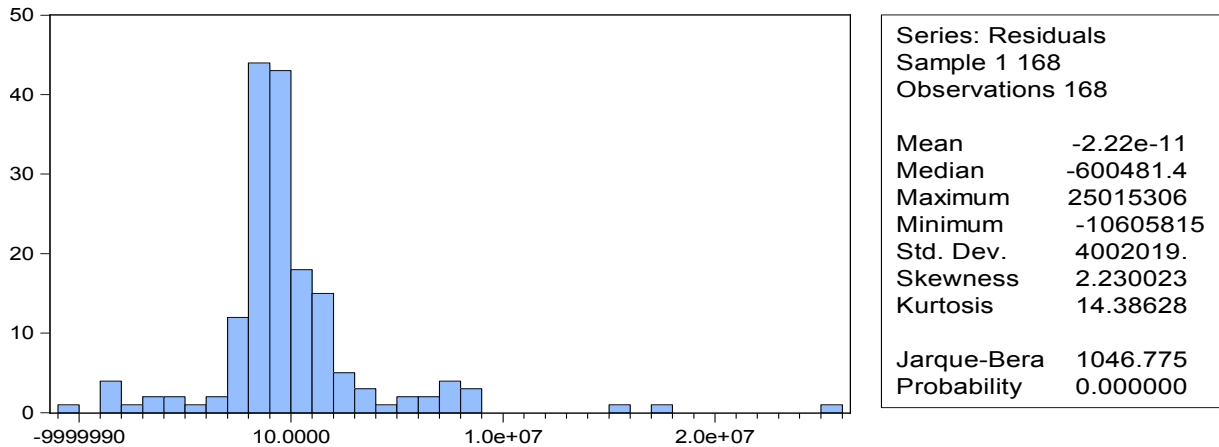
Dependent Variable: REVENUES  
 Method: Least Squares  
 Sample: 1 168  
 Included observations: 168

| Variable         | Coefficient | Std. Error | t-Statistic | Prob.         |
|------------------|-------------|------------|-------------|---------------|
| <b>CORPORATE</b> | -916971.4   | 627694.3   | -1.460857   | <b>0.1460</b> |
| POST_MERGER      | -964148.4   | 717364.9   | -1.344014   | 0.1808        |
| C                | 2159094.    | 507253.6   | 4.256438    | 0.0000        |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.023325  | Mean dependent var    | 1394073. |
| Adjusted R-squared | 0.011486  | S.D. dependent var    | 4049524. |
| S.E. of regression | 4026200.  | Akaike info criterion | 33.27224 |
| Sum squared resid  | 2.67E+15  | Schwarz criterion     | 33.32803 |
| Log likelihood     | -2791.868 | Hannan-Quinn criter.  | 33.29488 |
| F-statistic        | 1.970238  | Durbin-Watson stat    | 2.182943 |
| Prob(F-statistic)  | 0.142690  |                       |          |

**a. Normality Test**



**b. Heteroskedasticity Test: White**

|                     |          |                     |               |
|---------------------|----------|---------------------|---------------|
| F-statistic         | 2.697238 | Prob. F(3,164)      | <b>0.0476</b> |
| Obs*R-squared       | 7.899322 | Prob. Chi-Square(3) | 0.0481        |
| Scaled explained SS | 50.99986 | Prob. Chi-Square(3) | 0.0000        |

Test Equation:  
 Dependent Variable: RESID^2  
 Method: Least Squares  
 Sample: 1 168  
 Included observations: 168  
 Collinear test regressors dropped from specification

| Variable              | Coefficient | Std. Error | t-Statistic | Prob.  |
|-----------------------|-------------|------------|-------------|--------|
| C                     | 2.75E+13    | 7.83E+12   | 3.517372    | 0.0006 |
| CORPORATE             | -2.18E+13   | 1.04E+13   | -2.103770   | 0.0369 |
| CORPORATE*POST_MERGER | -1.21E+13   | 2.07E+13   | -0.582485   | 0.5610 |
| POST_MERGER           | 1.02E+13    | 1.57E+13   | 0.651752    | 0.5155 |

|                    |           |                       |          |
|--------------------|-----------|-----------------------|----------|
| R-squared          | 0.047020  | Mean dependent var    | 1.59E+13 |
| Adjusted R-squared | 0.029587  | S.D. dependent var    | 5.84E+13 |
| S.E. of regression | 5.76E+13  | Akaike info criterion | 66.22886 |
| Sum squared resid  | 5.43E+29  | Schwarz criterion     | 66.30324 |
| Log likelihood     | -5559.224 | Hannan-Quinn criter.  | 66.25905 |



|                   |          |                    |          |
|-------------------|----------|--------------------|----------|
| F-statistic       | 2.697238 | Durbin-Watson stat | 1.980820 |
| Prob(F-statistic) | 0.047644 |                    |          |

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### c. Autocorrelation test

Breusch-Godfrey Serial Correlation LM Test:

|               |          |                     |        |
|---------------|----------|---------------------|--------|
| F-statistic   | 1.275285 | Prob. F(2,163)      | 0.2821 |
| Obs*R-squared | 2.588307 | Prob. Chi-Square(2) | 0.2741 |

---

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Sample: 1 168

Included observations: 168

Presample missing value lagged residuals set to zero.

| Variable    | Coefficient | Std. Error | t-Statistic | Prob.  |
|-------------|-------------|------------|-------------|--------|
| CORPORATE   | -4561.145   | 626659.1   | -0.007279   | 0.9942 |
| POST_MERGER | 911.8809    | 716180.4   | 0.001273    | 0.9990 |
| C           | 3423.799    | 506414.0   | 0.006761    | 0.9946 |
| RESID(-1)   | -0.108253   | 0.078138   | -1.385410   | 0.1678 |
| RESID(-2)   | -0.072672   | 0.078143   | -0.929988   | 0.3538 |

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|                    |           |                       |           |
|--------------------|-----------|-----------------------|-----------|
| R-squared          | 0.015407  | Mean dependent var    | -2.22E-11 |
| Adjusted R-squared | -0.008755 | S.D. dependent var    | 4002019.  |
| S.E. of regression | 4019500.  | Akaike info criterion | 33.28052  |
| Sum squared resid  | 2.63E+15  | Schwarz criterion     | 33.37350  |
| Log likelihood     | -2790.564 | Hannan-Quinn criter.  | 33.31826  |
| F-statistic        | 0.637642  | Durbin-Watson stat    | 1.982556  |
| Prob(F-statistic)  | 0.636368  |                       |           |

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