

MASTER THESIS

European Airline Mergers and Acquisitions

An analysis of the influences of European airline
merges and acquisitions on shareholders' wealth

Yunkai Guo S1001159

Master Business Administration

Track Financial Management

Supervisors: Xiaohong Huang

Ger Vergeer

Date: 30th August 2011



Preface

This research is a thesis for my Master of Science degree in financial management at University of Twente. This research has been a real learning experience for me. Besides of financial knowledge, I have learned how to individually conduct the research in subject of mergers and acquisitions. Furthermore, I was also learned a lot with regard to writing and presenting in English.

Despite of a short research time period over five months, the study has not only systematically reviewed the existing researches, but also successfully conducted an event study, thereby demonstrated a quantitative analysis on airline mergers and acquisitions. There are several of barriers have been met during the research ongoing, especially in the stage of data collecting.

- 1. Obtaining data on the European airline mergers and acquisitions companies (with specified information like transaction volume, mean of payments, first announcement date). Similar research obtained those data and information from SDC Platinum that is the industry standard providing information on M&A. As a student of university of Twente, I have no account to login, and even in the whole country of the Netherlands not many universities provide this financial database for students.*
- 2. The daily share price of the European airline companies has to be obtained; however, university of Twente has no access to the Thomason DataStream for financial department.*

Without the support from those people this research would not be as great as it was. Therefore, I would like to thank them sincerely. In the first place, I want to express great thanks to my first supervisor Ms. Huang, as well as my second supervisor Mr. Vergeer, who spent considerable time and efforts to assist me to accomplish this thesis. The support and guidance that they provided did add significant contribution toward the success of my thesis. In addition, I would also like to thank my friends for their encouragements and assistances during my thesis writing. Finally, my special thanks goes to my parents for all their support and unconditional love.

Sincerely,

Yunkai Guo

30th August 2011

Abstract

Mergers and acquisitions have been very active in the airline industry since the Airline Deregulation Act of 1978. This thesis studies the influence of the mergers and acquisitions on the capital market reaction over the period 2000-2010. By applying an event study, the extent to which stock returns under the event window deviate from the expected stock returns in the absence of the event is calculated. The results show that the shareholders of bidding firms experienced cumulative abnormal returns of 0.45% and 0.71% over the periods of three days and five days around the M&A announcement date, while the shareholders of target firms experienced a greater impact with significant cumulative excess returns of 8.14% and 13.37% under the same event windows. Additionally, my finding indicates that the mergers and acquisitions transactions are the manner of value creation based on the fact that a statistically significant positive abnormal return to the combined entities is found in this study. Cross-sectionally, the finding shows that the cross-border M&A experienced a larger premium than domestic M&A in the European airline industry. The Airline M&A located in the Continental Europe on average experienced a higher abnormal return when compared with the airline M&A in the UK. But, there is no evidence found that the M&A with cash payment had a greater impact on the stock market than the one with non-cash payment.

Keywords: Mergers and Acquisitions, Capital Market, Shareholders Value, Value Creation, Event Study, Abnormal Returns, Efficient Market Hypothesis, Airline Industry

Table of Contents

Preface	1
Abstract	2
Table of Contents.....	3
List of Table and Figures.....	4
1. Introduction.....	5
1.1 Research Objectives and Research Question.....	7
1.2 Research hypotheses	8
1.3 Research structure	8
2. Literature Review	9
2.1 Merges and Acquisitions.....	9
2.1.1 The Overview of Takeover Waves.....	10
2.1.2 The Motives of Mergers and Acquisitions.....	11
2.1.3 Measurement for M&A effects	13
2.2 Airline Mergers and Acquisitions	14
2.2.1 Reasons for Airline Merges	14
2.2.2 Empirical Studies on the Airline Mergers and Acquisitions	15
3 Research Method.....	20
3.1 Efficient-Market Hypothesis.....	21
3.2 Event Day, Event Window and Estimation Period	21
3.3 Modelling Normal Returns and Measuring Abnormal Returns.....	23
3.4 Testing Abnormal Returns.....	28
4 Data Collection	29
5 Empirical Results	31
5.2 Descriptive Statistics.....	31
5.3 Analysis of Bidding and Target Firms	35
5.4 Analysis of M&A Characteristics	42
6 Conclusion	48
7 Limitation and Future Research	50
8 Bibliography	51
9 Appendix	55

List of Table and Figures

Tables:

Table 1 Daily Average Abnormal Returns

Table 2 Cumulative Average Abnormal Returns for Selected Time Interval

Table 3 Summary of the Empirical Studies on M&A Wealth Effects Reporting Bidder Returns

Table 4 Summary of the Empirical Studies on M&A Wealth Effects Reporting Target Returns

Table 5 CAAR by Analysis of M&A Characteristics

Table 6 Summary of the Empirical Studies on M&A Wealth Effects Analyzing of M&A Characteristics

Figures:

Figure 1: Estimation period and event window on a timeline

Figure 2: Distribution of events during the sample frame 2000-2010

Figure 3: Dow Jones Industrial Average

Figure 4: Distribution of M&A transaction value (\$mil)

Figure 5: Domestic versus Cross-board M&A

Figure 6: Means of payment in M&A in European airline industry

1. Introduction

Mergers and acquisitions are one of the most extensively research topics in finance. Various previous researchers acknowledge that the influence of mergers and acquisition on stock prices and shareholders' wealth is a dispute of increasing attractiveness in financial literature. Despite mergers and acquisitions viewed as a value-enhancing corporate decision and an essential strategy providing firms with a good growth opportunity, empirical studies have not always provided the positive wealth influences for the shareholders of acquiring firms. This paper intends to investigate that the impact of mergers and acquisition on shareholders' wealth and examining this M&A impact whether is value creation or value destroying.

The financial literature focusing on the effects of M&A on the shareholders was widely studied in a large scale and frequently analyzed cross multi-industry. However, the multi-industry M&A studies cannot often delve into the details of M&A transactions in a certain industry. Mergers and acquisitions occur in almost every industry, but M&A seems to be a recurring trend in the airline industry. As a representative case of M&A, airline mergers and acquisitions always happen in the same industry unlike M&A in other industries that are normally diversified. The airline mergers and acquisitions started from 1978 known as "deregulation", and the airlines companies experienced resurgence in profitability. This thesis studies M&A in the airline industry that dig into individual transactions more deeply in a smaller scale.

Airline industry as a mature industry, remaining a large and growing business, it facilitates world trade, international business and tourism industry and closely ties to economic growth. Although there is a steady increasing of global demanding for air travel and the significant role of the airline industry plays in the globe economy, the needs for radical changes of organizational structure to ensure their survival and prosperity have been recognized. Even within the rather regulated European airline industry, mergers and acquisitions remain as a basic component of efficient corporate control. The 2004 merger of Socit Air France S.A. (Air France) and Koninklijke Luchtvaart Maatschappij N.V. (KLM) was one of the major European airline mergers in decades.

Mergers and acquisitions in airlines industry are frequently and increasingly taking place across the globe. In 2010, United Airlines and Continental Airlines were merged as the world's biggest airline with 10 major hubs and dominating in New York, Chicago and Los Angeles. In August 2010, the U.S. Department of Justice approved the US\$3 billion, all share deal and the transaction was completed on October 1, 2010.¹ Practically, this paper is to identify the theoretical information on the motives of mergers and acquisitions taking place in the airline industry and address the issue on what is the influence on the share price with regard to the management decision of M&A.

North American and European airline companies have taken the majority market shares in the worldwide airline industry based on the International Air Transport Association, as showed approximately 69%² in the year of 2010. Since the previous studies mostly focused on the North American airline companies (Knapp 1990, Kyle et al. 1992, and Singal 1996), the question may arise: "is it the same situation in the European airline mergers and acquisitions?" Therefore, this research paper predominantly investigates the European airline mergers and acquisitions. It would explore the knowledge on the motivations of airline M&A by studying financial literature and previous empirical results, and analyze the wealth effects of airline M&A by conducting an event study. In addition, the research result of the influence of European airline M&A on shareholders' wealth would be compared with the prior researches that concentrated on the North American airline M&A. Therefore, it will show that if there is any difference of M&A wealth impact between European airlines M&A and North American airline M&A.

In financial literature, many studies documented empirical evidence that merger activity occur in waves. Goergen and Renneboog (2004) summarized, in the research of shareholders' wealth effects of European domestic and cross boarder takeover bid, five completed waves those of the early 1900s, the 1920s, the 1960s, the 1980s, and the 1990s. Some scholars³ also argued that there was a sixth takeover waves experienced

1 U.S. Approves Merger of United and Continental: New York Times

2 International Air Transport Association: <http://www.iata.org/about/Pages/index.aspx>

3 Please see: Lipton M. in the study of "merger waves in 19th, 20th and 21st centuries"; Alexandridis. G., Mavrovitis. C. F., and Travlos, N.G., in the study of "how have M&As changed? Evidence from sixth merger wave."

that emerged in 2003 three years after the fifth merger wave and came to end around the end of 2007 when the subprime crisis began and economy recession entered. By checking the number of mergers and acquisitions taking place from financial database Thomason One Banker, it has been found that the merger demanding increased dramatically in 2004 and reached the peak in 2006 with a total transaction value of US\$3.4 trillion. It would be quite interesting to look at the acknowledged five merger waves and study what appears to be a new wave in the 21st century. Therefore, the research period in this paper is from 2000 till 2010. This 10-year time frame selected is not only because the paper attempts to investigate the wealth effects of mergers and acquisitions after the fifth M&A wave in 1990s, but also this research period over 10 years can give an overall trend of mergers and acquisitions in the European airline industry that able to provide the higher reliability on research result.

As a result, this paper will contribute to the existing literature in three perspectives. Firstly, it narrows down the research on M&A from multi-industry into one specific industry. Secondly, beyond the prior airline M&A researches on the North American airline M&A, this study extends the research regional scope to European airline M&A. Thirdly, the data of airline M&A is updated in the most recent 10 years.

1.1 Research Objectives and Research Question

The research objective of this paper is to examine mergers and acquisitions and its wealth effects in the industry of airline and in the regional area of Europe. The stock returns are an unambiguous measure of expected profits, Jensen and Ruback (1983) and Loughran and Vijh (1997) acknowledged that merger evaluations are generally based on the initial market reaction and the long-term market reaction to the merger declaration. However, this research paper will only examine the short-term wealth effects because of the research limitations on the long-term wealth effects recognized by the scholars.

In order to explore our knowledge and get to know more about the effects of European airline mergers and acquisitions and its wealth effects on shareholders, the following research question is formulated:

What is the influence of European airline merges and acquisitions on shareholders' wealth?

This research question will be answered by testing the following hypotheses.

1.2 Research hypotheses

The contribution of this study is to test the subsequent hypotheses in order to explore our knowledge and to discover the influence of European airlines mergers and acquisitions in the capital markets.

The hypotheses related to the bidding airline companies are as follows:

Ho: The shareholders of the bidding airline companies do not benefit from the mergers.

Ha: The shareholders of the bidding airline companies do benefit from the mergers.

In addition, the hypotheses pertinent to the target companies are as follows:

Ho: The shareholders of the target airline companies do not benefit from the mergers.

Ha: The shareholders of the target airline companies do benefit from the mergers.

Furthermore, the hypotheses relevant to the combined entity of target and bidding companies are as follows.

Ho: The total gain of the combined entity is zero.

Ha: The total gain of the combined entity is positive.

In an attempt to tackle the research question and statistically test the hypotheses, an event-study methodology will be performed on the basis of firm's stock prices.

1.3 Research structure

To answer the question of what are the shareholders' wealth effects by the mergers and acquisitions in the European airline industry, the report will be structured in the following way: Section 1 starts with an introduction of this research that consists of the research background, research objectives, research questions and the research hypotheses. Section 2 demonstrates an overview of literature studies. It initiates with the definitions of mergers and acquisitions and then narrows down to the European airline mergers and acquisition. Section 3 describes the event study methodology conducted into this research. It clearly presents the selection of the normal return model and explicitly explains on how the cumulative average abnormal returns are calculated and how the excess returns are tested. Section 4 clarifies the way on how the data is retrieved. In addition to the explanation of data collection, the M&A events selected in this study will be presented in a table with the major M&A characteristics. Section 5 contains the empirical evidence on the European airline mergers and acquisitions and its wealth effects on the shareholders. Section 6 presents the conclusion of this research, and Section 7 provides the recommendations for further research.

2. Literature Review

In this section, the key theories regarding mergers and acquisitions would be discussed and the main empirical results from preceding studies would be documented. Relevant literatures will be reviewed and shed light on the airline mergers and acquisitions, and its wealth effects on shareholders. By performing a funnelling approach in literature reviews, numerous important theories on different aspects concerning mergers and acquisition would become clear and would help in tackling the research question.

2.1 Merges and Acquisitions

The definitions of mergers and acquisitions should be firstly described. According to Kwall (2009), merger refers that the assets of two companies will be combined into one by operation of law, characteristically the bidding companies retain the organizational name and identity as well as acquired all of the assets and liabilities of the target companies. Acquisition is defined as the purchase of one organization from another company. Scharf (1971) clarified that when a bidding company acquires all or a part of the assets and business, a part of the stock or other securities of the target company is an acquisition occurs. Specifically, the way of purchasing the firm's voting shares in exchange for cash or shares of equity and other securities is named as acquisition of shares. In addition, the buying all of the target companies' assets is named as acquisition of assets. The acquisition can also be friendly acquisition or hostile acquisition. Friendly acquisition means that the target company expresses its agreement to be acquired, while hostile acquisition occurs when an acquisition of a company despite there are resistances by the target company. Within this study, the words mergers and acquisitions maintain the same meaning for its simplicity.

The payment methods of M&A can be in cash, debt, or stock. There are a number of studies that have analyzed M&A financing decisions. The research results of Travlos (1987) and Martin (1996) showed that cash payment would benefit the target company for its liquidity value, the stock payment provided the bidding company with an opportunity in any synergy gains that stock ownership would have provided. However, debt payment offers neither the liquidity benefit for the target company nor the potential synergy value for the bidding company, which totally depends on the target company's management team to create enough cash flow to pay them.

The classification of mergers and acquisitions can be classified as horizontal M&A, vertical M&A and conglomeration from the perspective of business structures. Horizontal M&A means that bidding and target companies are in direct competition or share the same product lines and markets. The airline mergers and acquisitions always fall into this category. Vertical M&A occurs by a customer company or a supply company, and conglomeration implies that bidding and target companies have no common business areas. It can also be categorized mergers into domestic M&A and cross-border M&A by international strategy. Domestic M&A happens within the same country, while cross-border M&A involves two companies from two different countries.

2.1.1 The Overview of Takeover Waves

It is well recognized in the M&A theory that mergers and acquisitions are occurred in cyclical waves. According to Martynova and Renneboog (2008), takeover activity is generally disrupted by the decline in stock markets and a subsequent economic recession. In addition, they found that the takeover market was frequently stimulated by regulatory changes; for instance, deregulation of markets in the 1980s and takeover waves were normally driven by industrial and technological shocks.

Five completed waves in the early 1900s, the 1920s, 1960s, 1980s, and the 1990s clearly showed in the study of Goergen and Renneboog (2004). The first merger wave started from 1880 to 1904 in the second industrial revolution aimed at creating monopolies. During the first merge period, the horizontal mergers happened most frequently. The second merger wave occurred in the period of 1919 and 1929. It is initiated by anti-trust regulation that allowed vertical integration highly increased. The third merger wave emerged in the end of 1950s, but arrived at the peak in the mid-1960s. This merger wave created large conglomerations in order to face the global markets. The fourth merger wave took place during the period of 1982 till 1989 because of the technological advancement in biochemistry and electronics, as well as the development of financial markets. The financial instruments and markets facilitated the acquisitions financing, and also caused high level of hostile bids. The fifth wave in the years of 1993 till 2000 was complying with sustained economic boom. In the meantime, new European stock exchanges such as European New Market were developed and the industries of Internet and telecommunications were expanded.

Besides the intensively studied topic on these merger waves, the situation after the fifth merger wave should also be considered. Goergen and Renneboog (2004) pointed out that there was a sudden reduction in merger activity in 2001 due to the facts of the collapse of consumer confidence in the Internet and telecommunications industries as well as the overcapacity in the traditional sectors. There are also some researchers contended the sixth merger wave occurred in the history of mergers and acquisitions that started in 2003 and ended in 2007. The factors on the sixth merger waver have been presented as the impact of globalization, availability of low-interest financing, and increasing real estate and stock markets⁴.

Therefore, it would be quite interesting in this research that investigate the mergers and acquisitions happened after the fifth merger wave. Although this research only focusing the airline industry, it cannot show an overall tendency of mergers and acquisitions covered all industries. The selected research period of 2000-2010 at least presents the movement of the mergers and acquisitions taking place in the European airline industry.

2.1.2 The Motives of Mergers and Acquisitions

Mergers and acquisitions as one type of investment decisions, many motives on why mergers and acquisitions taking place have been offered in the literature. The three most common motives: synergies, hubris and agent problem are discussed in this subsection.

The literature on mergers and acquisitions has discovered that synergies is the predominate incentive for mergers and acquisitions. By the value of synergy, a merger brings benefits to shareholders when a company's post-merger share price increases. Goergen and Renneboog (2004) categorized the value created by synergies into operating synergies and informational synergies. Operating synergies imply economies of scale or scope. Economy of scale refers to that the combined company can often lower the fixed costs by removing redundant departments or operations and combining complementary resources, therefore it can increase profit margins. Economy of scope refers to the operational efficiencies mainly associated with demand side changes, such as increasing or decreasing the scope of marketing and promotion of different types of products. While informational synergies mean that the value of the merged firms is

⁴ See footnote 3

higher than the sum of the individual firm values. Goergen and Renneboog (2004) showed the instance of informational synergies that consisted in the creation of an internal capital market: slack-rich firms with poor investment possibilities acquire slack-poor firms with outstanding growth opportunities. Informational synergies comprise of minimising transaction costs and bankruptcy costs. Similarly, in the industrial organization literature, Neary (2004) identified two reasons for mergers and acquisitions that are efficiency gains and the strategic rationale. Efficiency gains mean that the involved companies can increase synergy via economies of scale or scope, and the strategic rationale implies that the structure of market can be altered by mergers and acquisitions, which affects involved companies profits.

In addition, hubris has been recognized as one of the most important motives for mergers and acquisitions, which refers that the managers of bidding companies overestimated their capacity to extract value from target companies and ended up the bidding price too high (Roll, 1986). Empirically, Berkovitch and Narayanan (1994), in a study of takeovers in USA found the evidence of hubris was the main motive in the sub-samples that they studied.

Moreover, Jensen (1986) characterised the agent problem as one motives for takeover. Agent problem is pertinent to that managers may not always act in their shareholders' best interests and may pursue bids that benefit management at a cost to shareholders. In addition, Shleifer and Vishny (1989) proposed that managers might make decision of mergers and acquisitions that the combined entity would depend on their personal expertise in order to take advantage of this dependency and extract value from the shareholders.

In summary, the three motivations on mergers and acquisitions: synergy, hubris and agent problem have been recognised in decades. Berkovitch and Narayanan (1994), in a study of takeovers in USA, found that synergy was the dominant motive for takeover bids and also found the evidence of agent problem and hubris are existed.

2.1.3 Measurement for M&A effects

Financial literature regarding the effects of mergers and acquisitions can be measured by two different approaches as summarized by Pautler (2001) in the research on evidence on mergers and acquisitions. The first approach is measuring the accounting data and the second one is measuring the share price effects.

The first approach examines the accounting data, such as rates of return, profit margins, cash flow returns, expense ratios and so forth, before and after the M&A to determine the changes associated with the M&A. There are many of multi-industry M&A studies in a large sample size prior to the year of 1980 because the multi-industry studies were more in vogue at that time. In recent studies, there are some of the researches comparing pre-merger and post-merger performance of firms within one industry such as only hospital or banking sector. Similarly, this research is only concentrating on the single industry in order to provide the detained effects of M&A within the airline industry.

The second approach is focusing on the wealth effects of M&A on the stockholders of the bidding or target companies or combined entity. The common research method for examining the stock market reaction is event study. Applying this methodology should be under the assumption of efficient financial market that would be explicitly explained in the section 3. In addition to investigating the stock price reactions of the bidding or target companies or combined entity, it can also examine the share price changes of rival firms. Pautler (2001) indicated that the examination of rivals' stock price movements around M&A announcement event allows determining the competitive implications of M&A. For instance, the market power implications imply that M&A create or enhance market power so that the bidding and its rival companies could increase product prices.

In financial theory, the approach examining the effects on shareholders' wealth is generally considered as the primary approach, because this approach is based on the more efficient evaluation criterion. Therefore, this research measures M&A effects by applying the second approach with regard to the shareholders wealth effects of M&A.

2.2 Airline Mergers and Acquisitions

The trend of strategic alliance and partnership cooperation among airlines has been continuing increased in the airline industry in recent years, such as code-sharing agreement, and mergers and acquisitions. The code-sharing agreement is an aviation business agreement that two airline companies share the same flight.

The deregulation in 1978 in the airline industry led to increasingly unstable profitability and caused periods of significant losses and bankruptcies. Consequently, merging with or acquiring another airlines has been highly proposed and considered. This sub-chapter describes (1) the reasons on why airline companies merging with or acquiring another airlines; (2) the empirical results of previous studies with regard to the airline M&A effects on the shareholders wealth.

2.2.1 Reasons for Airline Merges

According to the literature, three general motives for airline mergers and acquisitions have been discovered: industrial deregulation, airline development and external influence.

Firstly, deregulation is always regarded as the trigger of the airline mergers and acquisitions by many scholars. The Airline Deregulation Act of 1978 in the United States that propelled more than 200 US airlines. However, the Airline Deregulation carried out in Europe was about twenty years later than the US, which took effect in April 1997⁵. Since then, it also was allowed an airline fly in other EU member country's domestic market (The Airline Industry, 2008). Deregulation has a profound influence in the structure of the whole airline industry. In addition, deregulation has brought more competitions. For instance, there will be more newly formed small and low-cost carriers entering to the market since the level of entry barriers for the new airline companies are lower in a deregulated market environment. (The Airline Industry, 2008)

Although deregulation has been recognized as the initial stimulator for the airline mergers and acquisitions, the intention of airline development has been detected as another major motive of mergers and acquisitions. Specifically, the airline development frequently refers to the desire of major airlines to be able to improve

⁵ The Airline Industry, 2008: <http://adg.stanford.edu/aa241/intro/airlineindustry.html>.

service quality, exploit size economies, and gain market power (see Knapp 1990 and Singal 1996).

Last but not least, the arguments on external factors influenced the airline M&A activities have arisen in recent years. The external factors, such as lower consumer spending, fuel prices rising, and increased customers' reluctance to fly due to the security concerns, caused the profitability problems in the airlines companies.⁶ Meanwhile, there are less and less financial supports from the government since the level of privatization in the airline industry has increased. The privatization means a transfer of the airlines ownership from the state to the private sector. The European Union has also regulated that governments should not be allowed to subsidize the loss-making airline companies (The Airline Industry, 2008)

2.2.2 Empirical Studies on the Airline Mergers and Acquisitions

Financial theory provides a substantial research on mergers and acquisitions, while there are relatively limited existing empirical studies in the field of airline mergers and acquisitions. Even though, since 1978 the literature on airline takeovers started to be produced by academics and airline analysts in the field of examining the actual changes and the predictions of future changes⁷, the study of airline merges and acquisition effected the capital market as the ultimate assessment of airline deregulation has been merely written. In the following part, the literature of the influence of airline mergers and acquisitions on shareholders wealth would be intensively studied.

In the United States airline industry

Knapp (1990) tested nine airline merges in 1986 by studying the stock price reaction and found that the target firms earned a significant positive abnormal return around 25% for the event window of 20 days before and 10 days after the merger announcement, while bidding companies experienced a significant positive abnormal return of 6% or 12% depending on event period. For the target firms, most of the gains were experienced in the 20 days preceding announcement, but the abnormal return became non-significantly negative after the event of merger. For the bidding firms, the

⁶ The Airline Industry, 2008)

⁷ The review of these literatures, please see the Kyle and Phillips (1985).

research result showed that the abnormal return was consistently positive and significant around announcement date. In addition, he found that the competitors could not generate the synergies and he explained that the wealth gain still remained to the merging companies and did not bid away by other companies. Therefore, he further indicated that the bidding companies would have some specific advantages in acquiring the target companies that are possibly better networking or allowing larger density and/or concentration payoffs. In the meantime, Knapp (1990) studied the motivations of horizontal mergers in the U.S. airline industry. The analysis did not show the synergies were created, but Knapp (1990) found out that the market power motivation exists by testing the stock returns of competitors.

Furthermore, Kyle et al. (1992), in the investigation of capital markets of assessment of airline restructuring, studied twenty-four mergers in the US in the period of 1978 till 1989. The research results indicate that the shareholders of bidding companies yield a positive abnormal return of 3.72% significant at 1% level over a three-day period around the merger announcement date, while shareholders of target carrier experienced a positive abnormal return of 14.50% under the same time window. In the research, Kyle et al. (1992) also showed on which day the abnormal return started to be positive for both target and bidding companies. On the one hand, the cumulative abnormal return of target firms began to increase around the day 35 before the announcement till the announcement date, for the cumulative abnormal return in the period of (-35, -3) was 18.31% with a t-value of 5.107 and the CAAR during the period of (-2, 0) was 14.52%. After the date of announcement, there was no statistically significant positive abnormal return found for the target firms. On the other hand, for the bidding companies, the shareholders gained from the merger announcement during the time period immediately surrounding the event, since the cumulative abnormal return in the period of (-35, -3) was non-significantly negative but CAAR was 3.7% with a t-value of 3.608 significant at 1% level at the announcement day.

Singal (1996) investigated fourteen successful airline merges from 1985 to 1988. The research findings indicate that the target firms earned a significantly positive cumulative return from 13.69% to 22.00% depending on the event period, whereas the bidding firms also experienced a statistically positive accumulative abnormal return arranging from 0.55% to 2.88%. In addition to the study of the shareholders of bidding

and target companies earned a significantly positive abnormal return, Singal (1996) further tested the shareholders' gain of rival firms. But he found out on average the shareholders of rival companies did not benefit from the mergers. Although the average abnormal return of rivals companies was not different from zero, the individual rivals were experienced positive abnormal returns while others earned negative abnormal returns. The results implied that some rival companies with positive abnormal returns have the effects of market power effect like the rivals of targets companies due to less competition, while other rivals with negative abnormal returns would have effects by the newly formed firm because of its increased operation efficiency.

In the Canadian airline industry

Zhang and Aldridge (1997) examined how shareholders have reacted to the new information on two anticipated merges: domestic merger between Air Canada and Canadian Airlines International (CAI) and a cross-border merger CAI and American Airlines during 1992-1993 period of time. They found that news regarding merger possibilities had significant impacts on the stock prices of the two major Canadian airlines. Moreover, by comparing the abnormal returns, authors were able to answer the research question on which merger is preferred by the shareholders. They concluded that shareholders of both Canadian airlines preferred a foreign merger between CAI and American Airlines to the domestic merger of two Canadian carriers, and the reason of this preference has been explained as shareholders expecting greater profits under a duopoly than a domestic monopoly⁸.

Besides the impact of airline mergers on the shareholders wealth, this research provided the further considerations of the domestic or cross border merger policy that have taken for a nation. Within the case of Canada, the debate regarding the preference of merger policy has been discussed. One thinks that when two Canadian carriers merged to form a monopoly that becomes stronger carrier in a sufficient size to compete with other mega-carriers, however, the others think that when two Canadian carriers are permitted to align separately with foreign mega-carriers, there will be competition between the global carriers in Canadian domestic market.

⁸ Duopoly is generally defined as two firms have the dominant control over a market, where monopoly defined as only one company dominated the market.

Based on the fact that the airline industry becomes more and more globalized, the issue on what is the appropriate merger policy for a country should be paid more attention, in particularly for EU member countries since they are positing in the common aviation market.

In the European airline industry

In the studies focus on the European airline sector, Friensen (2005) investigated the merger case of the Air France and KLM. He presented empirical evidence of that merger on the share price effects by using an event study methodology around the announcement day to measure the abnormal returns of stock prices of Air France, KLM and its direct competitors. Friensen (2005) documented that the shareholders of Air France as the bidding company earned an insignificant positive abnormal return of 0.24% on the announcement day, while KLM as the target firm experienced a significant positive abnormal return of 2.29% on the announcement day. The empirical results are in line with the most other literature that there is a higher premium earned by the target company's shareholders. Furthermore, Friensen (2005) found the abnormal return on the day before the announcement date was +0.75% at 5% level of significant for the bidding company, and +1.60% at 1% significant level for the target company. Therefore, he concluded that the information on the merger event might be earlier leaked in the stock market than the official announcement date.

In order to test the market power hypothesis, Friensen (2005) also examined the share price reactions of three rival companies to the merger of Air France and KLM, and found different results. British Airways and Iberia earned significantly positive stock returns of 0.31% and 0.32% on the announcement date, while Deutsche Lufthansa experienced a non-significant negative abnormal return of 0.55 % on the announcement date. When the rival firms experienced positive abnormal returns, it implies that the market power effect is existed. Based on the mixed research outcomes on the rival firms, the hypnosis of the horizontal merger of Air France and KLM led to higher fares because of increased market power has to be rejected.

After the literature reviewed on mergers and acquisitions and airline M&A, the research method conducted in this research will be presented in the next chapter. Specifically, the way on calculation of the abnormal return for measuring share price performance around a specific event window deviate from the expected share price return in the absence of the M&A event will be explained.

3 Research Method

The fundamental research method that is applied to empirically test the research hypotheses is an inter-temporal study (event-study). The motive for conducting an event-study research method in this paper is that this methodology provides the tool for measuring the degree of abnormal returns at the time of merge declarations and the effect of these announcements on shareholders' wealth. The precondition of employing an event study is the efficient market assumption that is to test the hypothesis whether the airline mergers and acquisitions have effects on the shareholders' wealth. The main purpose of using the event-study methodology is to calculate the abnormal changes in the stock prices that occur in conjunction with an "event" and then tests whether the results are statistically significant different from zero (see Knapp 1990, Kyle et al. 1992, and Singal 1996).

The process of applying the event study as suggested by MacKinlay (1997) is briefly discussed in the following steps:

- ❖ In the first step, the event of interest and the event window are defined. In general, there is more than one merger announcement declared. But the first M&A announcement date is chosen as the event of interest and deleted the other announcement dates in order to avoid overlapping problem.
- ❖ Next step is to select the sample set of firms to include in the analysis. The research sample of this paper is the intra-European mergers and acquisition in the airline industry. The Europe defined in this paper are both Continental Europe and UK. The criterion of sample selection will be specifically demonstrated in the section 4 of data collecting.
- ❖ In the third step, the expected returns in the absence of the M&A event are calculated by the selected normal returns model, and then the abnormal returns within the event window are computed by the difference between the actual and the normal returns.
- ❖ The final step is to test whether the abnormal return is statistically different from zero.

In accordance with McWilliams and Siegel 1997, the assumption of market efficiency ought to be made for employing event study methodology in financial research.

3.1 Efficient-Market Hypothesis

The efficient-market hypothesis (EMH), which claims that financial markets are informational efficient, is incredibly essential for applying the event study. Fama (1970) divided the market efficiency into three forms: weak-form efficiency, semi-strong-form efficiency and strong-form efficiency.

- ❖ The weak-form efficiency claims that share prices incorporate all past publicly available information.
- ❖ The semi-strong form efficiency refers that share prices fully reflect all publicly available information and those prices very rapidly change to reflect new public information.
- ❖ The strong form of market efficiency means that share prices fully and instantly reflect all available information either publicly or privately.

In event study, the semi-strong form of market efficiency is regarded as a precondition for testing possible reactions in the capital market (see Firth, 1979 and Malatesta, 1983). Therefore, under the semi-strong form efficient markets, it will be able to measure the abnormal returns of unanticipated M&A announcement by examining the differentiations between the expected returns without event and the actual post-event returns.

3.2 Event Day, Event Window and Estimation Period

As mentioned previously, this research intended to investigate the short-term shareholders' wealth effects of mergers and acquisitions in the European airline industry. In the research of corporate takeover, Martynova and Renneboog (2008) indicated three shortcomings of investigating the long-term shareholder wealth effects of mergers and acquisitions. First, it is difficult to measure the takeover effect over a longer period because many other strategic decisions and financial policies may have taken place. Second, in a long-term testing the statistical problems will be greatly increased. Third, because of the efficiency or semi-strong efficient financial market, the wealth effects will be corrected by the market when a significant negative or positive long-term abnormal return occurred. Therefore, this research will only focus on the analysis of short-term shareholders' wealth effects.

Some notations should be introduced firstly. The M&A announcement day denoted as 0, the estimation period defined as T_0 till T_1 that denoted as L1 and the event window presented as T_2 to T_3 that denoted as L2, which are illustrated in Figure 1.



Figure 1: Estimation period and event window on a timeline

Event Day (0)

The identification of the event date is very critical for applying the event study as declared by Brown & Warner (1980): misidentification of an event day can easily obscure the results of the event study method. In order to correctly determine the event day, the first official announcement day of the M&A deal will be defined as the event date since the significant of the event study can be identified, as recommended by Dodd and Ruback (1977).

Event Window (T2-T3)

Event window is defined as a period of days over which the impact of the event will be measured. This research examines two event windows: a three days (-1, +1) spanning from one day prior to M&A announcement and one day after the M&A announcement, and five a days (-2, +2) as two days prior to the M&A event day and two days after the M&A event day. Those two event windows are expanded to multiple days including at least one day before the announcement and one day after the announcement. This captures any news that might have leaked shortly before the announcement date and any stock price effects with regard to M&A event that occur after the announcement date.

Estimation Period (T0-T1)

Based on Peterson (1989) and Armitage (1995), an estimation period of 100-300 days is adequate for satisfactory assessment of the parameters in statistical pricing models. In addition, MacKinley (1997) argued that the estimation period should be ended before the event of interest. Therefore, the event itself will not influence the estimation

of the normal performance parameters. So that, the estimation period of this study starts 150 days prior to the event day and ends 30 days before the event.

In summary, the event day in current research is the first M&A announcement. In addition, the estimation period (denoted as L1) ends 30 days before the event and extends back to 150 days prior to the event day. Moreover, there are two symmetric event windows (denoted as L2), which are 3-day (-1, +1) and a 5-day (-2, +2) event windows respectively.

3.3 Modelling Normal Returns and Measuring Abnormal Returns

The benchmark of normal returns should be obtained before calculating abnormal returns. These benchmarks could be calculated over a period in which certainty can be given that the merger declarations will not affect the outcome in order to interpret the possible abnormal returns arisen from merger announcements. As is known to all, there are a number of approaches available to calculate the normal returns. These approaches are roughly classified by MacKinlay (1997) into two groups: statistical and economic models. MacKinlay (1997) further explained that statistical models rely on the statistical assumptions concerning the behavior of asset returns and do not depend on any economic arguments; however, economic models follow assumptions concerning investors' behavior and are not based solely on statistical assumptions. The fundamental information of these models will be briefly discussed in this section.⁹ The statistical models include Constant Mean Return Model, Market Model, Factor Model, and Market-adjusted Return Model.

(1) Constant Mean Return Model

Constant mean return model has been regarded as simplest model.

$$R_{it} = \mu_i + \varepsilon_{it} \quad (1)$$

Where R_{it} is return on security i in the t period and ε_{it} is the disturbance term of security i in the t period. Brown and Warner (1980, 1985) found the results yielded by this model are often similar to those sophisticated models and claimed that the variance of the abnormal return is frequently not reduced much by choosing more sophisticated models.

⁹ A specific discussion over all these models would go beyond the scope of this research study.

(2) Market Model

The market model as one of the statistical models, relates the return of given security to the return of the market portfolio. MacKinlay (1997) acknowledged that the market model has potential improvements over the constant mean return mode. The variance of the abnormal return is reduced by removing the portion of the return that is related to variation in the market's return. Therefore, the ability to detect the event effects is increased. This model is the one selected in this research that will be explained in more details in the module of modelling the normal returns.

(3) Market- adjusted Return Model

The market-adjusted returns model is viewed as a simplified and restricted market model with α and β constrained to be zero. It is not required to obtain parameter estimates from an estimation period because the model coefficients are pre-specified. Therefore, The market-adjust model would always be recommended when the data is limited in the case that it is not feasible to have a pre-event estimation period. For example, Ritter (1991) employed this model in studies of the under pricing of initial public offerings.

(4) Factor Model

Factor model has the benefits of reducing the variance of the abnormal return by explaining more of the variation in the normal return (MacKinlay1997). In the meantime, MacKinlay (1997) argued that the market model is an example of a one-factor model. However, MacKinlay (1997) claimed the gains from employing this model are rather limited. Owing to the empirical fact that the marginal explanatory power of additional factors is small. Therefore, the variance of the abnormal return has been reduced only in a small scale.

In economic models, there are two common models that are Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT). MacKinlay (1997) distinguished the CAPM as an equilibrium theory where the expected return of a given asset is determined by its covariance with the market portfolio (Sharpe 1964 and Lintner 1965) and the APT as an asset pricing theory where the expected return of a given asset is a linear combination of multiple risk factors (Stephen Ross 1976).

(5) Capital Asset Pricing Model

It is quite common to use of the Capital Asset Pricing Model in an event study in 1970s. However, in recently years some scholars have discovered the deviations from the CAPM model. Eugene Fama and Kenneth French (1996) argued that the validity of the restrictions imposed by the CAPM model is questionable, and hence, this leads to the possibility that the results of the studies may be sensitive to the specific CAPM restrictions. However, this potential for sensitivity can be avoided by employing the market model.

(6) Arbitrage Pricing Theory

There are some studies employed multifactor normal performance models motivated by the Arbitrage Pricing Theory. The main advantage by using APT motivated model is to eliminate the biases introduced by using the CAPM model, but the statistically models can also eliminate those biases. In addition, MacKinlay (1997) argued that the gains of using an APT motivated model versus the market model are rather small. Since the general finding he provided is that the most important feature of APT motivated model has relatively little explanatory power¹⁰.

In summary, compared with market model, the advantages of other models are not significantly and prominently. Therefore, the market model that relates the return on a security to the return of the market index, which is applied in this study.

Modelling the Normal Returns

The market model is selected as the proper model in this research. In addition to the merits of market model that has been presented previously, Fama (1998) also argued that for firm-specific event, such as M&A event, the market model would be the most appropriate choice. Furthermore, in the prior event studies in economics and finance, the majority of the researchers used the market models to estimate the normal returns, in despite of Engelen and Kabir (2006) in the research on trading suspension, acknowledged that no model arose as the most applicable return residual to estimate the abnormal returns.

¹⁰ Please check Brown, S. and Weinstein, M., (1985) for further discussion on APT theory motivated model.

The market model relates the return of security i to the return of the market index. In this study, the Morgan Stanley Capital International (MSCI)¹¹– European airline industry index was used as the market index. The Morgan Stanley Capital International (MSCI) is a free float-adjusted market capitalization weighted index, where the MSCI–European airline industry index is designed to measure the equity market performance of the European airline industry.

In order to predict market model for each company, daily returns over the estimation period were used to estimate a regression equation. It is assumed that the underlying securities are independently and jointly normal distributed and shall be identically distributed through time (MacKinlay 1997).

Sharp (1963) and Fama et al (1969) suggested the following ordinary least square (OLS) regression can be applied as the market model for a company i , which is illustrated as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (t = -150, \dots, t = -30) \quad (2)$$

Where R_{it} and R_{mt} are the return of security i , and the return of the market portfolio in the period of t respectively, the coefficients α_i and β_i are firm specific parameters of the market model and ε_{it} is the random zero-mean disturbance term. The market model assumes that the relation between the market return and the security returns is unchanged and the expected value of the disturbance term ε_{it} is zero. By using OLS regression in the estimation window, α_i and β_i coefficients can be estimated.

¹¹ The MSCI Total Return Indices: measure the price performance of markets with the income from constituent dividend payments. The MSCI Daily Total Return (DTR) Methodology: reinvest an index constituent's dividends at the close of trading on the day the security is quoted ex-dividend (the ex-date). (Please check: <http://www.msci.com/products/indices/tools/index.html#TOTALRET>)

Measuring the Abnormal Returns

The abnormal return AR_{it} for security i is the difference between the actual return and the expected return over each day of the event window period:

$$AR_{it} = R_{it} - (\alpha_{it} + \beta_i R_{mt})(t = -2, \dots, t = +2), (t = -1, \dots, t = +2) \quad (3)$$

Where α_i and β_i are obtained by the OLS regression in equation (2). The abnormal returns represent to which extent actual returns on any of the event days deviate from the returns that were expected without the event.

The distribution of the abnormal returns for N securities is assumed to be independent and normally distributed, and then the abnormal returns of N securities can be summed up. The daily average abnormal return across N securities are computed as shows in Equation 4:

$$\overline{AR}_t = \frac{1}{N} \sum \overline{AR}_{it} \quad (4) \text{ (Where } N \text{ refers to the number of securities.)}$$

Then, the cumulative average abnormal returns can be aggregated over the days of the selected event window (t_1, t_2) demonstrated as follows:

$$\overline{CAR}_{(t_1, t_2)} = \sum_{t=t_1}^{t_2} \overline{AR}_t \quad (5)$$

After obtaining the cumulative average abnormal returns, the next step is to test whether the observed abnormal returns are attributed by chance or by the M&A announcements. Therefore, the t-test is performed in order to test whether the abnormal return is statistically significant different from zero at given level of confidence. The formula and explanations regarding the t –test and estimated standard deviation from estimation period is illustrated in the subsection 3.4.

3.4 Testing Abnormal Returns

In order to excluding the accidental observed abnormal return, a hypothesis test is conducted by checking the null hypothesis: “shareholders do not benefit from the mergers and acquisitions”.

$$H(o): AR(t) = 0$$

$$H(a): AR(t) > 0$$

The applied testing method is developed by Brown and Warner (1980).

The one-day test statistic is given:

$$t = \frac{ARt}{s(AR)} \quad (\text{Where } AR(t) \text{ is the average abnormal return over all M\&A events.})$$

The cumulative average abnormal return (CAAR) test statistic is:

$$t = \frac{CAAR}{s(AR)\sqrt{T}} \quad (\text{Where } T \text{ is the number of the times of observations within each event.})$$

window. Within this research, there are two event windows that are 3 and 5 days

$S(AR)$ is defined as the standard deviation derived from the estimation period as listed in the following formula:

$$s(AR) = \sqrt{\frac{1}{120} \sum_{t=-150}^{t=-30} (ARt - \overline{AR})^2}$$

$$\text{where } \overline{AR} = \frac{\sum ARt}{120}$$

The number in the equation 120 is the time interval from the (-150, -30) estimation period.

In the scope of the test statistics, 10%, 5% and 1% level of significance are set in this research by comparing the test value ARt and the critical value of the standard normal distribution. When the test value ARt is greater than 1.64, the null hypothesis can be rejected and concluded that the abnormal return is significantly different from zero at a 10% significance level. Similarly, when the test value ARt exceeds 1.96, the abnormal return is significantly different from zero at a 5% significance level and when the test value ARt exceeds 2.56, the abnormal return is significantly different from zero at a 1% significance level.

4 Data Collection

The event study in this research is based on two main data forms, which are the data of European airline mergers and acquisitions such as announcement dates, transaction volume and so forth, and the data of daily stock price of M&A involved companies. The research period was selected from 2000 to 2010. The reason on why this 10 years research horizon is studied is that this paper is aim to investigate the wealth effects of the mergers and acquisitions after the fifth identified M&A wave.

The M&A announcements in the airline industry and stock price obtained from Thomson One Banker and DataStream financial databases sequentially. Firstly, the data on European airline mergers and acquisitions announcements would be acquired from Thomason One Banker SDC Platinum following the selection criterion. Next to it, Thomson DataStream would be used to retrieve data of stock price of individual security and market index price. According to the similar researches preformed by Singal (1996) Kyle et al. (1992), the airlines companies will be chosen in this research by fulfilling the following requirements:

- ❖ Both bidding and target firms should be air transportation and shipping companies, which can be international airlines and/or regional airlines.
- ❖ The M&A involved companies should be publicly traded.
- ❖ The information with regard to the M&A, such as announcement date, the type of transaction and trade volume should be publicly released.
- ❖ Daily stock returns for the bidding and target firms, as well as the corresponding market index (Morgan Stanley Capital International (MSCI-European airline industry) must be available on DataStream at least 150 trading days prior to the announcement date.
- ❖ The first M&A announcement should be declared between January 1, 2000 and December 31, 2010.
- ❖ All the M&A transactions should be completed.

The SIC classification is used to determine the airlines industry segments. All bidders and targets in this study operate under the two-digit 45xx SIC-code that contains air transportation scheduled 4512, air courier service 4513 and air transportation, unscheduled 4522, and airports and airport terminal service 4581.

Based on the data obtained regarding European airline mergers and acquisitions and stock prices, the estimation window, two symmetric event-windows, and the first M&A announcement date are used to calculate the daily average abnormal returns. In addition, the cumulative average abnormal return (CAAR) can be calculated by summing up the number of daily average abnormal returns that observed during each event window.

There were 13 completed mergers and acquisitions events found in the European airline industry covering the years from 2000 till 2010 as showed in Appendix 1. Likely, the prior airline M&A researches are often with small numbers of M&A events. Such as Knapp (1990) tested nine airline merges and Singal (1996) investigated fourteen successful airline merges, Zhang and Aldridge (1997) compared only two expected carrier mergers in Canada, and Friensen (2005) studied only one merger case of the Air France and KLM.

5 Empirical Results

The empirical results are provided in this section, which will be demonstrated into three subsections: the descriptive statistics, the analysis of M&A involved companies, and the analysis of M&A characteristics.

5.2 Descriptive Statistics

There were 13 completed European airline mergers and acquisitions events found by Thomason One Banker. All M&A transactions with the first announcement date, acquirer name and acquirer nation, target name and target nation, value of transactions, are demonstrated in Appendix 1. In this study, both bidding and target firms are investigated, therefore, the 13 airline M&A events are supposed to have 26 public listed airline companies be studied. When the daily historical stock data is not available from Thomason DataStream, the merging airline company would be eliminated from my research sample. Therefore, there were only sample of 21 public European airline companies included into this study. The sample comprises a subsample of 11 listed bidding companies and a subsample of 10 listed target companies.

Firstly, the distribution of mergers and acquisitions occurred in the European airline industry over last 10 years will be analyzed.

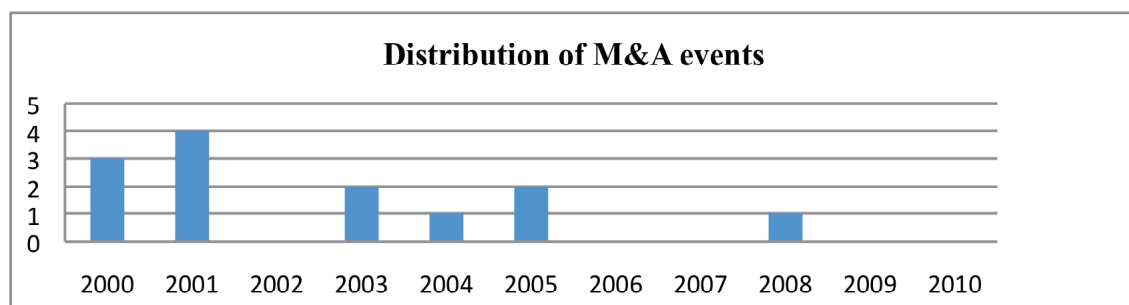


Figure 2: Distribution of events during the sample frame 2000-2010



Figure 3: Dow Jones Industrial Average

Source: <http://finance.yahoo.com/>

The distribution of European airline M&A events during 10 years research frame (2000 till 2010) is demonstrated in Figure 2. According to the figure illustrated in the bar chart, the most remarkable M&A events took place in the years of 2000, 2001 and during the years from 2003 to 2005. By comparing the Dow Jones Industrial Average market index quoted from Yahoo Finance, as showed in Figure 3, it might be associated with the market movement. Therefore, it is suggested that in a large number of M&A observations, it may ratherly interesting to investigate whether M&A movement is correlated with a market movement.

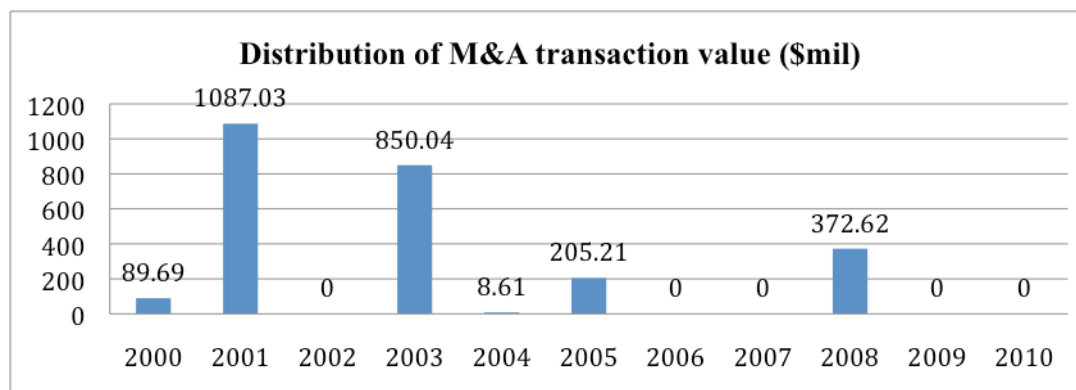


Figure 4: Distribution of M&A transaction value (\$mil)

In Figure 4, the distribution of European airline M&A transaction value in the periods of 2000 till 2010 is exhibited. It shows that the European airline M&A occurred in the years of 2001, 2003, 2005 and 2008 are reached the high transaction value. However, the sixth merger wave has been proposed in the beginning of 2003 and in the ending of 2006 with a worldwide M&A deal valued at US\$3.4 trillion. By comparing these years, the conclusion can be drawn that the M&A events in the European airline industry during the last decade are roughly in the similar time frame of the proposed sixth takeover wave. As we know, the airline industry is a small proportion of all industries and the scope of this research is only limited within the European region, therefore, it is not able to fully and precisely reflect the average trend of merger waves.

Domestic versus Cross-border M&A

As illustrated in Figure 5 below, approximately 55% European airline companies engaged in mergers and acquisitions are cross-borderly.

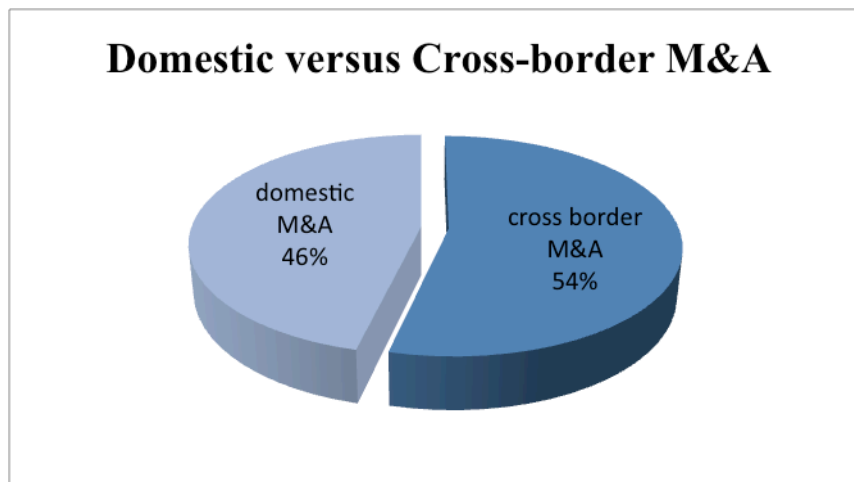


Figure 5: Domestic versus Cross-board M&A

The research finding of around 55% of M&A occurred with foreign airline companies. It has provided the empirical evidence on the conclusion by Delios and Beamish (2004) that cross-border M&A has continued increase in the 21st century and it has become a major strategic tool for corporate growth. In addition to the airline industry, there are an increasing number of cross-border mergers and acquisitions that have been taking place in other industries among European countries. The driving force of EU cross-border M&A, claimed by Campa & Hernando (2004), are the integration of national economies in EU, and the deregulation of large industries decreased the cost of cross border M&A transactions. In addition, they argued that the introduction of the single currency EURO on 1 January 1999 has facilitated the mergers and acquisitions with foreign European companies.

Means of payment in M&A

Figure 6 shows the means of payment have been used within the European airline mergers and acquisitions. There are approximately 65% of the M&A deals have chosen the cash method for the payment, 25% of the M&A deals are paid in stock and only 10% of the M&A deals are in other types of payment such as paid by debts or mixed payment of cash and stock.

From Figure 6 below, the predominant payment method in the European airline M&A found in this research is cash payment. The reasons that the cash payment is the main payment method of merges and acquisitions, have been found by several scholars. Jensen (1986) claimed that cash payment would generate larger benefits than stock payment because of the financial slack. That means M&A paid by cash are more likely to motivate managers to use resources more efficiently and effectively. According to Martin (1996), mergers and acquisitions financed with cash would signal the cash availability of the bidding company. Based on the pecking order theory of financing, managers follow a financing hierarchy that starts from internal finance, then debt or external equity financing. Therefore, M&A financed with cash imply that the bidding companies are more likely to have a large amount of cash, or high cash flow, or sufficient debt capacity. In empirical studies, Wansley *et al* (1983) found that M&A with cash offer gained a 33.54 % abnormal return for M&A involved companies, whereas M&A with stock offer gained only 15% abnormal return. Moreover, Travlos (1987) in the study of 167 bidding firms, found that M&A with cash payment had a significant positive abnormal return of 0.31%, while M&A with stock payment had a significant negative influence of -2.09% on the announcement date. Therefore, based on research results from prior empirical studies, it can be assumed that M&A with the cash payment is likely to achieve more wealth for both target and bidding companies than other means of payment.

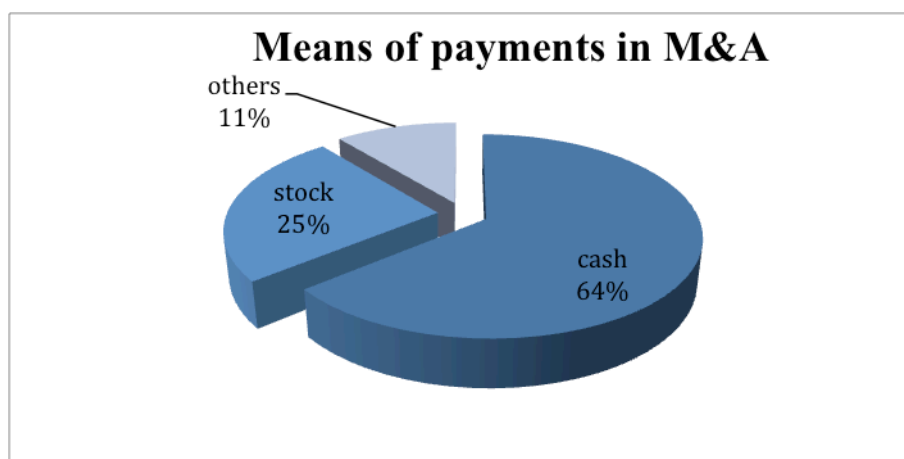


Figure 6: Means of payment in M&A in European airline industry

5.3 Analysis of Bidding and Target Firms

Applying an event study is aim to measure the abnormal returns of stock prices of bidding and target companies. The abnormal returns as it has been mentioned previously, are stock returns around event window deviate from the expected share returns that in absent of the event. This study is based on the 13 European airline M&A events between the year of 2000 and 2010. It concerns 21 public listed European companies including 11 listed bidding companies and 10 listed target companies. Table 1 shows the average abnormal returns by day and their statistical tests, and Table 2 illustrates the cumulative average abnormal returns for bidding, target companies and combined entity in two selected event windows.

Table 1 Daily Average Abnormal Returns

Daily Average Abnormal Returns (%)			
Day	Bidding firms	Target firms	Combined entity
-2	-0.32%	1.11%	0.39%
t-value	-0.1471	0.3626	0.0749
-1	-0.49%	0.44%	-0.02%
t-value	-0.2243	0.1449	-0.0046
0	0.79%	5.44%*	3.12%
t-value	0.3611	1.7787	0.5934
+1	0.15%	2.25%	1.20%
t-value	0.0686	0.7369	0.2289
+2	-0.84%	4.12%*	1.64%
t-value	-0.3814	1.6471	0.3127

*, **, *** Significance at the 10%, 5% and 1% level, respectively

Table 2 Cumulative Average Abnormal Returns for Selected Time Interval

Cumulative Average Abnormal Returns			
Begin-end interval	Bidding firms	Target firms	Combined entity
CAAR(-1,+1)	0.45%	8.14%***	8.59%*
t-value	0.2053	2.6606	1.6355
CAAR(-2,+2)	-0.71%	13.37%***	12.66%***
t-value	-0.3232	4.3703	2.4108

*, **, *** Significance at the 10%, 5% and 1% level, respectively

Bidding firms

In the first place, the analysis that focuses on bidding companies would be provided in two aspects: the daily average abnormal returns and the cumulative average abnormal returns.

❖ The daily average abnormal returns

From Table 1, it can be seen that the bidding companies experienced an insignificant negative abnormal return of -0.32% and -0.49% two days before the announcement date and one day before announcement date respectively. On the announcement date bidding companies earned a positive abnormal return of 0.79 %, which was, however, not statistically significant. Also, a positive abnormal return of 0.15% has been observed one day after the announcement, which was not statistically significant as well. Two days after the announcement date, the abnormal return went slightly downward and back to the insignificantly negative as showed in the table 0.84%.

❖ The cumulative average abnormal returns

The statistical results for cumulative average abnormal returns of bidding companies for the selected time windows: (-1, +1) and (-2, +2) are provided in Table 2. The cumulative average abnormal returns showed in Table 2 were both statistically insignificant, which were 0.45% under the event window (-1, +1) and -0.71% under the other event window (-2, +2). Even though the bidding companies achieved a small positive abnormal return in the period of 3 days around the announcement date and a small negative abnormal return in the period of 5 days around the announcement date, the abnormal returns earned by bidding companies were statistically insignificant. Thus, the hypothesis that the shareholders of bidding companies do not benefit from mergers and acquisition cannot be rejected, and it can be concluded that there is no abnormal return earned by the stockholders of bidding firms.

Table 3 gives a detailed summary of the findings of the empirical studies on M&A reporting the abnormal returns to bidding companies. By reviewing previous studies of the M&A effects on share prices focusing on the multi-industry (Panel A of Table 3), my findings are consistent with the most studies that reported the abnormal returns to bidding companies, on average, experienced zero or small insignificant positive return around the date of announcement. For example, the study of Asquith (1983) investigated the effect of M&A on stock by examining both successful and

unsuccessful merger bids. He showed that the insignificant abnormal returns of 0.2 % and 0.5% obtained to successful and unsuccessful bidding companies under two days (-1, 0) event window. In addition, the research results of Travlos (1987) on the corporate takeover bids showed that the bidding companies generated an insignificant positive abnormal return of only 0.17% on the announcement date, that was based on the sample of 167 bidding companies in M&A deals and covered the period from 1972 until 1981. More recently, Mulherin and Boone (2000) analyzed the wealth effect of 281 US biddings companies over nine years from 1990 to 1999. They found a small insignificant excess return of 0.21% to the shareholders of the bidding companies under three days research period (-1, +1). Furthermore, Goergen and Renneboog (2004) also reported a 0.40% of the insignificant positive abnormal returns gained by the shareholders of bidding companies. All in all, my research finding is compatible with the main body of the empirical evidence.

Table 3 Summary of the Empirical Studies on M&A Wealth Effects Reporting Bidder Returns

Study	Sample Country	Sample period	Type of M&A	No. of observation	Event Window	CAAR
Panel A: Multi- industry						
Asquith (1983)	US	1962-1976	Successful M&A	196 bidding firms	(-1, 0)	0.20%
			Unsuccessful M&A	89 bidding firms	(-1, 0)	0.50%
Travlos (1987)	US	1972-1981	Tender offer and merger ¹² (successful)	167 offers	(0, 0)	0.17%
Mulherin and Boone (2000)	US	1990–1999	Acquisition	281 offers	(-1, +1)	0.21%
Goergen and Renneboog (2004)	Europe	1993-2000	Merger and Acquisition (at least USD 100 million)	142 bidder (Out of 187 offers)	(-40, 0)	0.40%
Panel B: Airline industry						
Knapp (1990)	US	1986	Merger	9 offers	(0, 0); (-1, +1)	3.10% ^{**} 9.80% ^{***}
Kyle et al. (1992)	US	1978-1989	Merger and Acquisition	15 bidder (Out of 24 offers)	(-2, 0);	3.72% ^{***}
Singal (1996)	US	1985-1988	Merges	14 offers	(-5, +5)	1.84% ^{**}
Friensen (2005)	Europe	2004	Merges	1 offer	(-3, +1); (-1, +3)	0.32% 0.51%

*, **, *** Significance at the 10%, 5% and 1% level, respectively

12 Travels (1987) : a tender offer, the bidding firm makes an offer directly to the stockholders of the target firm. In a merger proposal, the offer is made to the target firm's management.

The research result in this study is also compared with M&A event studies in the airline-specific industry. Panel B of Table 3 shows the summary of the M&A wealth effects in airline industry. Knapp (1990) found that the bidding companies earned insignificant abnormal returns, which were 3.1% and 9.8 % in the short event windows of (0, 0) and (-1, +1) by tested nine US airline merges. In addition, Kyle et al. (1992) in the study of the US airlines influence on the capital market, found the bidding companies yield a positive abnormal return of 3.72% in the event window of (-2, 0). What is more, the research finding of Singal (1996) indicated that the bidding companies experienced a 1.84% statistically positive accumulative abnormal return in a ten days event window. In European airline mergers and acquisitions study, Friensen (2005) detected that bidding companies achieved insignificant abnormal returns of 0.32% and 0.51% over (-3, +1) and (-1, +3) event windows. In addition, my research shows that in the European airline M&A, bidding companies earned an insignificant 0.45% abnormal return over 3 days around the announcement date. Therefore, it reveals that the abnormal returns earned by the European acquiring airline companies are a bit lower in average than other studies that mainly focus on the US airlines.

Target firms

After the study of bidding firms, the analysis of target companies would be presented subsequently that both in the facets of daily average abnormal returns and cumulative average abnormal returns.

❖ The daily average abnormal returns

The daily average abnormal returns would be studied firstly. The average daily abnormal returns and related t-statistics for the target companies from day -2 to day +2 are displayed in Table 1. As it shows in the table, the target companies earned positive abnormal returns of 1.11% and 0.44% two days and one day before the M&A announcement. Furthermore, the average abnormal return was increased to 5.44% on the date of announcement, which was significant at 10% level. Owing to the fact that the target companies obtained positive abnormal returns before the announcement date, it might be able to assume that the M&A event seemed to be leaked into the capital market before the official announcement date.

Meanwhile, Table 1 presents that the targets earned a 4.12% abnormal return with 10% significant level two days after announcement. In general, the shareholders of targets

companies continually experienced positive abnormal returns on the days after the announcement, but the amount of abnormal returns drift slightly downward.

❖ The cumulative average abnormal returns

After the analysis of target companies' daily average abnormal returns, the cumulative average abnormal returns are examined. The statistical results for cumulative average abnormal returns of targets companies for the selected time windows: (-1, +1) and (-2, +2) are demonstrated in Table 2. As showed in the table, the shareholders of targets companies earned a cumulative average abnormal return of 8.14% under 3 days event window (-1, +1) and 13.37% under 5 days event window (-2, +2), which were both statistically significant at 1% level.

Table 4 Summary of the Empirical Studies on M&A Wealth Effects Reporting Target Returns

Study	Sample Country	Sample period	Type of M&A	No. of observation	Event window	CAAR
Panel A: Multi- industry						
Asquith (1983)	US	1962-1976	Successful M&A	211 target firms	(-1, 0)	6.60%*
			Unsuccessful M&A	91 target firms	(-1, 0)	2.30%
Schwert (1996)	US	1975-1991	Merger	944	(-3, +4).	7.51%**
Goergen and Renneboog (2004)	Europe	1993-2000	Merger and Acquisition (at least USD 100 million)	142 bidder (Out of 187 offers)	(-2, +2)	12.96%***
Panel B: Airline industry						
Knapp (1990)	US	1986	Merger	9 offers	(-20, +10)	23.89%***
Kyle et al. (1992)	US	1978-1989	Merger and Acquisition	13 targets (Out of 24 offers)	(5, +5)	18.94%***
Singal (1996)	US	1985-1988	Merges	14 offers	(-5, +5); (-11, +19)	18.43%*** 19.94%**
Friensen (2005)	Europe	2004	Merges	1 offer	(-1, 0); (-3, +1)	2.29%; 1.60%**

*, **, *** Significance at the 10%, 5% and 1% level, respectively

Table 4 shows the summary of the results of prior M&A event studies reporting the abnormal returns to target companies. Most empirical results denote that shareholders of target companies gained significantly positive abnormal returns around the announcements dates by studying the prior researches that estimated the M&A effects on stock prices of target firms around the time of announcement (Panel A of Table 4).

Apparently, the scientific evidence provided by Jensen & Ruback (1983) that summarized thirteen research outcomes of M&A abnormal returns as shows in Appendix 3, reported significant positive excess returns generated by targets' shareholders ranging from 6.21% to 35.26 % around the M&A announcement. For instance, Schwert (1996) studied the premium in takeover bids observed an abnormal return of 7.51% to the shareholders of target firms in the event window (-3, +4). In addition, the study of Goergen & Renneboog (2004) in the European M&A deals showed a significant abnormal return of 12.96% earned by the target shareholders in the 5 days (-2, +2) event window. Therefore, by comparison with the previous M&A studies, the research results are consistent with the overall empirical results.

Based on the previous researches on the airline M&A (Panel B of Table 4) and the results of this research, it can be concluded that the abnormal returns to the target airline shareholders are significantly positive in both North American and European airline companies. For instance in the US airline industry, Knapp (1990) discovered that the target companies earned a significant positive abnormal return of around 25% for the twenty days before and ten days after merger announcement. Kyle et al. (1992) found that the target companies experienced a significant positive abnormal return of 18.94% over the time window of (5, +5). Moreover, Singal (1996) indicated that the target firms earned significantly positive cumulative returns 18.43% and 19.94% over eleven days and thirty-one days around the first M&A announcement date. In the European airline M&A studies, the research of Friensen (2005), focused on one M&A case of Air France and KLM, found the evidence of a significant abnormal return of 2.29 % to target shareholders on the date publicly declared the merger intention. In addition, this research investigated 13 European airline M&A events shows that the shareholders of target companies earned significant positive abnormal returns of 8.14% and 13.37%.

Therefore, It can be summarized that the researches focusing on the US airlines found approximately 20% of the abnormal return on the targets share price, which is higher than the researches focusing on the European airline companies.

Combined entity

The analysis of combined entity is provided after the study of the bidding and target companies. Similarly, it will be examined in both daily average abnormal returns and cumulative average abnormal returns.

❖ The daily average abnormal returns

In the first place, the daily average abnormal returns for combined entities would be studied. The average daily abnormal returns and associated t-statistics from day -2 to day +2 are displayed in Table 1. It can be seen from the table, the abnormal returns received by the combined entities were statistically insignificant positive about 0.39% two days before the announcement date and statistically insignificant negative around -0.02% one day before the announcement date. However, the combined entities earned a positive abnormal return on the announcement date, which is 3.12%. The period of one day after and two days after event, the positive abnormal returns were slightly declined to 1.20% and 1.64%.

❖ The cumulative average abnormal returns.

Next, the cumulative average abnormal returns for the combined entities would be analyzed. The abnormal returns and the statistical results for cumulative average abnormal returns in the three days event window and five days event windows are demonstrated in Table 2. Table 2 indicates that the combined entities experienced a positive abnormal return of 8.59% during the three days period around the M&A announcement. Besides, cumulative abnormal returns earned by the combined entities became 12.66% in the event window of (-2, +2), significant at 1% level. The research finding is consistent with the empirical results of the study of Kyle et al (1992) that studied the M&A effects on the capital market in the airline industry. They found that CAAR for combined entities was 6.77% in the (-1, +1) event window and 8.28% in the (-2, +2) event period.

In summary, the bidding airline companies obtained statistical insignificant abnormal returns of 0.45 % and -0.71% under the selected two symmetric event widows: (-1, +1); (-2, +2), however, the target airline companies earned statistical significant abnormal returns of 8.14% and 13.37 % under the same event widows. Therefore, it can be concluded that the shareholders of target companies experienced a wealth gaining.

5.4 Analysis of M&A Characteristics

After the study of wealth influence of M&A involved firms in 5.2, the subsection 5.3 will explore deeply on the M&A characteristics. It will be investigated in the following three aspects: (1) M&A international strategy: Domestic versus Cross-border M&A, (2) M&A means of payment: Cash payment versus Non-cash payment, and (3) M&A Location: Continental Europe versus UK. Table 5 demonstrates the cumulative abnormal returns and their statistical test results over two symmetric event windows, which organized in three panels by M&A characteristics mentioned above. Table 6 lists the summary of the M&A studies that analyzed M&A characteristics of international strategy, means of payment and M&A locations respectively.

Table 5 CAAR by Analysis of M&A Characteristics

	CAAR (-1, +1)	t-value	CAAR (-2, +2)	t-value
Panel A: Domestic VS Cross Border				
Domestic M&A	0.04%	0.0178	3.52%	15,201
Cross Border M&A	8.59%***	2.939	8.72%***	2.9824
Difference ¹³	8.55%***	5.4722	5.19%***	3.0703
Panel B: Means of Payment				
Cash payment	5.00%*	1.8939	7.03%***	2.6597
Non-cash payment	-0.18%	-0.1201	0.56%	0.3664
Difference ¹⁴	5.19%	1.5493	6.47%	1.5839
Panel C: M&A Location				
Continental Europe	4.90%***	3.1203	5.07%***	3.233
UK	0.32%	0.6182	-0.42%	-0.6567
Difference ¹⁵	4.57%***	6.3858***	5.49%***	6.5180

*, **, *** Significance at the 10%, 5% and 1% level, respectively

¹³ The differences of cross-border M&A and domestic M&A under two event windows are calculated by independent two-sample t-test:

$$t = \frac{CAAR_1 - CAAR_2}{\sqrt{S_1^2/n_1 + S_2^2/n_2}} \text{ (where 1 = group one, 2 = group two, } n = \text{number of participants)}$$

¹⁴ See Footnote 13.

¹⁵ See Footnote 13.

Table 6 Summary of Empirical Studies on M&A Wealth Effects Analyzing of M&A Characteristics

Study	Sample Country	Sample period	M&A Characteristics	No. of observation	Event window	CAAR
Panel A: M&A international strategy: Domestic versus Cross-border M&A						
Eun et al. (1996)	US	1979 - 1990	Cross-border acquisitions	225	(-1, 10)	28.24%***
Tebourbi (2005)	Canada	1975-1991	Domestic M&A	297	(-5, +5)	7.51%**
			Cross-border M&A	165	(-5, +5)	-1.57***
Moeller and Schlingemanne (2005)	US	1998-2001	Domestic M&A	46	(0, 0)	13.18%**
			Cross-border M&A	68	(0, 0)	0.91%*
Panel B: M&A means of payment: cash payment versus non-cash payment						
Travlos (1987)	US	1972-1981	Cash payment	100	(-2, +1)	0.31%***
			Non-cash payment	60	(-2, +1)	-2.09***
Goergen & Renneboog (2004)	Europe	1993-2000	Cash payment	N/A	(-2, +2)	14.12%***
			Non-cash payment	N/A	(-2, +2)	11.03%*
Panel C: M&A Location: Continental Europe versus UK						
Goergen & Renneboog (2004)	Europe	1993-2000	Continental Europe	70	(-2, +2)	12.31%***
			UK	117	(-2, +2)	5.96%***
Martynova & Renneborg (2006)	Europe	1993-2001	Continental Europe	N/A	(-1, +3)	10.19 %***
			UK	N/A	(-1, +3)	17.64 %***

N/A: information is not available

*, **, *** Significance at the 10%, 5% and 1% level, respectively

M&A international strategy: Domestic versus Cross-border M&A

Many scholars documented that the number of cross-border M&A has steadily increased in the 21st century, although domestic M&A generally viewed as an easier and a less risky M&A strategy. It is reflected in the sample of this study, as indicated in 5.1 descriptive data, there were 55% of European airline companies engaging in mergers or acquisition with another airline companies outside their home country in the period of 2000-2010. Due to the cross-border M&A is becoming a major strategic tool for the corporate growth (Delios & Beamish 2004); the influence of both domestic and cross-border M&A on the stock market will be studied.

Panel A of Table 5 shows that the cumulative abnormal returns (CAAR) for domestic M&A were 0.04% and 3.52% in the event windows (-1, +1) and (-2, +2) respectively. Meanwhile, CAARs in both event windows were statistically insignificant. However, the CAARs for cross-border M&A were 8.59% at 1% significant level under the (-1, +1) event window and 8.72% under (-2, +2) event window statistically significant at 1% level. The differences of domestic and cross-border M&A were statistically significant under both selected event intervals. Accordingly, the research results indicate that within the European airline industry, cross-border M&A has a higher premium generated to the shareholders compared with domestic M&A.

By reviewing a number of studies of domestic and cross-border M&A effects (Panel A of Table 6), my test results are consistence with the main body of existing empirical outcomes. Many researchers concluded shareholders experienced significantly positive wealth gains by taken place cross-border M&A. For example, Eun et al. (1996), in the study of cross-border acquisitions and shareholder wealth by examining US firms during the period 1979 till 1990, found that cross-border acquisitions generated a positive significantly abnormal return of 28.24% to M&A involved companies. Likewise, Tebourbi (2005) provided empirical evidence that cross-border acquisitions generated higher abnormal returns than domestic M&A by investigating the Canadian firms' mergers and acquisitions. However, my findings contradict to the research results of Moeller and Schlingemanne (2005). They found weak evidence that cross-border M&A created wealth to merging companies and documented that domestic M&A generated more wealth than cross-border M&A to shareholders.

M&A means of payment: cash payment versus non-cash payment

More than half of the European airline M&A deals paid by cash are found in this study. In order to check the assumption mentioned earlier: M&A with the cash payment is likely to achieve more abnormal returns to merging companies than other means of payment, the differences of CAARs of M&A with cash payment and with non-cash payment are calculated and tested.

Panel B of Table 5 shows the cash offers yield significant positive CAARs of 5.00% under three days event window and 7.03% under five days event window, whereas the non-cash M&A offers generated insignificant CAARs of -0.18% and 0.56% under the same event windows. The evidence of share price reaction was sensitive to the M&A means of payment has been found, however, the differences of M&A with cash and non-cash M&A payment were not statistically significant. Consequently, there is no evidence that the cash offers yield more wealth to shareholders than non-cash offers found in the European airline M&A announcements.

Compared with prior researches showed in Panel B of Table 6, my finding is not in line with previous empirical results that M&A deals with cash payment method generated more abnormal return to shareholders. For instance, in the study of European mergers and acquisition, Goergen & Renneboog (2004) found that the M&A with cash payment is significantly higher than non-cash payment M&A. Specifically, the findings indicated that the cash financed bids triggered a larger abnormal return of 14.12% over 5 days event window, whereas non-cash financed bids with a abnormal return of 11.03% under the same time interval.

The main reason on why my study is not consistent with Goergen & Renneboog (2004) is that the study of Goergen & Renneboog (2004) focused on the multi-industry European mergers and acquisitions, whereas my research only emphasizes on a single industry of European airlines.

M&A Location: Continental Europe versus UK

It is well known that, the continental Europe and UK are under different corporate governance systems. Continental Europe refers to the mainland of Europe, but UK belongs to Anglo-saxon counties. Generally speaking, Continental Europe is considered as a coordinated or multi-stakeholder mode, therefore the interests of various participants such as shareholders, employees, managers, suppliers, customers, and the community, are always taken into account. In addition, many Continental European countries like Germany and the Netherlands are required a two-tiered board system (executive board and supervisory board). Anglo-Saxon countries are more emphasized the interests of shareholders and a single-tiered board system is often applied. Jeroen and Joost (1999) documented that stock market plays a more important role in Anglo-saxon countries than Continental European countries. They advocated the most prominent characteristic of Anglo-saxon system is an active external market for corporate control compared with the Continental Europe. Therefore, it would be quite interesting to further study the M&A involved companies located in UK or Continental Europe in the airline industry. In this study, the short-term wealth effects of UK and Continental European M&A are examined.

Panel C of Table 5 shows that the merging companies located in Continental Europe experienced a significant positive abnormal return of 4.90% in the period of three days around the M&A announcement date, and 5.07% during five days event period. On the other hand, merging companies located in UK gained an insignificant abnormal return of 0.32% and 0.42% under the three days and five days event windows respectively. In addition, the table demonstrates that the differences of airline M&A located in Continental Europe and in UK were statistically significant at 1% level under both event windows. Therefore, the table indicates that in the European airline industry, the average abnormal return to M&A located in UK was substantially lower than M&A located in Continental of Europe.

This finding is partially compatible with the prior empirical evidences on the market reaction to M&A of UK firms and Continental European firms (Panel C of Table 6). For instance, Goergen & Renneboog (2004) studied the sample of 187 European M&A deals in the period 1993-2003 and found that UK merging firms experienced an abnormal return of 12.31% that is almost two times higher than for the M&A located

in Continental Europe. They summarized that UK as one of Anglo-saxon countries enjoys an active market for corporate control, in addition, there is a higher degree of shareholder protection, a higher degree of disclosure and a well-developed equity market. In the later years, Martynova & Renneboog (2006) studied European M&A in a much larger sample size of 2419 deals covering 28 European countries in the period of 1993-2001. They discovered UK M&A experienced a significant 17.64 % abnormal return, which was considerably higher than M&A located in Continental Europe with 10.19 % abnormal return.

The research finding of this study does not entirely comply with the previous studies owing to the fact that, this study is only focused on one specific industry. In addition, there is only limited numbers of M&A deals are found; especially there is only one of those deals is originated from UK. Thus, the evidence cannot explicitly demonstrate the differences of the wealth effects of M&A that located in the UK and in Continental Europe.

In summary, this section presents the overall empirical results of this study. After the descriptive statistics presented in 5.1, the analysis of the influences of European airline M&A to shareholders of bidding and targets firms are showed in 5.2, and the analysis on the M&A characteristics (M&A international strategy: Domestic versus Cross-border M&A, M&A means of payment: Cash payment versus Non-cash payment, and M&A location: Continental Europe versus UK) are demonstrated in subsection 5.3.

6 Conclusion

An increasing number of mergers and acquisitions have taken place in airline industry since the deregulation in 1978. I studied the European airline mergers and acquisition with a sample size of 13 M&A events covering the years from 2000 through 2010. In the airline industry, M&A is often undertaken in the same industry. Therefore, this study laid stress on the horizontal mergers and acquisitions. By conducting the event study methodology, the empirical evidence on the wealth effects of mergers and acquisitions in the European airline industry has been provided.

The shareholders of bidding firms generated an insignificant cumulative abnormal return of 0.45 % under (-1, +1) event window, whereas the target firms earned a statistically significant cumulative excess return of 8.14% under the same event window. In addition, the study has found that under the (-2, +2) event window, the bidding firms experienced a cumulative abnormal return of 0.71%, whereas target firms experienced a cumulative abnormal return of 13.37% significant at 1% level. It is self-evident that these research findings were in line with a large body of previous studies. Moreover, the cumulative abnormal returns to the combined entity have been calculated and tested as well. The outcome showed that the combined entity on average experienced a statistically significant positive cumulative abnormal return of 12.66% in the short event window of five days around the announcement date. Therefore, the research result leads to the conclusion that mergers and acquisitions are value creation activities to M&A involved companies.

In addition to the effects of M&A on shareholders of targets and bidding companies, I also studied the M&A characteristic in three aspects, namely international strategy, M&A means of payment and M&A location. By studying international strategy, there were 55% M&As taking place with a foreign airline company while 45% M&As with an airline company from the same country. Compared with domestic M&A, cross-border M&A generated higher premium to merging firms. In the study of M&A means of payment, the cash bidders yielded a significant cumulative abnormal return of 5.00% in the event window of (-1, +1), whereas in the same time interval non-cash bidders only experienced an insignificant 0.18% cumulative abnormal return. Moreover, I compared the Continental European airline M&A with the UK airline M&A. The results illustrated that the Continental European airline M&A had a higher

abnormal return obtained to the merging companies than the UK airline M&A. Due to the fact of a limited number of UK airline M&A included in this study, the empirical result was not fully consistent with the previous research results.

The empirical results of this paper could be beneficial to the shareholders, investors, and management of European airline companies, and people who are interested in the reaction of capital market by M&A events in a single selected industry. The study of M&A that impact on the stock market has been extensively researched, but studies focusing on one specific industry have not conducted by many scholars. Therefore, the research findings of this paper would serve a higher level of reliability and validity to the target readers: the shareholders, investors and management of European airline companies. Under the efficient-market hypothesis that the stock market are efficiently enough to react to the important strategic decisions on corporate control like M&A event, M&As in airline industry have a great impact on value enhancement, especially on the shareholders of target companies. In addition, this research offers an overview for those who would like to conduct similar research in a certain industry: more specific literature of industrial characteristics has to be reviewed and more detained empirical analysis of the M&As influence on shareholders' wealth has to be provided.

7 Limitation and Future Research

This study found that the target companies experienced a significant positive abnormal return, whereas the bidding companies experienced an insignificant positive excess return. In addition, it showed that the differences of wealth effects of domestic versus cross-border M&A, cash versus non-cash payment, and M&A located in Continental Europe versus in UK. However, this research paper only provided an indication of airline M&A wealth effect in the European airline companies. Therefore, the future research in airline industry could extend the research scope that beyond the European airline companies (such as Asian airline companies) or widen the research years in order to enlarge the number of M&A events. Thereby, the statistical power would be enhanced.

It also remains for future research to examine the motives of the airline mergers. The market power gaining has been recognized as dominant motivation for airline horizontal mergers. To test the market power hypothesis, the future research could examine the rival airline stock reaction to its competitors' M&A announcement. Based on the argument by Knapp (1990), the abnormal return movements of merging companies and their rival are allowed to predict the increased firm control over fares. As it has been acknowledged, stock return is an unambiguous measure of expected profit and there is a positive relationship between changes in concentration and profit (Kim/Singal 1993, Friesen 2005). However, the study relying on the stock market may not be able to provide a complete picture of testing market power hypothesis, because the stock market tests can only effectively and directly measure the merger influences on shareholders of merging companies (Singal, 1996). In addition to the use of the stock price data, the market power hypothesis can also be tested by using product price data (fares). It will be able to yield more valuable information for answering the question whether the market power is created by airline M&A, since the product market test measures the effect of mergers on consumers directly during an observation period (Singal, 1996). In other words, it will allow performing further analysis to investigate whether airline mergers lead to wealth transfers from consumers.

8 Bibliography

1. Armitage, S., (1995), Event study methods and evidence on their performance, *Journal of Economic Surveys*, 8(4), pp. 25–52.
2. Asquith, P., (1983), Merger bids, market uncertainty and stockholder returns. *Journal of Financial Economics* 11(1-4), pp 51-83
3. Berkovitch, E. and Narayanan, M. P., (1994), Motives for takeovers: an empirical investigation, *Journal of Financial and Quantitative Analysis*, 28 (3), pp. 347–362.
4. Brown, S. and Warner, J. B., (1980,1985), Measuring Security Price Performance, *Journal of Financial Economics*, 8(3), pp. 205-58.
5. Brown, S. and Weinstein, M., (1985), Derived factors in event studies, *Journal of Financial Economics*, 14(3), pp. 491-95.
6. Campa, J.M. and Hernando, I., (2004), Shareholder wealth creation in European M&As, *European Financial Management*, 10 (1), pp. 47-81.
7. Cybo-Ottone, A. and Murgia, M., (2000), Mergers and shareholder wealth in European banking. *Journal of Banking & Finance*, 24(6), pp. 831-859.
8. Delios, A. and P.W. Beamish., (2004), Joint venture performance revisited: Japanese foreign subsidiaries Worldwide1, *Management International Review*, 44(1), pp. 69.
9. Dodd, P. Ruback, R., (1977), Tender offer and stockholder returns: an empirical analysis, *Journal of Financial Economics*, 5, pp. 351-73.
10. Engelen, P. and Kabir, R., (2006), Empirical evidence on the role of trading suspensions in disseminating new information to the capital market, *Journal of Business Finance & Accounting*, 33(7&8), 2006, pp.1142-1167.
11. Eun, S.C., Kolodny, R., and Scheraga, C. (1996): Cross-border acquisitions and shareholder wealth: Tests of the synergy and internalization hypotheses, *Journal of Banking & Finance*, 20(1), pp.1559-1582.
12. Fama, E. F. et al, (1969), The Adjustment of Stock Prices to New Information, *International Economic Review*, 10(1), pp. 1-21.
13. Fama, E. F., (1970), Efficient Capital Markets: A Review of Theory and Empirical Work, *The Journal of Finance*, 25(2), pp. 383-417.
14. Fama, E. F. and French, K. R., (1996) “Multifactor Explanation of Asset Pricing Anomalies, *Journal of Finance*, 51(1) pp. 55-84.
15. Fama E. F. (1998) Market Efficiency, Long-Term Returns, and Behavioral Finance. *Journal of Financial Economics*, 49, pp. 283 – 306.

16. Friesen, D. K. (2005), Capital market's assessment of European airline mergers and acquisitions – the case of Air France and KLM. 5th Swiss Transport Research Conference.
17. Goergen, M. and Renneboog, L., (2004), Shareholder wealth effects of European domestic and cross-border takeover bids, *European Financial Management*, 10(1), pp.9-45.
18. Jensen, M. and Ruback, S. R., (1983), The Market for corporate control: the scientific evidence, *Journal of Financial Economics*, 11(14) pp.5-55.
19. Jensen, M. (1986), Agency cost of free cash Flow, *Corporate Finance and Takeovers*, *American Economic Review Proceedings*, 76 (2), pp.323–329.
20. Jeroen, W. and Joost, P. (1999), A Taxonomy of Systems of Corporate Governance, *Corporate Governance: An International Review*, 7(2), pp. 152-166.
21. Kim, C. W. and Singal, V., (1993), Mergers and Market Power: Evidence from the Airline Industry, *The American Economic Review*, 83 (3), pp.549-569.
22. Knapp, W. (1990), Event analysis of air carrier mergers and acquisitions, *The Review of Economics and Statistics*, 72(4), pp.703-707.
23. Kusnadi, J. and Sohrabian, A., (1999), The Impact of Insurance Mergers on shareholder returns, *Journal of Interdisciplinary Studies*, 12(1), pp.109-116
24. Kwall, J.L. (2006), What is a Merger? : The Case for Taxing Cash Mergers like Stock Sales, *Journal of Corporation Law*, 32(1), pp.1-44.
25. Kyle, R. and Phillip, L. T., (1985), Airline deregulation: did economists promise too much or too little?, *Logistics and Transportation Review*, 21(4), pp.3-25.
26. Kyle, R., Thomas. H., Fayissa, S. and Fayissa, B., (1992), Capital Market's Assessment of Airline Restructuring following Deregulation, *Applied Economics*, 24(10), pp.1097-1102.
27. Lintner, J., (1965), The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets, *Review of Economics and Statistics*, 47(1), pp. 13–37.
28. Loughran, T. and Vijh M. A., (1997), Do Long-Term Shareholders Benefit From Corporate Acquisitions? , *The Journal of Finance*, 52(5), pp.1765-1790.
29. MacKinlay, C. A., (1997), Event studies in economics and finance', *Journal of Economic Literature*, 35(1), pp.13-39.

30. Malatesta, P. H., (1983), The wealth effect of merger activity and the objective functions of merging firms, *Journal of Financial Economics*, 11(2), pp.155-181.
31. Martin and Kenneth J. (1996), The method of payment in corporate acquisitions, investment opportunities, and management ownership. *Journal of Finance* 51, pp.1227–1246.
32. Martynova, M and Luc Renneboog (2006), The Performance of the European Market for Corporate Control: Evidence from the 5th Takeover Wave, ECGI - Finance Working Paper No. 135/2006.
33. Martynova, M., Renneboog, L., (2008), A century of corporate takeovers: what have we learned and where do we stand, *Journal of Banking & Finance* 32 (10), pp.2148-2177.
34. McWilliams, A. and Siegel, D., (1997), Event studies in management research: theoretical and empirical issues, *The Academy of Management Journal*, 40 (3), pp.626 – 657.
35. Moeller, S. B., Schlingemann, F. P. and Stulz, R. M. (2005), Wealth Destruction on a Massive Scale?, A Study of Acquiring-Firm Returns in the Recent Merger Wave, *The Journal of Finance*, 60(2), pp. 757-782.
36. Mulherin, J. and Boone, A., (2000), Comparing acquisitions and divestitures, *Journal of Corporate Finance*, 6, pp.117-139.
37. Neary, P., (2004), Cross-Border Mergers as Instruments of Comparative Advantage. University College Dublin/CEPR.
38. Pautler, P.A., (2001), Evidence in mergers and acquisitions, US Federal Trade Commission, Bureau of Economics, working paper No. 243
39. Peterson, P. P., (1989), Event studies: a review of issues of methodology, *Quarterly Journal of Business and Economics*, 28(3), pp.36–66.
40. Ritter, J. R., (1991), the long-run performance of initial public offerings, *Journal of Finance* 47(1), pp.3–27.
41. Ross, S. A., (1976), The Arbitrage theory of capital asset pricing, *Economic Theory*, 13(3), pp.341-360.
42. Roll, R., (1986), The hubris hypothesis of corporate control, *Journal of Business*, 59(2), pp.197–216.
43. Scharf, C. A., (1971), Acquisitions, mergers, sales and takeovers, New Jersey: Prentice Hall.
44. Schwert, W., (1996), Markup pricing in mergers and acquisitions, *Journal of Financial Economics*, 41, pp.153-192.

45. Sharpe, W. F., (1963), A simplified model for portfolio analysis, *Management Science*, 9(2), pp.277-293.
46. Sharpe, W. F., (1964), Capital asset prices: A theory of market equilibrium under conditions of risk," *Journal of Finance*, Sept. 1964, 19(3), pp.425-42
47. Shleifer, A. and Vishny, R. (1989), Managerial entrenchment: the case of manager-specific investments. *Journal of Financial Economics*, 25(), pp. 123–39.
48. Signal, V. (1996), Airline mergers and competition: An integration of stock and product price effects, *Journal of Business* 69(2), pp.233-268.
49. Tebourbi, I. (2005), Bidder's Shareholder Wealth Effects of Canadian Cross-Border and Domestic Acquisitions – The Role of Corporate Governance Differences. CEREG – Université Paris Dauphine.
50. Travlos, N. G., (1987), Corporate takeover bids, method of payment, and bidding firms' stock returns. *Journal of Finance*, 42, pp.943–963.
51. Wansley, J., Lane, W. and Yang , H., (1983), Abnormal returns to acquiring firms by type of acquisition and method of payment, *Financial Management*, 12, pp. 16-22.
52. Weinberg, M.A. and Blank, M.V., (1979), *Mergers and takeovers*. London: Sweet & Maxwell.
53. Zhang, A. and D. Aldridge (1997), Effects of merger and foreign alliance: An event study of the Canadian airline industry. *Transportation Research. Part E, Logistics & Transportation Review* 29-42.

9 Appendix

Appendix1: European airline Merger and Acquisition Events (2000-2010)

N0	Date Announced	Bidder Name	Bidder Nation	Target Name	Target Nation	Value of Transaction (\$mil)	Attitude
1	03/25/2004	ALITALIA	Italy	Gandalf SPA	Italy	8.61	Friendly
2	08/18/2000	Austrian Airlines	Austria	Lauda Air Luftfahrt AG	Austria	-	Friendly
3	03/08/2001	British Airways PLC	United Kingdom	British Regional Airlines Grp	United Kingdom	113.30	Friendly
4	12/03/2008	Deutsche Lufthansa AG	Germany	Austrian Airlines AG	Austria	294.15	Friendly
5	04/25/2008	Deutsche Lufthansa AG	Germany	British Midland PLC	United Kingdom	78.47	Friendly
6	09/08/2005	Deutsche Lufthansa AG	Germany	Fraport AG	Germany	205.21	Friendly
7	03/06/2003	Deutsche Lufthansa AG	Germany	Air Dolomiti SpA	Italy	43.90	Friendly
8	09/30/2003	Groupe Air France SA	France	KLM	Netherlands	806.14	Friendly
9	06/19/2000	Groupe Air France SA	France	Brit Air SA	France	46.45	Friendly
10	01/19/2000	Groupe Air France SA	France	Regional Airlines SA(Dubreuil)	France	43.24	Friendly
11	05/21/2001	SAS AB	Sweden	Braathens ASA	Norway	96.16	Friendly
12	04/20/2001	SAS Sverige AB	Sweden	SAS Norge ASA	Norway	436.94	Friendly
13	04/20/2001	SAS Sverige AB	Sweden	SAS Danmark AS	Denmark	440.63	Friendly

Appendix2: DS code for the acquirer and target companies of European airline M&A

NO.	Date Announced	Acquiror Name	Target Name	Acquiror Datastream Code	Target Datastream Code
1	03/25/2004	ALITALIA	Gandalf SPA	998250	282174
2	08/18/2000	Austrian Airlines	Lauda Air Luftfahrt AG	772803	133434
3	03/08/2001	British Airways PLC	British Regional Airlines Grp	914447	681340
4	12/03/2008	Deutsche Lufthansa AG	Austrian Airlines AG	929114	772803
5	04/25/2008	Deutsche Lufthansa AG	British Midland PLC	929114	-
6	09/08/2005	Deutsche Lufthansa AG	Fraport AG	929114	13922L
7	03/06/2003	Deutsche Lufthansa AG	Air Dolomiti SpA	929114	259221
8	09/30/2003	Groupe Air France SA	KLM	929286	951948
9	06/19/2000	Groupe Air France SA	Brit Air SA	929286	879997
10	01/19/2000	Groupe Air France SA	Regional Airlines SA(Dubreuil)	929286	881826
11	05/21/2001	SAS AB	Braathens ASA	504794	309905
12	04/20/2001	SAS Sverige AB	SAS Norge ASA	-	997860
13	04/20/2001	SAS Sverige AB	SAS Danmark AS	-	929898

Appendix 3: summary of M&A studies cited from Jensen & Ruback (1983)

Table 3 Abnormal returns associated with mergers and tender offers; sample size and *t*-statistic^a are given in parenthesis.

Study	Sample period	Event period	Bidding Firms		Target Firms	
			Successful (%)	Unsuccessful (%)	Successful (%)	Unsuccessful (%)
<i>Panel A.</i>	<i>Tender offers:</i>	<i>Announcement effects</i>				
Dodd and Ruback (1977)	1958-1978	Offer announcement month	+2.83 (124, 2.16)	+0.58 (48, 1.19)	+20.58 (133, 25.81)	+18.96 (36, 12.41)
		The month of and month following offer announcement	+3.12 (124, 2.24)	-1.71 (48, -0.76)	+21.15 (133, 15.75)	+16.31 (36, 6.32)
Kummer and Hoffmeister (1978)	1956-1974	Offer announcement month	+5.20 (17, 1.96)	n.a.	+16.85 (50, 10.88)	+21.09 (38, 11.87)
Bradley ^b (1980)	1962-1977	Twenty days before through twenty days after the offer announcement	+4.36 (88, 2.67)	-2.96 (46, -1.31)	+32.18 (161, 26.68)	+47.26 (97, 30.42)
Jarrell and Bradley (1980)	1962-1977	Forty days before through twenty days after the offer announcement	+6.66 (88, 335)	n.a.	+ 34.06 ^c (147, 25.48)	n.a
Bradley, Desai and Kim (1983)	1963-1980	Ten days before through ten days after the offer announcement	n.a.	-0.27 (94, 0.24)	n.a.	+ 35.55 ^d (112, 36.61)
Bradley, Desai and Kim (1982)	1962-1980	Ten days before through ten days after the offer announcement	+ 2.35 (161, 3.02)	n.a.	+ 31.80 (162, 36.52)	n.a.
Ruback (1983a)	1962-1981	Five days before through the offer announcement	n.a.	-0.38 (48, -0.63)	n.a.	n.a.
Weighted average abnormal return ^{a, h}			+ 3.81 (478, n.a.)	-1.11 (236, n.a.)	+29.09 (653, n.a.)	+ 35.17 (283, n.a.)

Table 3 (continued)

Study	Sample period	Event period	Bidding Firms		Target Firms	
			Successful (%)	Unsuccessful (%)	Successful (%)	Unsuccessful (%)
<i>Panel B.1.</i>	<i>Mergers:</i>	<i>Two-day announcement effects</i>				
Dodd (1980)	1970-1977	The day before and the day of the offer announcement	-1.09 (60, -2.98)	-1.24 (66, -22.63)	+13.41 (71, 23.80)	+12.73 (80, 19.08)
Asquith (1983)	1962-1976	The day before and the day of the offer announcement	+0.20 (196, 0.78)	+0.50 (89, 1.92)	+6.20 (211, 23.07)	+7.00 (91, 12.83)
Eckbo (1983)	1963-1978	The day before through the day after the offer announcement	-0.07 ^f (102, -0.12)	+1.20 ^g (57, 2.98)	+6.24 ^f (57, 9.97)	+10.20 ^g (29, 15.22)
Weighted average abnormal return ^h			-0.05 (358, n.a.)	-0.15 (212, n.a.)	+7.72 (339, n.a.)	+9.76 (200, n.a.)
Study	Sample period	Event period	Bidding Firms		Target Firms	
			Successful (%)	Unsuccessful (%)	Successful (%)	Unsuccessful (%)
<i>Panel B.2.</i>	<i>Mergers:</i>	<i>One-month announcement effects</i>				
Dodd (1980)	1970-1977	Twenty days before through the first public announcement	+0.80 (60, 0.67)	+3.13 (66, 2.05)	+21.78 (71, 11.93)	+22.45 (80, 10.38)
Asquith (1983)	1962-1976	Nineteen days before through the first public announcement day	+0.20 (196, 0.25)	+1.20 (87, 1.49)	+13.30 (211, 15.65)	+11.70 (91, 6.71)
Eckbo (1983)	1963-1978	Twenty days before through ten days after the public announcement	+1.58, (102, 1.48)	+ 4.8-1, [#] (57, 3.43)	+ 14.08 [*] (57, 6.97)	+25.03 (29, 12.61)
Asquith, ⁱ Brumer, and Mullins (1983)	1963-1978	Twenty days before the announcement day through the announcement day	+ 3.48 (170, 5.30)	+0.70 (41, 0.41)	+ 20.5 (35, 9.54)	+10.0 (19, 3.45)
Malatesta (1983)	1969-1974	Public announcement month	+0.90 (256, 1.53)	n.a.	+16.8 (83, 17.57)	n.a.
Weighted average abnormal return ^h			+1.37 (784, n.a.)	+2.45 (251, n.a.)	+ 15.90 (457, n.a.)	+17.24 (219, n.a.)

Table 3 (continued)

Study	Sample period	Event period	Bidding Firms		Target Firms	
			Successful (%)	Unsuccessful (%)	Successful (%)	Unsuccessful (%)
<i>Panel B.3.</i>	<i>Mergers:</i>	<i>Total abnormal returns from offer announcement through outcome</i>				
Dodd (1980)	1970-1977	Ten days before offer announcement through ten days after outcome date	-7.22 (60, -2.50)	-5.50 (66, -2.05)	+33.96 (71, 7.66)	+ 3.68 (80, 0.96)
Asquith (1983)	1962-1976	The day before offer announcement through outcome date	-0.10 (196, -0.05)	-5.90 (89, -3.15)	+ 15.50 (211, 6.01)	-7.50 (91, -1.54)
Weir ^j (1983)	1962-1979	Ten days before offer announcement through ten days after cancellation date	n.a.	+3.99 (16, 0.89)	n.a.	-9.02 (17, -1.82)
Weighted average abnormal return ^h			-1.77 (256, n.a.)	-4.82 (171, n.a.)	+20.15 (282, n.a.)	-2.88 (188, n.a.)