

Strategic And Financial Impacts Of Microsoft's Acquisitions From The Gaming And Telecommunications Industries

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Abstract:

As one of the world's major enterprises, Microsoft has historically strengthened its market position by strategically leveraging acquisitions to navigate the changing market landscape. This article examines the impact of four major acquisitions in two industries, including gaming (Activision Blizzard, ZeniMax Media) and telecommunications (Nokia, Skype), on Microsoft's stock price. The work uses case study and event study analysis to investigate acquisition motivations, timelines, and stock market performance in the gaming and telecommunications industries, using market models of returns and buy-and-hold ratio analysis. Our findings indicate that acquisitions in the gaming industry yield more positive and consistent stock performance compared to those in the telecom sector. Specifically, Activision Blizzard's acquisition demonstrated strong long-term cumulative abnormal returns, while Nokia's acquisition immediately led to an adverse market reaction. Our study suggests that Microsoft should acquire better industries from these high-profile acquisitions to guide Microsoft's future growth. These acquisitions bring corresponding

developments to Microsoft's later development and provide enlightening suggestions for other companies and enterprises.

Keywords:

Microsoft acquisitions; Gaming industry; Telecommunications industry; Event study; Case study.

1. Introduction

1.1 Background and Significance of the Topic

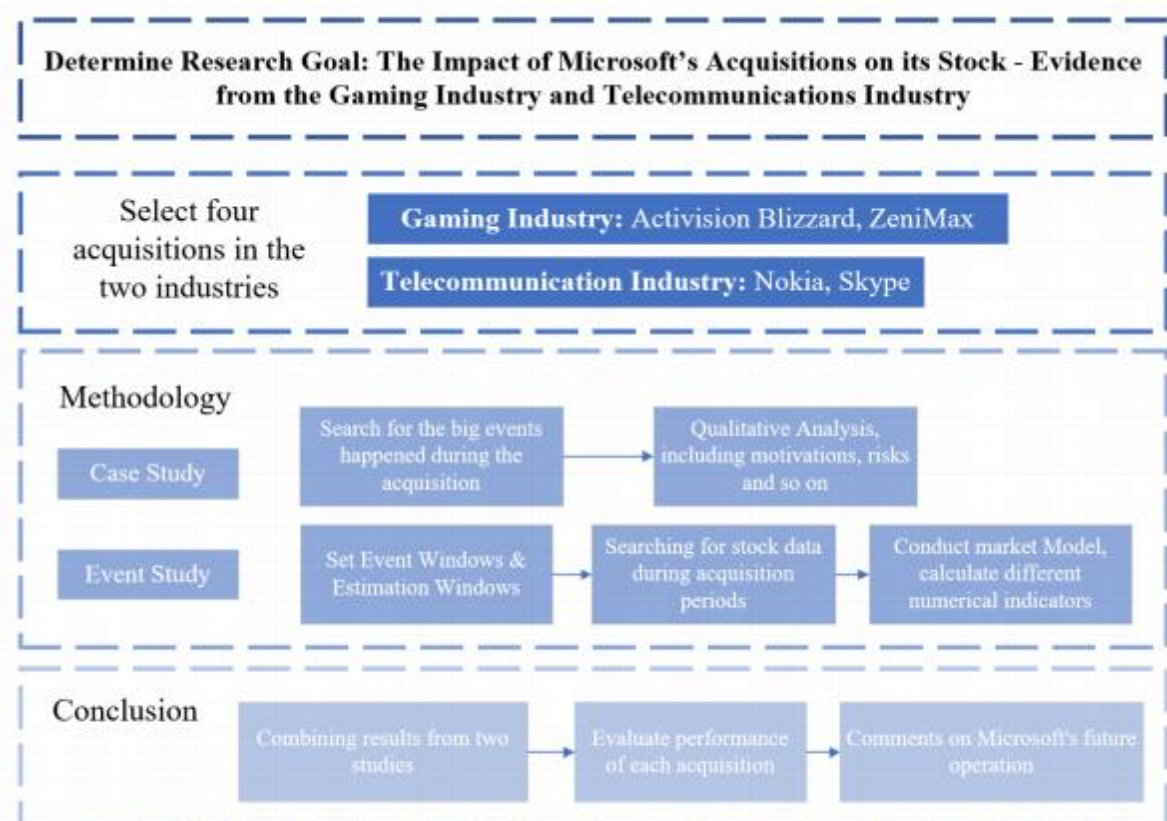
Founded in 1975, Microsoft Corporation is a leading global provider of software, services, devices, and solutions that help individuals and businesses realize the full potential of technology. At present, its business territory has extended to many areas of the technology industry. In addition to its core software business, Microsoft is involved in diversified businesses such as personal computing devices, cloud computing infrastructure and services, and artificial intelligence. Much of this expansion has been achieved through a series of capital acquisitions totaling tens of billions of dollars. In recent years, with the vigorous development of the technology market, mergers and acquisitions have shown different changes in terms of number and motivation. This article focuses on four critical cases of Microsoft's acquisitions in the gaming and mobile fields, aiming to examine the impact of corporate acquisitions on its stock price and the role of different market conditions on the success rate of acquisitions. The four are: Activision Blizzard (2023), ZeniMax Media (2020), Nokia (2013), and Skype Technologies (2011). Activision Blizzard and ZeniMax Media are leaders in the gaming industry, with the former being the world's largest third-party game developer and publisher and occupying a significant market share in games such as Call of Duty and Guitar Hero series. Nokia and Skype Technologies are the traditional giants in the field of mobile phones. Nokia has led the production of mobile communication equipment and related services for 14 consecutive years, focusing on communication infrastructure business and advanced technology research and development licensing. This paper selects two cases with greater impact and more typical results: Microsoft's acquisition of Activision Blizzard and Nokia. This research aims to conduct a detailed analysis of the acquisition background, acquisition motivation, and acquisition timeline from a diversified perspective. Based on the experimental results and data, we summarize the industry rules and related experiences with universality and objectivity.

1.2 Motivation

Numerous successful and failed acquisitions of Microsoft have offered scholars valuable research subjects. There are countless examples of in-depth analyses of individual cases, as well as traceable comparisons of similarities and differences among individual cases. Microsoft's large-scale acquisitions have been analysed to a greater or lesser extent by previous scholars, such as the positive anomalous returns of acquirers in efficient markets, or the destruction of value in banking consolidations. This relevant literature provides conflicting evidence on mergers and acquisitions outcomes. However, much of the literature does not systematically compare the performance of cross-industry acquisitions within a single firm's strategy. And our research fills this gap by analyzing Microsoft's acquisitions in structurally different areas – gaming (high-growth, content-driven) vs. telecom (hardware-centric, competitively saturated). This article provides a more systematic comparison of the differences between qualitative and quantitative indicators for acquisitions made in two different industries to provide more comprehensive advice to Microsoft.

1.3 Overview of Our Work

Figure 1: Overview of Our Work



2 Literature Review

2.1 Theoretical Analysis of Acquisition Motivation

In recent decades, with the acceleration of globalization, the development of information technology, and the change in industrial structure, global competition has increasingly intensified, which has made countries gradually relax their regulatory policies and create favorable conditions for enterprises' acquisitions.

Mitchell M.L. et al. (1996) studied the merger and acquisition cases in the American market in the 1980s, and the results showed that the merger and acquisition companies gained market monopoly power and excess profits through market acquisition. Therefore, they believe that monopoly advantage is the main driving force for multinational companies to invest overseas, but this way seriously undermines fair market competition (Mitchell & Mulherin, 1996).
Keith

D. Brothers et al. (1998) divided the motivations of M&A into three categories: economic motivation, personal motivation, and strategic motivation, and analyzed the M&A effect by constructing a new research method Difference, but the final merger effect will not be affected (Brothers et al., 1998).

2.2 Acquisition Performance Analysis

Event studies, financial index analyses, and case studies are usually used to evaluate the performance of acquisitions worldwide. Since relevant scholars involved different categories in selecting M&A objects and adopted different research methods, selecting appropriate performance evaluation methods in the research process is particularly important.

This paper uses event analysis to evaluate acquisition performance from various aspects. In a review of previous literature, Jensen and Ruback (1983) used the event analysis method to study the abnormal returns of shareholders (Jensen, 1983). W. Scott Frame et al. (1998) analyzed the excess returns of mergers and acquisitions of large bank holding companies in the United States from 1990 to 1993. They found that the acquirer obtained significantly negative excess returns within the event window, while the acquired company obtained statistically significant positive excess returns during the same period (Frame & Lastrapes, 1998).

3 Methodology

This paper takes four significant acquisition cases of Microsoft, namely, the motivation of Microsoft's acquisition of Activision Blizzard, ZeniMax, Nokia, and Skype, and its impact on Microsoft's stock price as the main research line, and adopts the analysis method combining theory with practice. It makes the research results more convincing and follows the general laws of economics. Based on the above principles, this paper mainly adopts the following two research methods for research.

3.1 Case Study

Microsoft's four major acquisitions transcend the traditional boundaries of software and cloud computing, spanning across diverse sectors including telecommunications, gaming, hardware, and other domains. This intricate process is fraught with professional knowledge hurdles, necessitates enterprise restructuring, and entails significant shifts in employee job positions, rendering it a complicated progress. As a globally preeminent software corporation, Microsoft's acquisition activities have garnered extensive coverage from numerous authoritative media outlets and have raised the research interests of a multitude of scholars. These existing studies have used varied methodologies and analyzed Microsoft's acquisitions cases from multiple theoretical vantage points. Consequently, it is significantly important to systematically extract and synthesize the valuable findings from the vast corpus of relevant literature.

The utilization of case studies in the analysis presents an engaging and incisive approach, endowing the content with enhanced appeal and mitigating potential monotony, thereby enhancing the diversity of the research methods employed in this paper. In an era where smartphones and digital services have become integral to our daily lives, this paper focuses on the dynamic technology market, selecting Microsoft's acquisitions of iconic research samples including Activision Blizzard, ZeniMax, Nokia, and Skype. By collecting relevant literature from multiple perspectives, including the theory of acquisition motivation, acquisitions timelines, transaction details, regulatory feedback, and the acquisitions performance evaluation method based on Microsoft's stock price, this study endeavors to establish a robust theoretical research framework and quantitative research methodology, and summarize recommendations for enterprises when implementing acquisition strategies.

3.2 Event Study

An event study is a measurable approach to assess a specific event's effect on a company's value. This method entails examining supply cost information to

establish the result of an event on a business's market price. By comparing the anticipated returns (based on historical data) with the actual returns observed during the event duration, researchers can recognize uncommon returns indicating the event's influence.

When assessing Microsoft's acquisition of businesses in the gaming industry (Activision Blizzard, ZeniMax) and telecommunications industry (Nokia, Skype), the event study method is specifically valuable for numerous factors. First, the event study provides an unbiased measure of the marketplace's response to Microsoft's purchase statements. This assists in quantifying the perceived value or risk related to each acquisition. Additionally, the effect of acquisitions in different industries can be compared using the event study method. This allows us to see the difference in how the market perceives Microsoft's acquisitions in the gaming industry versus the telecommunications industry. Using the market model for our event study assists in determining abnormal returns that happen because of the acquisition. For example, if the market views the acquisition of Activision Blizzard or ZeniMax as strategically beneficial, positive abnormal returns around the announcement date can be observed. We also assessed the market's reaction to the acquisition of Nokia and Skype. The modeling of the event study method consists of the following steps:

3.2.1 Setting Event Window and Estimation Window

The first step in our event study is to identify the announcement dates of Microsoft's acquisitions (in this case, four dates) and the completion dates of Microsoft's acquisitions (also four dates). These dates, referred to as event dates, mark the event dates in our event study.

In this essay, the event window is defined as the period around the event date during which we can assess the stock's performance. Our event window extends from 2 days before the announcement to 2 days after acquisition completion. Let t_0 be the announcement date and t_c be the completion date. Then, event windows are separated for the announcement ($[t_0 - 2, t_0 + 10]$), completion ($[t_c - 10, t_c + 2]$), and combining the announcement and completion dates in one event window ($[t_0 - 2, t_c + 2]$). These windows help to capture the market's reaction before, during, and after the announcement and completion dates.

To estimate the normal returns, an estimation window starting from 5 years before the acquisition announcement date is selected that precedes the event window and does not overlap with it. An estimation window of $[t_0 - 1250, t_0 - 10]$

days is then used for each company. The exact number of trading days within the estimation window may vary slightly due to differences in non-trading days throughout the 5-year period. This period models the stock's expected behavior in the event's absence. For a more specific analysis of the effect around the announcement day, the event window would be adjusted to be smaller, and there might be some differences between each case. The specific event window in each case will be stated.

3.2.2 Building the Market Model

In finance, the market model is commonly used to evaluate and recognize the relationship between a company's returns and general market conditions. The S&P 500 Index price is used as a measure of market performance for a particular day. The market model uses analytical strategies, such as linear regression, to predict how a company's stock reacts to changes in the market.

3.2.3 Calculation of Returns

The daily return for Microsoft's stock and the market is computed by the following formula:

$$R_{i,t} = \frac{P_i(t) - P_i(t-1)}{P_i(t-1)} \quad (1)$$

Where $R_i(t)$ is the return on stock i on day t , $P_i(t)$ is the price of stock i on day t , and $P_i(t-1)$ is the price on the previous day.

The coefficients α_i and β_i are approximated from the market model using least squares (LS) regression over the estimation window. The estimation procedure involves regressing the stock's returns on the marketplace index returns within the estimation window:

$$R_i(t) = \alpha_i + \beta_i R_m(t) + \varepsilon_i \quad (2)$$

Where $R_i(t)$ is the normal return of stock i at time t . α_i is the y-intercept that represents the return of stock i when $R_m(t)$ is zero (idiosyncratic return). β_i is the slope coefficient which indicates how sensitive the stock is to changes in the market index. A higher β_i corresponds to higher risk. $R_m(t)$ is the return of the market index (S&P500) at time t . ε_i is the error term not explained by market movements.

This regression provides the coefficients α_i and β_i , which may help us determine the normal returns of the stock over the estimation window. Normal returns are then used to calculate abnormal returns and σ_ε (standard deviation of all ε_i) over the estimation window. ε_i will be used later for significance tests for abnormal returns for the event window.

By comparing the stock's actual returns to the expected returns, researchers can identify abnormal returns, which are deviations attributed to the specific event being studied.

Abnormal returns are closely monitored on the event date to capture the immediate impact. However, the analysis often extends over multiple days to observe how the event's influence evolves. Over a longer event window, the cumulative abnormal returns can be used to measure the event's influence over time. Cumulative abnormal returns measure the long-term impact of an event or an event that continues for longer.

With the estimated parameters α_i and β_i , abnormal returns (AR) can be calculated during the event window. The abnormal return is the difference between the actual return and the expected return (as predicted by the market model):

$$AR_i(t) = R_i(t) - (\alpha_i + \beta_i R_m(t)) \quad (3)$$

$AR_i(t)$ is the abnormal return of stock i on day t . $R_i(t)$ is the observed return of stock i on day t , also known as the actual return. $\alpha_i + \beta_i R_m(t)$ is the expected return of stock i at time t , also known as the normal return that is estimated from parameters α_i and β_i that are found from the estimation window. By subtracting the normal returns from the actual returns, the abnormal return can be obtained.

To assess the overall impact of the event over the event window, the abnormal returns are aggregated to obtain the cumulative abnormal returns (CAR):

$$CAR_i(\tau) = \sum_{t=1}^{\tau} AR_i(t) \quad (4)$$

Where τ denotes the number of observations, which in our study is day 1, 2, ..., E in the event window.

The confidence interval for abnormal returns is

$$CI_{AR} = \pm 1.96 \times \sigma_{\varepsilon} \quad (5)$$

And the confidence interval for cumulative abnormal returns is

$$CI_{CAR} = \pm 1.96 \times \sqrt{\tau} \times \sigma_{\varepsilon} \quad (6)$$

The value ± 1.96 is derived from the standard normal (Z) distribution and is integral to hypothesis testing due to its association with the 95% confidence level. In a standard normal distribution, approximately 95% of data points lie within 1.96 standard deviations from the mean. This critical value is used in two-tailed tests to determine the significance of the results. Specifically, when testing abnormal returns, the null hypothesis will be rejected if the calculated test statistic exceeds 1.96 (or is less than -1.96). When the null hypothesis is rejected, this indicates that the abnormal returns are statistically significant and unlikely to be due to random chance, thus affirming the presence of a meaningful impact. The standard deviation σ_{ε} of abnormal returns, calculated during the estimation window, measures the typical variability of a stock's returns under normal conditions, without the influence of specific events. This metric provides a benchmark for assessing how much the actual returns deviate from expected returns during the event window. By understanding this variability, abnormal returns can be standardized, making it possible to test their significance rigorously. This standard deviation is essential in determining whether observed abnormal returns are due to the event in question or are within the normal fluctuation range.

By comparing the standardized abnormal returns to the critical value, we can determine if the abnormal returns are statistically significant, thus supporting or rejecting the hypothesis of abnormal performance due to the event. Abnormal returns are considered significant if the AR on a date in the event window exceeds the confidence level. The confidence interval for CAR is constantly getting larger, unlike the confidence interval for AR, which stays constant throughout because when abnormal returns are cumulated, the potential variability accumulates, adding uncertainty. If the CAR in the event window falls above the confidence level, this suggests that the event resulted in a significant long-term impact on the stock price.

3.2.4 Buy and Hold Ratio (B&H Ratio)

Despite the market models, the buy-and-hold ratio is used to further evaluate the performance of Microsoft's stock compared to the market. The Buy-and-Hold ratio is calculated in this equation:

$$\text{B\&H} = \frac{\prod_{t=1}^T (1 + R_i(t))}{\prod_{t=1}^T (1 + R_m(t))} \quad (7)$$

$R_i(t)$ is the return of stock i on day t . $R_m(t)$ is the return of the market index (S&P 500) on a day t . T is the total number of days in the event window.

The B&H Ratio tells us the relative performance of a stock compared to the market. It assesses whether holding the stock would have been more beneficial than simply investing in the market index. A B&H Ratio greater than one indicates outperformance, while a B&H Ratio less than one indicates underperformance.

4 Data

After setting up the event window and estimation window, Microsoft's stock price and a market index, such as the S&P 500, are used in our study. All daily stock prices are collected, specifically the close price, highest price, and lowest price daily, for Microsoft and the S&P 500 index from Yahoo Finance. These data points are essential for calculating returns and conducting the subsequent market model.

5 Case Study and Event Study of Microsoft's Acquisition of Activision Blizzard

5.1 Case Study

5.1.1 Acquisition Background and Analysis

With traffic blocked and residents' consumption patterns limited, "cloud consumption" is on the rise as a new model that eliminates time and space constraints. The emerging game industry is experiencing a golden age of development due to the influence of the internet consumption environment and continuous technological progress. Activision Blizzard, founded in 2008, is an American video game company developing rapidly and competing with Sony, Tencent, and other companies in the market. The company has many popular games worldwide, including the Call of Duty and Star Wars series. Additionally, Activision Blizzard has diversified to include various ESPORTS programs. As an American multinational corporation and technology company, Microsoft has

previously benefited from the industry and has recognized the significance and potential for further development within the game industry. Microsoft's recent acquisition of Activision Blizzard, one of the world's largest video game publishers known for its strong profitability and innovative popular games, marks the largest deal in Microsoft's acquisition history. Since the first regulatory document was released in Brazil on August 1, 2022, Microsoft's regulatory process began. The Federal Trade Commission, as one of the major regulators, oversees this process. Due to the significant impact of the acquisition on monopoly issues as a large-scale horizontal acquisition, the FTC reviewed Microsoft instead of the traditional review conducted by the U.S. Department of Justice. However, several senators, including Elizabeth Warren and Bernie Sanders, have expressed concerns about the merger, arguing that the two companies "failed to protect the rights and dignity of workers" and that "the deal may enhance monopoly power and worsen the negotiating position between workers and the parties," and therefore, they should oppose the merger (Carpenter, 2022). The FTC formally intended to block the proposed acquisition on December 8, 2022. Additionally, the European Commission believes that the deal will harm the rights and interests of consumers. The EC filed a formal complaint about the acquisition on February 3, 2023, expressing concerns that Microsoft may be "encouraged to block access to Activision's popular Call of Duty series, which could lead to less competition in the console and PC video game distribution market, resulting in higher prices, lower quality, less innovation for console game publishers, and potentially higher costs for consumers (Harrington, 2023)."

5.1.2 Details of the Acquisition Agreement

The deal to acquire Activision Blizzard by Microsoft, one of the most significant acquisitions in the world, took approximately one year and ten months to complete and was filled with both successes and setbacks. On January 18, 2022, Microsoft announced its intention to acquire Activision Blizzard for \$68.7 billion. As a result, Activision Blizzard's shares surged by nearly 40% in pre-market trading. This acquisition enhanced Microsoft's position in the gaming industry, propelling it to become the third-largest gaming company globally and the largest in the Americas, trailing only behind Chinese company Tencent and Japanese conglomerate Sony (The Economist, 2022). Furthermore, it stands as the most expensive video game-related acquisition to date.

On January 18, 2022, Microsoft announced its acquisition of Activision Blizzard for \$68.7 billion. The acquisition was completed on October 13, 2023, with a

total cost of \$75.4 billion, including other fees (Microsoft Corp., 2024). Under the terms of the agreement, Microsoft incorporated Activision Blizzard into its Microsoft Gaming business alongside Xbox Game Studios and ZeniMax Media. As a result, Microsoft gained ownership of several franchises, including Call of Duty, Wolf, and Sparrow, previously owned by Activision, Blizzard Entertainment, and King. The deal also allows Microsoft to offer Activision Blizzard games on its Xbox Game Pass service. Microsoft has also brought back some older Activision Blizzard franchises, such as The King's Mission, Guitar Hero, and Haxon: Beyond Pagans.

After acquiring Activision, Microsoft has chosen Goldman Sachs as its financial adviser, while Allen & company will advise Activision. Simpson Thacher will provide legal counsel for Microsoft, and Skadden will do the same for Activision. Following the 2023 international government regulatory review, Activision Blizzard will become part of Xbox Game Studios and be overseen by Phil Spencer's new Microsoft games division. Additionally, Johanna Faries, the general manager of the Call of Duty series, has been appointed as Blizzard's new president, effective February 5, 2024. It's important to note that in November 2021, allegations of sexual harassment, employment discrimination, and retaliation were made against Activision's CEO, Bobby Kotick. Despite this, Microsoft's board of directors has decided to retain Mr. Kotick as Activision's CEO until the acquisition is finalized.

5.1.3 Motivation Analysis

As one of the emerging industries, the gaming industry helped Microsoft provide to a comprehensive market influence. The industry plays a huge role in all parts of the United States, accounting for 3/5 of the total number of people playing games in the U.S., and the profit is up to 101 billion dollars. At present, the game industry has a strong development prospect and attract large amount of companies to enter this vast market, leading to more fierce competition. However, the acquisition of Activision Blizzard can well break the current deadlock. Microsoft has acquired several game studios, including Double Fine Productions, Obsidian Entertainment, and inXile Entertainment. As early as 2018, Activision Blizzard ranked fifth with 5.0% of its shares in the game market. Therefore, after this acquisition, Microsoft can use Activision Blizzard to expand the game industry, thus forming a synergistic effect which means this interaction are giving rise to a whole greater than the simple sum of its parts. As a result, Microsoft can improve resource utilization efficiency, reduce management, research, and development costs, and improve profitability.

Regarding human resources, Microsoft laid off 1,900 employees at Activision Blizzard and Xbox after the acquisition. This not only vastly reduces operating costs, but also dramatically improves work efficiency. Moreover, among its assets are ownership of Call of Duty, Crash Bandicoot, and so on from Blizzard Entertainment; and Candy Crush Saga from King (Byrd, 2023). Blizzard and its affiliates have more than 1100 patent applications in 126 countries worldwide, mainly focused on video games, interaction, and other related technical fields (Chen, 2023). If Microsoft can fully use the resources provided by Activision Blizzard, it can reduce R&D (Research and Development) and improvement costs and maximize efficiency. Activision Blizzard, one of the world's largest game companies, provides Microsoft with more mature gaming channels and paths that can also help Microsoft achieve better results. Exploring emerging markets will help Microsoft improve its visibility and influence.

Additionally, Microsoft can compensate for its mobile game disadvantage through Activision Blizzard and create a new industry of "mobile games". Microsoft can increase its competitiveness and market share. At that time, Microsoft's primary industry was still focused on traditional console and PC games, which gradually lost their edge in the market to the new mobile games, which are popular for their simplicity. Mobile games are becoming increasingly popular because of their accessibility and convenience. Due to the erosion of consumers' preferences by the internet, consumers are more inclined to games not limited by time and space, such as mobile games, which has led to a promising trend in the game industry in recent years. In 2022, mobile remained the most significant gaming segment worldwide with approximately 103.5 billion U.S. dollars in annual revenue. However, the revenue from mobile is still ranked last for Microsoft. Thus, Activision Blizzard's remarkable mobile game achievements can help Microsoft compensate for this deficiency. For example, Activision Blizzard's King game studio released a free tile-matching game, Candy Crush Saga, on April 12, 2012. Five years after its release on mobile, the series has been downloaded more than 2.7 billion times. The game has also become one of the mobile apps with the highest revenue and the most significant number of broadcasts during this period. As of September 2023, its lifetime income had exceeded \$20 billion (Rousseau, 2023). Additionally, acquiring Activision Blizzard will significantly increase Microsoft's market share in the game industry and its competitiveness with Sony and Nintendo. The three major game companies in the world, Microsoft, Sony, and Nintendo, occupy more than 90% of the world's market share and become the leading three giants of the competition. In 2023, Sony remains the worldwide industry leader,

followed by Nintendo with a 27.7% market share and Microsoft with a 27.3% market share. This acquisition of Blizzard provides Microsoft with hundreds of millions of daily active users and many valuable patents, which can effectively help Microsoft win the favor of consumers, stabilize its sales share, and eliminate the risk of withdrawing from the market.

At the time of the COVID-19 epidemic, the United States was greatly affected. By mid-October, a third surge of cases began; there were over 200,000 new daily cases in December 2020 and January 2021 (Barone, 2020). High infection rates and mortality have led to a labor shortage in the United States, negatively affecting the economy. To solve this problem, the U.S. government has adopted an expansionary monetary policy to stimulate economic development in the short term. But at the same time, inflation and other problems follow, and the United States dollar now faces the risk of devaluation. In November 2023, the median respondent perceived inflation to have been 6.4 percent over the past year, well above the 3.1 percent change in the headline CPI over the twelve months ending in November. In this context, unfortunately, Microsoft has up to \$130 billion in cash at this time, which will run the risk of depreciation and misuse it to make the most of it. However, Microsoft can solve this problem with this large-scale acquisition.

5.1.4 Risks Analysis

After the merger and acquisition, the two companies may not be able to achieve the desired acquisition effect due to a variety of reasons, resulting in management risks. In a statement posted on Activision Blizzard's investor website in July 2021, it accused Activision Blizzard of sexual harassment, employment discrimination, and retaliation. In November 2021, Activision Blizzard CEO Bobby Kotick was again accused of sexual harassment and other bad behavior. At the same time, the lawsuit had a significant impact on Activision Blizzard, causing not only a 7% fall in its stock price, but also seriously damaging its brand image. As a result, Activision Blizzard, which has exposed various scandals, may have defects in its management system, and the cooperation between the two companies will cause greater problems after the acquisition. It will not be able to play the most significant role of synergy.

Microsoft and Activision Blizzard belong to the same industry and production chain, so the acquisition is horizontal. This type of acquisition has received key antitrust investigations in the United States. Several regulators, such as the Federal Trade Commission and the European Commission, have regulated Microsoft during the acquisition process. In addition, the possible monopoly

may have negative impacts on consumers. During the acquisition process, Activision Blizzard's user privacy may be exposed. Therefore, this undoubtedly made the acquisition process lengthier and increased the acquisition cost. Moreover, during Microsoft's protracted acquisition process, its competitors Tencent and Sony have also issued acquisition announcements one after another, which is undoubtedly reducing the extent to which this acquisition increases Microsoft's competitiveness.

Another consideration is the financial risk encountered by Microsoft. As Microsoft spent a huge \$68.7 billion to buy Activision Blizzard, even though it has 130 billion of idle capital. Still, it spent as much as \$50 billion a year on operating costs. No matter how much money Microsoft has, it will likely decrease as payment increases. Spending a lot of cash quickly may lead to a shortage of idle funds to cope with the risk of market changes. Microsoft closed the acquisition for \$68.7 billion, or about \$95 a share, and such a huge cost may be overvalued for the company. Activision Blizzard's average stock price was only about \$80 in 2021 and 2022, and Blizzard's share price was still low at the time of the announcement. Therefore, Microsoft's high pricing in this acquisition undoubtedly increases the cost and reduces the revenue.

5.1.5 Conclusion of Case Study of Microsoft's Acquisition of Activision Blizzard

In the science and technology environment, keeping pace with the times, many emerging industries burst into the market and attracted more companies. In the analysis of Microsoft's acquisition of Activision Blizzard, it can be concluded that Microsoft has reasonable strategic planning and goals to expand its scale in the game industry. The problems Microsoft faces in this acquisition will also bring experience to other companies. Firstly, companies should set clear development goals and not blindly follow suit to buy or join emerging markets. Although emerging markets have great potential and a large user base, and because of the participation of many companies, the competition is becoming increasingly fierce. If there is no blessing of high-quality products and excellent financial strategies, it maybe counterproductive. In addition, Microsoft's acquisition process is extremely lengthy and demanding. The sheer size of the acquisition and the insufficient allegations against Activision's former CEO added to Microsoft's regulatory efforts in the acquisition process. This undoubtedly warns other companies to pay more attention to laws and regulations, raise legal risk awareness, and reduce costs as much as possible. Overall, Microsoft's unprecedented acquisition of Activision Blizzard

appears to be a relatively successful deal and provides advice to other companies.

5.2 Event Study of Microsoft's Acquisition of Activision Blizzard

5.2.1 Summary Statistics and Coefficients

Table 1: Descriptive Statistics of Variables

Window Type	Variable Name	Count	Mean	Sample Variance	Minimum	Maximum
Estimation	Market Returns	1186	0.000661148	0.000185	-0.11994	0.09346
Estimation	Microsoft Returns	1186	0.00147513	0.000356	-0.14739	0.142169
Event	Abnormal Returns	232	0.0002162	0.000148	-0.0541	0.07631

Table 1 provides the summary statistics for the key variables used in the analysis. These metrics offer a concise overview of the data characteristics and variability, helping the reader understand the underlying dataset before proceeding to the event study analysis.

Table 2: Regression Results for Market Model

Regression Statistics	
Multiple R	0.842423
R Square	0.709677
Adjusted R Square	0.709387
Standard Error	0.01017
Observations	1185

	df	SS	MS	F	Significance F
Regression	1	0.25284	0.25284	2444.438	8.3E-271
Residual	1184	0.103435	0.000103	-	-
Total	1185	0.356274	-	-	-

	Coefficients	Standard error	t Stat	P-value
α	0.000703	0.000322	2.186894	0.028981
β	1.167169	0.023607	49.44126	8.3E-271

Table 2 summarizes the regression results used to estimate the market model for abnormal returns. The coefficients (α and β) were used to calculate the expected returns during the estimation window, and the regression

demonstrates a strong fit, with an R-squared value of 0.710 and an F-statistic of 2444.

5.2.2 Abnormal Returns Analysis

Figure 2: Abnormal Return for Microsoft's Acquisition of Activision Blizzard



Figure 2 illustrates a graph of abnormal returns for Microsoft's Acquisition of Activision Blizzard over the event window, which is from 1 day before the date of announcement of the acquisition to 2 days after the date of acquisition completion. The X-axis represents the event dates, while the red horizontal lines represent the 95% confidence interval, identifying statistically significant returns. As shown, there are several significant points on the graph. As highlighted on the graph, there are several significant abnormal returns.

Surprisingly, on the date the acquisition was announced, there were no signs of high or low abnormal returns. This means that investors initially did not feel the acquisition was significant.

Point 1 (April 27, 2022, High AR): There were significantly positive abnormal returns (AR). On April 27, 2022, Microsoft released its quarterly earnings report for the third fiscal quarter of 2022 (Q3 FY22), revealing strong financial performance with an 18% year-over-year increase in total revenue, reaching \$49.4 billion, and an 8% rise in net income to \$16.7 billion. The growth was driven by the success of key business segments, including a 26% revenue increase in the Intelligent Cloud division, with Azure growing by 46%, and a 17% rise in the Productivity and Business Processes segment, which includes Office 365 and LinkedIn. The report exceeded market expectations, leading to a positive market reaction, increased investor confidence, and a significant rise in Microsoft's stock returns on the announcement day. The significant increase can be attributed to the company's strong quarterly earnings report, which

exceeded market expectations with robust revenue and profit growth across key business segments like cloud computing (Azure) and productivity software. With a favorable outlook and potential analyst upgrades, the positive earnings surprise boosted investor confidence, driving up the stock price and resulting in significantly positive abnormal returns on that day.

Point 2 (October 26, 2022, Low AR): There were significantly negative abnormal returns (AR). On October 25, 2022, Microsoft released its first-quarter earnings for fiscal year 2023 (Q1 FY23) on October 25, 2022. However, this report revealed slower growth in key segments and a cautious outlook. While Microsoft reported revenue growth, it was slower than expected in critical areas like cloud computing (Azure). Azure's revenue growth decelerated to 35%, down from previous quarters, which raised concerns about the sustainability of growth in one of Microsoft's most important business segments. The slower-than-expected growth in key business areas and a weaker outlook led to investor concerns about Microsoft's future profitability. This resulted in a decline in Microsoft's abnormal returns on October 26, 2022, as investors reacted to the less favorable earnings report and guidance.

Point 3 (January 4, 2023, Low AR): There were significantly negative abnormal returns (AR). On January 4, 2023, discussions between the Federal Trade Commission (FTC) and Microsoft reached an impasse, with the FTC asserting that no meaningful negotiations had occurred to settle the lawsuit out of court. The core of the lawsuit revolves around Microsoft's proposed acquisition of Activision Blizzard, valued at \$68.7 billion. The FTC worries that the merger could lead to Microsoft gaining an unfair advantage in the gaming market, potentially harming competitors and consumers by limiting access to Activision's popular game titles. The FTC's concerns about the merger can lead to increased regulatory risk, changes in competitive dynamics, and adverse consumer reactions. These factors contribute to higher uncertainty and lower expectations of future benefits, causing a fall in abnormal returns for Microsoft's stock on January 4, 2023.

Point 4 (April 27, 2023, High AR): There were significantly positive abnormal returns (AR). On April 27, 2023, Microsoft released its third-quarter earnings report for fiscal year 2023 (Q3 FY23). Microsoft reported a revenue of \$52.9 billion, a 7% increase from the previous year, with its cloud revenue growing by 23% year-over-year to reach \$35.1 billion. Azure was a key driver, with its growth reflecting the company's strategic emphasis on cloud computing and AI technologies. Additionally, Microsoft's ongoing partnership with OpenAI was a

focal point for investors, with AI being seen as a significant growth area for the company. These results led to a rise in investor confidence, pushing Microsoft's stock up by approximately 5% in after-hours trading. The strong earnings report indicated that Microsoft effectively capitalized on the increasing demand for cloud and AI services, leading to improved profitability and positive future outlooks. Consequently, these factors contributed to an increase in abnormal returns on April 27, 2023, as the market reacted positively to the company's performance.

Surrounding the acquisition date (October 13, 2023), fluctuations in abnormal returns were insignificant.

5.2.3 Cumulative Abnormal Returns Analysis

Figure 3: Cumulative Abnormal Returns for Microsoft's Acquisition of Activision Blizzard

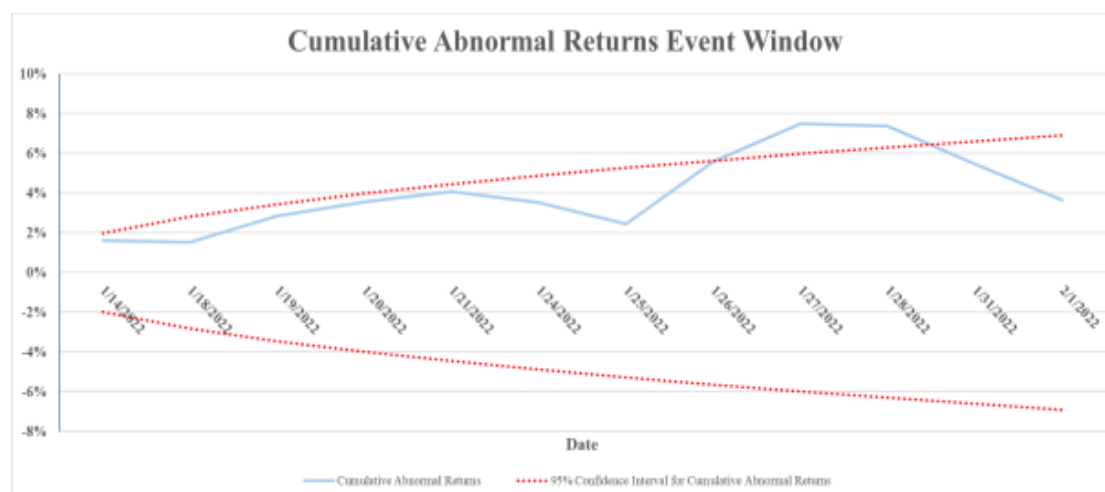


Figure 3 illustrates a graph of cumulative abnormal returns for Microsoft's Acquisition of Activision Blizzard over the small event window, from 1 day before the announcement date to 10 days after. Though the CAR had not shown a significant increase on the announcement date, it gradually increased after the acquisition was announced, which indicates a cumulative favorable impact. Thus, the acquisition of Activision Blizzard has brought long-term positive effects to Microsoft, supporting the notion that the acquisition was beneficial.

5.2.4 Conclusion of Microsoft's Acquisition of Activision Blizzard

In conclusion, the acquisition of Activision Blizzard has had a significant and largely positive impact on Microsoft. The event study highlights how the marketplace responded positively to this tactical relocation, as confirmed by periods of considerable abnormal returns following solid income records that stressed Microsoft's growth in vital locations like cloud computing and AI. These

positive market reactions recommend that financiers saw the procurement as a reinforcing action in Microsoft's wider strategy, particularly in increasing its visibility in the pc gaming sector and leveraging harmonies with its existing service sectors. The cumulative abnormal returns (CAR) evaluation shows that, despite some first volatility, the market eventually identified the lasting value of the purchase. The steady rise in CAR post-announcement reflects a continual positive effect, as investors started to see the benefits of the bargain emerge in time. This outperformance demonstrates that the purchase strengthened Microsoft's position in the PC gaming sector and increased its market value, reinforcing investor confidence in the business's future development prospects. Overall, the procurement of Activision Blizzard has brought substantial advantages to Microsoft, enhancing its market positioning, driving long-lasting shareholder value, and strengthening its management in essential development areas.

6 Case Study and Event Study of Microsoft's Acquisition of ZeniMax Media

6.1 Case Study

6.1.1 Background and Acquisition Process

On September 21, 2020, Microsoft announced the acquisition of gaming company ZeniMax Media for \$7.5 billion in cash. On March 9, 2021, the transaction closed for \$8.1 billion. ZeniMax's board of directors was dissolved. This horizontal merger greatly expands Microsoft's gaming business. This type of merger typically aims to increase market share, reduce competition, and improve operational efficiency. Microsoft's gaming strategy has long evolved from a hardware-centric model to a more comprehensive strategic ecological construction model. Xbox Game Pass is often compared to "Netflix" games because it greatly expands Microsoft's reach and interaction with players. The acquisition of ZeniMax allows Microsoft to enhance its content offering and appeal to a broader audience.

Before the acquisition was completed, Zenimax sought a preliminary injunction in a class-action lawsuit against Fallout 4 to block the acquisition. The plaintiffs argued that Microsoft could protect ZeniMax's assets from damage if it assumed liability after the acquisition. In February 2021, Microsoft created a subsidiary called Vault, which was later merged with ZeniMax Media. The move integrates ZeniMax's various studios and technologies into Microsoft's gaming ecosystem. It also simplifies business processes and facilitates Zenimax's

growth. On March 5, 2021, Microsoft's acquisition of ZeniMax Media became effective. The U.S. Securities and Exchange Commission and the European Commission approved the acquisition.

6.1.2 Post-Acquisition Developments

ZeniMax Media acquired Hungarian studio Nemesys Games in 2022 and renamed it ZeniMax Online Studios Hungary. This shows that the company continues expanding and developing its investment in game development capabilities. This expansion contributes to the growth of Microsoft's gaming division, facilitates the creation of new IP, and enhances its global reach. In January 2023, 300 QA testers at ZeniMax Studios voted to form ZeniMax Workers United-CWA. This follows the formation of a union of QA testers at Activision Blizzard, which Microsoft acquired. Microsoft's subsequent signing of a labor-neutrality agreement in 2024, agreeing not to interfere with unionization efforts across all ZeniMax Media subsidiaries, underscores the company's commitment to fostering a positive and inclusive workplace environment. In May 2024, Microsoft announced the imminent closure of ZeniMax Studios, Arkane Austin, Alpha Dog Games, Tango Game Works, and Roundhouse's absorption into ZeniMax Online Studios. These moves reflect Microsoft's ongoing efforts to streamline its gaming business while optimizing operations and resource allocation.

6.1.3 Motivation Analysis

Zenimax Studios has a long-standing relationship with Microsoft. The two companies have enjoyed a seamless partnership over the years. This acquisition is based on mutual trust and a shared vision for the future of gaming. As Xbox head Phil Spencer wrote, "Just as they took the bold first steps to bring The Elder Scrolls franchise to the original Xbox, Bethesda (a subsidiary of ZeniMax Media) was an early supporter of Xbox Game Pass, bringing their games to new audiences across devices, and has been actively investing in new gaming technology like cloud streaming of games. " Zenimax's early enthusiastic support for Xbox Game Pass is a strong example of this connection. The subscription service, which gives gamers access to many games at an affordable price, is a cornerstone of Microsoft's strategy to expand its reach and engage gamers to the next level. Bethesda's early involvement enhances Game Pass's appeal and demonstrates the company's confidence in the Microsoft platform and its ability to deliver value to developers and consumers.

Besides, ZeniMax Media's success in the gaming industry is undeniable. ZeniMax Media had a total revenue of \$1.5 billion in 2019, an average monthly

active user base of more than 30 million, and a portfolio of critically acclaimed games. The acquisition gives Microsoft access to a large and active user base, further solidifying its position in the gaming market. By acquiring ZeniMax Media, Microsoft will have direct access to beloved games such as The Elder Scrolls, Fallout, Doom, and Wolfenstein. These IPs have enormous cultural significance, attracting millions of players worldwide and ensuring a steady stream of high-quality game content for years to come. The acquisition thus solidifies Microsoft's leading position in the gaming industry and strengthens its ability to compete globally with rivals such as SONY and Nintendo.

Although the epidemic has brought challenges to people, it has also accelerated the development of the game industry. As people spend more and more time at home, the demand for video games has soared because of the lack of outdoor recreation. In July 2020, the NPD Group reported that the total U.S. sales of video game hardware and software in the first six months of the year reached \$6.6 billion, the highest amount since 2010. This favorable environment prompted Microsoft to acquire ZeniMax Media.

6.1.4 Conclusion of Case Study of Microsoft's Acquisition of ZeniMax

The acquisition of ZeniMax adds a portfolio of critically acclaimed gaming franchises to Microsoft's portfolio and attracts new subscribers to its Game Pass service. The deal strengthens Microsoft's gaming ecosystem, which includes the Xbox console, xCloud game streaming, and Game Pass. This allows the company to reach a wider group of players worldwide. The initial market reaction to the Microsoft acquisition news was generally positive, reflecting investors'

confidence in the potential growth opportunities presented by the deal. From a financial perspective, the \$7.5 billion purchase price is a significant investment for Microsoft. Of course, the potential return on this investment is equally compelling. Regarding short-term stock market reactions, it is reasonable to expect some volatility following the acquisition announcement. However, given Microsoft's strong financial position, established track record of successful acquisitions, and the strategic fit of ZeniMax Media within its gaming portfolio, the overall impact on its stock is likely to be positive over the medium to long term.

6.2 Event Study

6.2.1 Summary Statistics and Coefficients

Table 3: Descriptive Statistics of Variables

Window Type	Variable Name	Count	Mean	Sample Variance	Minimum	Maximum
Estimation	Market Returns	1233	0.000647	0.000164	-0.11994	0.09346
Estimation	Microsoft Returns	1233	0.001559	0.000317	-0.14739	0.142169
Event	Abnormal Returns	120	-0.00141	0.000132	-0.03599	0.031325

Table 4: Regression Results for Market Model

Regression Statistics	
Multiple R	0.844015
R Square	0.712362
Adjusted R Square	0.712073
Standard Error	0.009548
Observations	1232

	df	SS	MS	F	Significance F
Regression	1	0.224629	0.224629	2464.21	1.8E-271
Residual	1231	0.090701	9.12E-05	-	-
Total	1232	0.315329	-	-	-

	Coefficients	Standard error	t Stat	P-value
α	0.0008	0.000303	2.643439	0.008336
β	1.172817	0.023626	49.64081	1.8E-271

The regression demonstrates a strong fit, with an R-squared value of 0.712 and an F-statistic of 2464.

6.2.2 Abnormal Returns Analysis

Figure 4: Abnormal Return for Microsoft's Acquisition of ZeniMax



Figure 4 illustrates a graph of abnormal returns for Microsoft’s acquisition of ZeniMax over the event window, which is from 2 days before the announcement date to 2 days after acquisition completion. As highlighted on the graph, there are several significant points.

Point 1 (September 21, 2020): There were significantly positive abnormal returns (AR). On September 21, 2020, Microsoft announced it would acquire ZeniMax. On the announcement day, Microsoft’s stock saw a positive abnormal return, as the market recognized the strategic value of acquiring ZeniMax. By bringing popular gaming franchises like The Elder Scrolls, Fallout, and Doom under the Xbox brand, Microsoft was positioned to enhance its competitive edge in the gaming industry, particularly against rivals like Sony. The market’s favorable reaction to the ZeniMax acquisition is reflected in the positive abnormal returns observed immediately after the announcement and the sustained investor confidence in Microsoft’s gaming strategy. This event further reinforced Microsoft’s position as a leading gaming industry player, contributing to its stock’s long-term appreciation.

Point 2 (November 9, 2020): Abnormal returns (AR) were significantly negative. On November 9, 2020, the announcement of Pfizer and BioNTech’s successful COVID-19 vaccine development had a significant impact on global financial markets, including the technology sector. While the news was broadly positive for the market, it led to a notable shift in investor sentiment away from technology stocks, including Microsoft, which decreased their abnormal returns.

Point 3 (January 27, 2021): Significantly positive abnormal returns (AR). On January 26, 2021, Microsoft reported its Q2 FY21 earnings. The report covered

the period from October 1, 2020, to December 31, 2020, and highlighted continued strong performance across its cloud computing and productivity segments. The report generally had a positive effect on Microsoft's stock price. Microsoft's earnings exceeded analyst expectations, driven by strong performance in key areas like cloud computing (Azure) and productivity tools (Office 365). This outperformance increased investor confidence and Microsoft's stock price, significantly increasing abnormal returns.

Surrounding the date of acquisition (March 9, 2021), fluctuations in abnormal returns were insignificant.

6.2.3 Conclusion of Microsoft's Acquisition of ZeniMax

In conclusion, the acquisition of Activision Blizzard has positively impacted Microsoft, reinforcing its strategic position in the gaming industry and contributing to long-term shareholder value. The market's favorable reaction to Microsoft's earlier acquisition of ZeniMax on September 21, 2020, highlighted investor confidence in its gaming expansion. Although broader market events, like the November 9, 2020, COVID-19 vaccine announcement, caused temporary dips in abnormal returns, Microsoft's strong Q2 FY21 earnings report on January 26, 2021, reaffirmed investor confidence in the company's growth trajectory. The acquisition strategically bolstered Microsoft's gaming portfolio and supported sustained positive market performance. Overall, the acquisition of ZeniMax was a good choice for Microsoft, but not to a very significant degree.

7 Case Study and Event Study of Microsoft's Acquisition of Nokia

7.1 Case Study

7.1.1 Acquisition Background and Processes

The continuous demand for innovation in the technology sector is the main driver of the company's success. Microsoft is one of the biggest companies in the industry, lagging its rivals (such as Apple and Samsung) and unable to benefit from new market trends such as mobile and cloud computing. The need to innovate, combined with the financial turmoil, prompted Microsoft to respond by seizing the opportunity to acquire Nokia's handset division (Teixeira & Pereira, 2015). Microsoft has had a close relationship with Nokia since 2011, and although both companies have spent billions of dollars on marketing their phones to build their brands and attract app developers, the poor performance of Windows phones has left both partners worried. In fact, part of the reason Windows Phone has been slow to take off is because Microsoft and Nokia have been building their own brands of phones, and their teams of engineers have

been working in duplicate in certain areas, with little synergy. As a result, Windows Phone's market share is still in the single digits. This has left Microsoft gradually marginalized in the competition in the mobile market and always playing the role of catch-up to Google's Android and Apple's iOS. More seriously, without good sales results, Nokia's future as an independent business will be questioned by investors. In late January 2013, the two sides discussed the future of Windows Phone and decided to meet at the Mobile World Congress in Barcelona. At this meeting, the two teams evaluated the relationship and discussed various adjustments to the existing cooperation for further development. That meeting laid the groundwork for subsequent acquisitions by Microsoft and Nokia that have unfolded ever since.

On April 22, 2013, the parties met for the first time with Nokia's outside counsel in New York. The negotiations included Nokia Chairman Siilasmaa, CEO Stephen Elop, internal chief legal officer Luis Pentland, and Chief Financial Officer (CFO) Timo Ihamodiola. Microsoft was joined at the talks by CEO Ballmer, Windows Phone chief Terry Myerson, then-CFO Peter Klein, and Microsoft general counsel Brad Smith. At the meeting, Microsoft made clear its intention to acquire Nokia, but the two sides' valuation of Nokia's mobile phone business was very different, which led to a deadlock in the negotiations. After the initial talks, the two sides reviewed the negotiations over the phone, and Microsoft team found that the valuation model and data were biased, and the true value of the mobile division was more acceptable, so the two sides planned to continue discussing the acquisition at the next meeting that was scheduled to be held in Microsoft's external legal counsel company in London on May 24.

The meeting went more smoothly than previous ones, with a tentative agreement on some issues but some sticking points, including Nokia's mapping business, which the company sees as key to its survival as a company after it sold off its cellphone business. Microsoft was equally adamant that mastering location technology is necessary to get a head start and gain a competitive edge in the future mobile Internet. On July 20, 2013, with the negotiation going on, the two sides realized that maps could achieve win-win results through the sharing of software code as software codes. In this way, Nokia would retain the mapping technology patents, and Microsoft would receive a license of usage by paying fee. This means that Microsoft can not only use Nokia's map data, but also use it to expand into the mobile market. With the difficulty of negotiation overcome, the subsequent negotiation process of both parties

became much easier and simpler, and the specific negotiation content of both parties was implemented into specific transaction terms within a week.

7.1.2 Details of the Acquisition Agreement

The deal was reached after eight months of negotiations. On the morning of September 3, 2013, Microsoft announced that it would acquire Nokia's mobile phone business and license an extensive patent portfolio for \$7.2 billion. Subsequently, the Nokia transaction received judicial approval from the United States, the European Union, China, and many other countries and was completed on April 25, 2014.

Of the \$7.2 billion, \$5 billion would go to Nokia's devices business, and the remaining \$2.18 billion would go to Nokia's patent portfolio. Nokia's patent portfolio included about 8,500 design patents and 30,000 utility patents and applications. Nokia would retain its patent portfolio and grant Microsoft a 10-year non-exclusive license pending completion of the acquisition, with the option to renew the license agreement indefinitely. In the case of HERE Maps, Microsoft would receive a strategic license to the platform and pay Nokia a separate licensing fee for four years.

Moreover, Nokia CEO Stephen Elop became Nokia's executive vice president. He was in charge of devices and services until the transaction finished. 32,000 Nokia employees joined Microsoft, including 4,700 in Finland and about 18,300 in manufacturing. 56,000 employees remained with Nokia. Microsoft will gain access to Nokia's Devices and services division, which includes mobile phones, smart devices, and industry-leading design teams, as well as operations that include manufacturing facilities, marketing, and technical support for all Nokia devices and services. Nokia has three main business units: Devices and services, HERE maps and network equipment, while devices and services is mainly responsible for mobile phones. Through the acquisition, Microsoft took ownership of the Lumia and Asha brands under control and was permitted to use the Nokia brand on feature phones for a decade. Nokia brand on feature phones for a decade.

7.1.3 Motivation Analysis

Prior to the acquisition, Microsoft's Windows Phone operating system had a relatively small share of the market, and the addition of Nokia provides it with stronger hardware support, helping to increase the market share of Windows Phone devices. In terms of technological innovation, the integration of the two sides promotes the integration and innovation of technologies. Nokia has

advantages in communication technology and mobile phone camera technology, while Microsoft has deep technical background in software and operating system. The combination of the two provides more possibilities for new product R&D and innovation.

Also, Microsoft's acquisition was triggered by bottlenecks in the PC (personal computer) side, which was being hit by new mobile phones. In 1975, Bill Gates and Paul Allen founded Microsoft, which pioneered the world's PC software development. However, since 2007, Apple's CEO Steve Jobs has further promoted the development of the mobile Internet by releasing the iPhone, announcing its entry into the feature phone era. Due to the demand for light portability, new fashion, and so on, some consumers had shifted from the PC market to buy portable devices such as tablets. Since Microsoft's business division relied on the traditional PC market to survive, its market share had gradually fallen from 40% to 8% by 2009, losing out to Android (Damodaran, 2005). So how to break through the bottleneck of development and seek new economic growth points has become the primary consideration at present.

7.1.4 Conclusion of Case Study of Microsoft's Acquisition of Nokia

From the perspective of market competition, this acquisition makes Microsoft more competitive in the mobile device market. Nokia has rich experience and technology accumulation in the field of mobile phone manufacturing, and Microsoft has gained valuable hardware resources and expertise. Prior to the acquisition, Microsoft's Windows Phone operating system had a relatively small share of the market, and the addition of Nokia provides it with stronger hardware support, helping to increase the market share of Windows Phone devices.

In terms of technological innovation, the integration of the two sides promotes the integration and innovation of technologies. Nokia has advantages in communication technology and mobile phone camera technology, while Microsoft has deep technical background in software and operating system. The combination of the two provides more possibilities for new product R&D and innovation. For example, there maybe new breakthroughs in mobile phone camera function, communication stability and other aspects.

For consumers, Microsoft's acquisition of Nokia also has implications. Consumers have a wider range of products based on the Windows Phone operating system to choose from when choosing a phone. At the same time,

due to the integration of Microsoft and Nokia, it may bring new changes in the design, functions and user experience of products to meet the increasingly diversified needs of consumers. company's earnings.

7.2 Event Study

7.2.1 Summary Statistics and Coefficients

Table 5: Descriptive Statistics of Variables

Window Type	Variable Name	Count	Mean	Sample Variance	Minimum	Maximum
Estimation	Market Returns	1087	0.000675044	0.000213229	0.113995566	0.105179737
Estimation	Microsoft Returns	1087	0.000725378	0.000131436	-0.0697	0.0497
Event	Abnormal Returns	167	0.000594341	0.000154251	0.049387292	0.056803548
Event	Buy and Hold Ratio	163	0.997247953	0.001546521	0.918976153	1.072304403

Table 6: Regression Results for Market Model

Regression Statistics	
Multiple R	0.654740992
R Square	0.428685766
Adjusted R Square	0.428159209
Standard Error	0.010783748
Observations	1087

	df	SS	MS	F	Significance F
Regression	1	0.094675	0.094675	814.1299984	4.7015E-134
Residual	1085	0.126174	0.000116	-	-
Total	1086	0.220848	-	-	-

	Coefficients	Standard error	t Stat	P-value
α	5.52595E-07	0.000328	0.001686	0.998654884
β	0.814862176	0.028559	28.53296	4.7015E-134

The regression demonstrates a moderately strong fit, with an R-squared value of 0.429 and an F-statistic of 814.

7.2.2 Abnormal Returns Analysis

Figure 5: Abnormal Returns for Microsoft's Acquisition of Nokia



with significant negative AR observed on September 3, 2013, the announcement date.

On September 3, 2013, Microsoft announced its acquisition of Nokia, resulting in a significantly negative AR. Wall Street was highly disappointed with Microsoft's decision to buy Nokia, and investors also did not think it was worth the money. Microsoft's shares fell by 4.5% right after the announcement.

On October 24, Microsoft announced its 2014 quarter 1 earnings, showing that Microsoft's revenue and profits grew by more than 15%. This led to a significantly positive AR the next day.

On November 5, the Xbox One (3rd generation home video console) was officially released, resulting in a high AR the next day.

On January 23, 2014, Microsoft admitted that it was being attacked by a hacking group. However, the hacking group was unable to hack into Microsoft, showing how impregnable and secure Microsoft is, resulting in a high AR the next day.

On March 12, 2014, Microsoft issued 5 security announcements and fixed 23 vulnerabilities, but the AR did not see an immediate significant reaction afterwards. AR finally increased later on March 18, 2014, 4 trading days after.

On April 25, 2014, the acquisition was finally complete. The next trading day (April 28, 2014) saw high abnormal returns.

7.2.3 Cumulative Abnormal Returns Analysis

Figure 6: Cumulative Abnormal Returns for Microsoft's Acquisition of Nokia

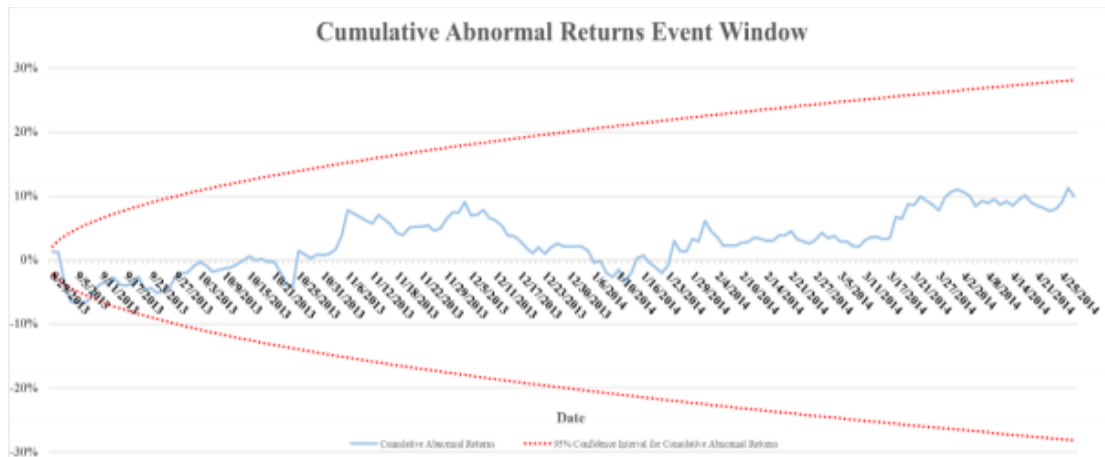


Figure 6 illustrates the cumulative abnormal returns (CAR) over the event window. Following the announcement date, the CAR drops below the confidence level but later stabilizes, showing no significant long-term effects.

7.2.4 Conclusion About Event Study of Microsoft's Acquisition of Nokia

Nokia's CAR did not undergo a significant increase during the entire event window of the acquisition, which means that the acquisition did not bring long-lasting success to Microsoft. In fact, after the announcement date, there was a sharp decrease in AR, showing dissatisfaction among investors. Furthermore, many of the significant points that we found for the event window were not about the acquisition itself. These all show that the acquisition wasn't very successful for Microsoft.

8 Case Study and Event Study of Microsoft's Acquisition of Skype

8.1 Case Study

8.1.1 Acquisition Background and Processes

Before the acquisition, Skype had established itself as a global leader in video and voice communication services, with a vast user base spanning various platforms. Conversely, Microsoft was already a dominant force in the software industry, particularly in operating systems and office productivity tools. However, Microsoft's offerings in communication technologies were relatively limited, with Windows Live Messenger being its primary instant messaging service. The announcement of the acquisition on May 10, 2011, sent shockwaves through the tech industry, as it signified Microsoft's intention to disrupt the status quo and reshape the landscape of communication technologies. The deal closed within five months, and Microsoft acquired Skype for \$8.56 billion in cash. Microsoft then embarked on an ambitious integration strategy to integrate Skype's capabilities into its product portfolio. At that time,

Microsoft's newly released Windows 8 and Windows RT operating systems merged Skype desktop and Skype mobile apps. The app provides a touch-focused user experience and is available through the Windows Store. By the following year, it was the default instant messaging tool and ready to be installed on every device. There was a transition period from April 8 to 30, 2013, when Microsoft discontinued Windows Live. Messenger and replaced the messaging app with Skype products. The move underscores Microsoft's commitment to leveraging Skype's offerings and bringing its messaging capabilities under a unified brand. In November 2014, Microsoft announced that its Lync product would be replaced by Skype for Business in 2015. The move combines Lync's enterprise-class capabilities with Skype's user-friendly interface, allowing users to switch accounts between Skype for Business and Lync. This provides a comprehensive solution for businesses seeking to enhance communication and collaborative efforts.

8.1.2 Post-Acquisition Developments

Since the acquisition, Microsoft has invested heavily in expanding Skype's business. On August 12, 2013, Skype was updated for Apple iOS devices, providing an application for HD quality video for the iPhone 5 and fourth-generation iPad.

Moreover, Microsoft announced the integration of Skype chat into Office software on November 20, 2014, allowing users to collaborate more effectively on documents. This reflects Microsoft's commitment to fostering a cohesive collaboration ecosystem. On September 15, 2015, Skype launched Mojis. In Mojis, characters popular in short video clips and GIF collections can enter a conversation like emojis. Skype worked with Universal Studios, Disney Muppets, BBC and other studios to enhance the Mojis collection. In the same year, Microsoft acquired Talko's technology to further enhance its communications offerings. In July 2016, after several petitions to Microsoft to continue developing Linux, Skype released an Alpha version of its Skype for Linux client to address the long-standing needs of the Linux community. Skype later updated its iOS app to add Siri integration and other features. Microsoft also launched Skype for Business for Mac in October. In February 2017, Microsoft announced the discontinuation of Skype Wi-Fi, reflecting a strategic shift in the service offering. This Wi-Fi service became unavailable on March 31, 2017. On June 5, 2017, Microsoft attempted to revamp Skype's functionality to allow users to share temporary copies of photos and video files. Microsoft rolled out an update for IOS in late June 2017, but the update was

criticized, and the "revamp" was subsequently removed. In December 2017, Microsoft added the "Skype Interview," one for those interviewing for jobs in programming roles.

8.1.3 Motivation Analysis

Microsoft bought Skype to strengthen enterprise business collaboration. Microsoft's software and Skype have a lot of overlap. Microsoft's Lync only offers one-to-many video conferencing, while Skype's peer-to-peer video chat offers an alternative, potentially more efficient and simpler way to make video calls. Windows Live Messenger offers free instant messaging, voice, and video chat. Skype integrates a phone connection to make and receive calls, and while its online services are free, those services require a fee. Skype's telephony infrastructure will add valuable additions to the Messenger/Lync platform. It can also be combined with Exchange 2010, which integrates voice mail.

Microsoft also bought Skype to prevent competitors like Google and Facebook from acquiring the asset. According to Reuters, both Google and Facebook have held discussions with Skype about a potential joint venture or outright acquisition. By acquiring Skype, Microsoft effectively defended its position in the market from a competitive situation and mitigated the threat posed by competitors.

Furthermore, Microsoft also uses Skype's large user base to promote and sell its products and services. According to statistics, Skype has 660 million users worldwide, including 120 million active users and 170 million monthly active users. For Microsoft, Skype is profitable. Microsoft could directly link the search engine and Skype's communications platform. This cross-selling strategy is expected to drive revenue growth and increase brand loyalty among Skype users.

8.1.4 Conclusion for Case Study of Microsoft's Acquisition of Skype

Microsoft's acquisition of Skype presents both opportunities and challenges. It allows Microsoft to leverage Skype's infrastructure and user base to offer a competitive VoIP service. Microsoft uses Skype's platform to enrich its product offering and enhance the user experience. Integrating Skype chat into Microsoft Office promotes seamless employee collaboration, demonstrating the synergies between communications and tools. In addition, the launch of Mojis underscores Microsoft's commitment to innovation, expanding the expressive power of Skype users. The Skype acquisition profoundly impacted Microsoft's

financial statements and stock performance. Integrating Skype into Microsoft's existing product lineup would require significant investments in technology and infrastructure, which could weigh on the company's bottom line and stock performance in the short term. In the long term, the integration process and market adoption of Skype technology have played an essential role in determining the performance of Microsoft's stock. From a financial perspective, the acquisition adds significantly to Microsoft's goodwill and intangible assets. Over time, the successful integration of Skype technology with Microsoft products has helped increase revenue and profitability. However, these benefits were not immediately apparent, as the integration process and subsequent market penetration required significant investment and time. Regarding stock performance, Microsoft's stock has shown volatility in the years following the acquisition, subject to various factors, such as broader market trends, industry dynamics, and company-specific events. While it is challenging to attribute specific stock price movements solely to the Skype acquisition, the successful integration and market adoption of Skype's technologies can be considered among the positive factors that potentially contributed to Microsoft's overall stock performance.

8.2 Event Study

8.2.1 Summary Statistics and Coefficients

Table 7: Descriptive Statistics of Variables

Window Type	Variable Name	Count	Mean	Sample Variance	Minimum	Maximum
Estimation	Market Returns	1249	0.000198489	0.000244804	-0.0895	0.11354
Estimation	Microsoft Returns	1249	0.000353861	0.000399986	-0.117131	0.1860462
Event	Abnormal Returns	114	0.001184237	8.09489E-05	-0.016701	0.0285799
Event	Buy and Hold Ratio	110	1.0843661	0.006815932	0.9613572	1.2067746

Table 8: Regression Results for Market Model

Regression Statistics	
Multiple R	0.725898
R Square	0.526928
Adjusted R Square	0.526548
Standard Error	0.013766
Observations	1249

	df	SS	MS	F	Significance F
Regression	1	0.263225	0.263225	1388.961618	6.4558E-205
Residual	1247	0.236322	0.00019	-	-
Total	1248	0.499547	-	-	-

	Coefficients	Standard error	t Stat	P-value
α	0.000163	0.00039	0.419469	0.674945708
β	0.927847	0.024896	37.26878	6.4558E-205

The regression demonstrates a moderately strong fit, with an R-squared value of 0.527 and an F-statistic of 1389.

8.2.2 Abnormal Returns Analysis

Figure 7: Abnormal Returns for Microsoft's Acquisition of Skype



Figure 7 shows a graph of the abnormal returns for Microsoft over the event window that goes from 2 days before the announcement date to 2 days after the completion date. Interestingly, abnormal returns show prolonged insignificance over the event window. This was likely because Skype's acquisition was much smaller compared to Nokia's.

On May 10, 2011, Microsoft announced its acquisition of Skype, resulting in a negative AR. Previously, eBay acquired Skype for 2.6 billion dollars in 2005. In 2009, eBay ran out of patience and sold it for 2.7 billion dollars because it did not work with the company's core commercial business. Investors didn't take kindly to the Microsoft acquisition.

On June 27, 2011, Skype's update for the Android app to include Skype Video Calls resulted in a significantly positive AR.

On July 6, 2011, Facebook introduced a video calling feature powered by Skype that lets users make video calls through a new "Call" button on friends' profiles, resulting in positive AR.

On August 21, 2011, Skype used GroupMe to build a superior mobile service platform for Microsoft's Windows Phone 7, which would give Skype and Microsoft more leverage to join forces against Facebook. However, the positive reaction wasn't significant and positive until August 26, three trading days after.

Microsoft completed the acquisition on October 13, 2011, but AR fluctuations around that date were insignificant.

8.2.3 Cumulative Abnormal Returns and Buy and Hold Ratio Analysis

Figure 8: Cumulative Abnormal Returns for Microsoft's Acquisition of Skype

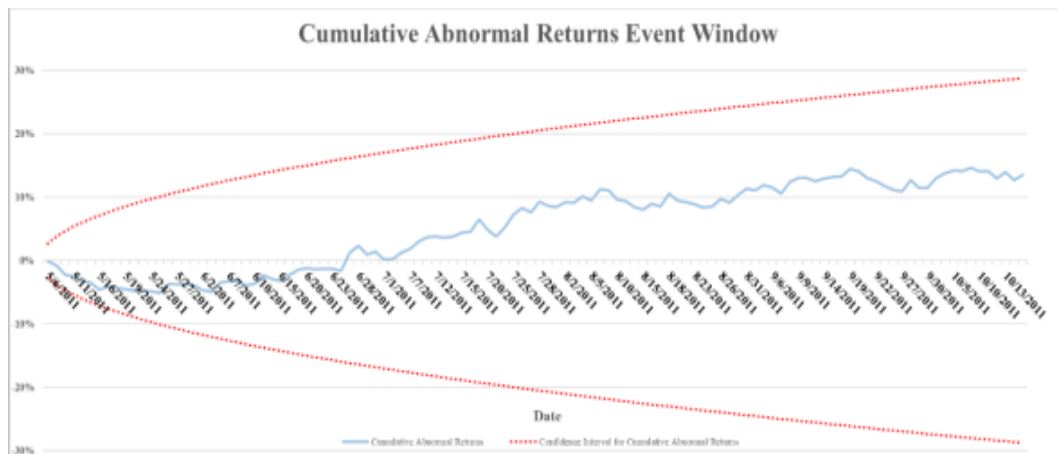


Figure 9: Buy and Hold Ratio for Microsoft's Acquisition of Skype

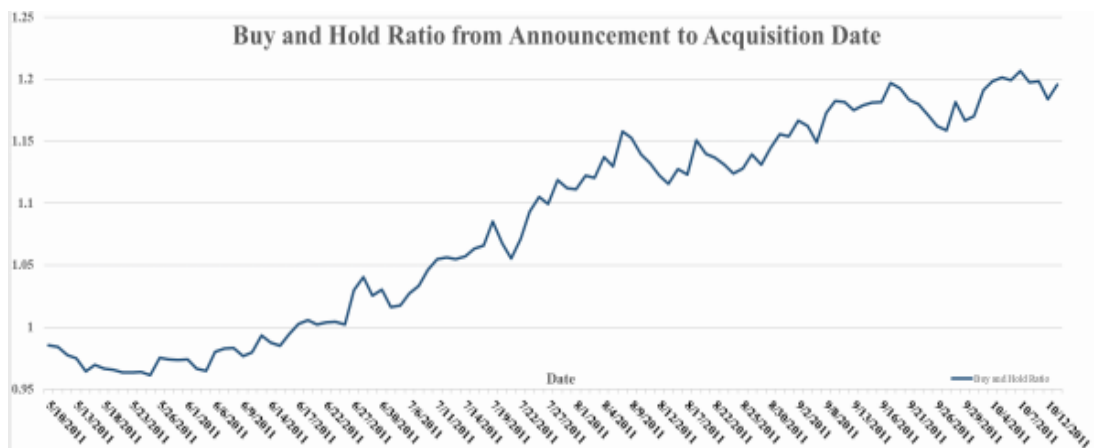


Figure 8 shows a graph of the cumulative abnormal returns for Microsoft over the event window, and Figure 9 shows the buy-and-hold ratio for Microsoft from the announcement to the acquisition date. Initially, the CAR seems to go negative, but afterwards, the CAR constantly goes up. Although not above the confidence level, we can still see a positive trend in CAR, which shows a positive long-term impact of the acquisition on Microsoft stock. This becomes clearer when we look at the buy-and-hold ratio for Skype. Initially, people were not enthusiastic about the acquisition, and the B&H ratio fell (Figure 9). However, shortly after, the B&H Ratio began to rise constantly. When the acquisition was complete, the B&H Ratio had already increased to 1.2, proving that Microsoft outperformed the market over the event window, and the acquisition made a positive impact on Microsoft stock.

8.2.4 Conclusion About Event Study of Microsoft's Acquisition of Skype

After the announcement, people did not seem enthusiastic about the acquisition (downward trend in CAR). Still, after a short time, CAR continuously increased (also B&H ratio), showing increasing enthusiasm with the acquisition. Interestingly, however, only one point on AR exceeded the confidence interval band (it was about positive news for Skype, Skype comes to Android). The other dates with positive AR that were not as significant were also mostly about positive news for Skype. Overall, Skype was a good addition to Microsoft, according to our event study.

9 Conclusion

In analyzing Microsoft's acquisitions of Activision Blizzard, ZeniMax, Nokia, and Skype, several key conclusions emerge regarding each deal's strategic benefits and challenges. The comparative analysis highlights those acquisitions in the gaming industry — specifically Activision Blizzard and ZeniMax — generally yielded more positive outcomes for Microsoft than those in the telecommunications sector, such as Nokia and Skype. The acquisition of Activision Blizzard stands out as particularly beneficial, with sustained positive abnormal returns and a significant increase in cumulative abnormal returns over time. This deal reinforced Microsoft's position in the gaming industry, aligning well with its strategic focus on expanding its gaming portfolio and leveraging synergies with existing business segments. The consistent positive market reaction and high buy-and-hold ratio further underscore the success of this acquisition. Similarly, the procurement of ZeniMax additionally had a favorable effect, confirmed by a favorable market reaction and a calculated boost to Microsoft's gaming environment. Although the temporary supply

volatility was affected by more comprehensive market conditions, the lasting benefits of boosting Microsoft's gaming offerings and driving membership revenue appeared. On the other hand, the acquisition of Nokia was less effective. The absence of substantial abnormal returns and the sharp decline in supply performance post-announcement suggest that the assimilation did not meet market expectations. Microsoft's access to the mobile phone market with Nokia did not convert into the awaited development and market existence, highlighting challenges in this market. The purchase of Skype had a blended impact. While the initial response was subdued, the long-term assimilation showed favorable trends in cumulative irregular returns and buy-and-hold ratios. Despite substantial investments and integration challenges, Skype's tactical value in improving Microsoft's product offerings and interaction abilities was recognized in time. In general, the procurements in the PC gaming sector, specifically Activision Blizzard and ZeniMax, were a lot more beneficial to Microsoft than those in telecommunications. This suggests that Microsoft must remain focused on acquisitions that align with its core strategic areas, such as video gaming and cloud computing, where it can leverage existing strengths and market fads. For future procurements, Microsoft should focus on sectors where it has developed proficiency and a clear critical benefit to ensure lasting success and shareholder value.

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Ye Jingyi, Li Yuanxi, Hu Yuanyang, Shi Shuning, and Zhang Ethan contributed equally to this work and should be considered co-first authors.

11 Conflict of Interest Statement

The authors declare no conflict of interest.

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