

**THE IMPACT OF CORPORATE FINANCIAL CRIMES ON STOCK
MARKET BEHAVIOUR AND LONG TERM FIRM PERFORMANCE:
EVIDENCE FROM THE LONDON STOCK EXCHANGE**

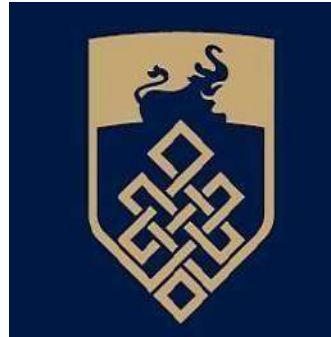
SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT

**OF
MSC FINANCIAL ECONOMICS**

**By
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**UNDER THE GUIDANCE OF
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DECLARATION

I, **Reeti Basu**, hereby declare that the dissertation entitled:

**“THE IMPACT OF CORPORATE FINANCIAL CRIMES ON STOCK MARKET
BEHAVIOUR AND LONG TERM FIRM PERFORMANCE: EVIDENCE FROM THE LONDON
STOCK EXCHANGE”**

submitted to **Dr. B. R. Ambedkar School of Economics University, Bengaluru**, in partial fulfillment of the requirements for the award of the degree of **Master of Science (M.Sc.) Financial Economics**, is the outcome of original work carried out by me under the supervision of **Dr Muhammad Shameer K**, Assistant Professor, and **Dr Kasturi Bhattacharjee**, Assistant Professor, Dr. B. R. Ambedkar School of Economics University, Bengaluru.

I further declare that:

- This dissertation has not been submitted previously, either in full or in part, for the award of any degree or diploma at this or any other institution.
- The dissertation has undergone plagiarism screening, and the similarity index is within the permissible limits as prescribed by the University.

Place: Bengaluru

Date: 27-05-2025

Signature of the Student

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CERTIFICATE

This is to certify that the dissertation entitled:

**“THE IMPACT OF CORPORATE FINANCIAL CRIMES ON STOCK MARKET BEHAVIOUR
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EXCHANGE”**

submitted by Reeti Basu, bearing Registration Number 232PGF022, to Dr. B. R. Ambedkar School of Economics University, Bengaluru, in partial fulfillment of the requirements for the award of the degree of Master of Science (M.Sc.) Financial Economics, is a record of the candidate's original work carried out under my supervision.

To the best of my knowledge, the dissertation has not been submitted, either in full or in part, for the award of any degree or diploma elsewhere. The dissertation has been verified for plagiarism, and the similarity index is within the permissible limits.

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Abstract

The study in the paper has been divided into two chapters. The study is divided in two chapters. The first chapter conducts an event study analysis to understand stock price volatility surrounding public announcements of financial misconduct solely based on companies listed at the London Stock Exchange. After any such financial crime announcement, investors may start questioning and reanalyzing the company's past performance and its future viability. Using linear regression models, the study identifies abnormal returns and changes in volatility over the estimation, quarantine, event and the post-event window, aiming to capture the immediate impact of such announcements on investor sentiment and market dynamics. The second chapter delves into the long-term effects of financial crimes on the profitability and financial health of the implicated firms. Through the fundamental analysis of financial ratios and performance indicators present in the financial statements published by the companies. This chapter evaluates whether and how the companies recover or deteriorate over time. By integrating event-driven market analysis with in-depth financial performance assessment, the dissertation provides a comprehensive understanding of the short-term market shock and enduring economic consequences of corporate financial crimes.

Chapter 1: Introduction

Financial markets work on the principles of transparency, trust, and timely information. These pillars, however, are significantly shaken when companies get involved in financial misconduct. Events such as fraudulent accounting, insider trading, or deliberate misrepresentation of financial data, money laundering, and tax evasion do not merely represent lapses in governance, they also question the informational structure upon which market pricing rests. The disclosure of such crimes often triggers immediate and unpredictable responses in the stock market, with volatility becoming a critical reflection of the magnitude of the crime committed by the organization as well as investors' uncertainty and realigned expectation



Figure 1. Enron(2001) fluctuation in stock price and Volume

The impact of financial crimes can destroy not just a single company, or country but the entire global economic system. Lehman Brothers is the biggest example of it. They misused the Repo 105 to conduct misleading accounting practices. The main purpose of which was to hide the true debt levels and appear financially healthier. Banks stopped trusting each other as a result of which Credit market and Interbank lending nearly came to a halt. The most healthy banks feared exposure to toxic assets and Hidden risks. The US Federal injected a huge sum of money to prevent total collapse. Due to Lehman's bankruptcy filing, the global stock market went to the lowest of the lows and the Dow Jones fell by 504 points the day the bank collapsed. This clearly shows how the issue of accounting malpractice in one particular company caused a global economics downfall.

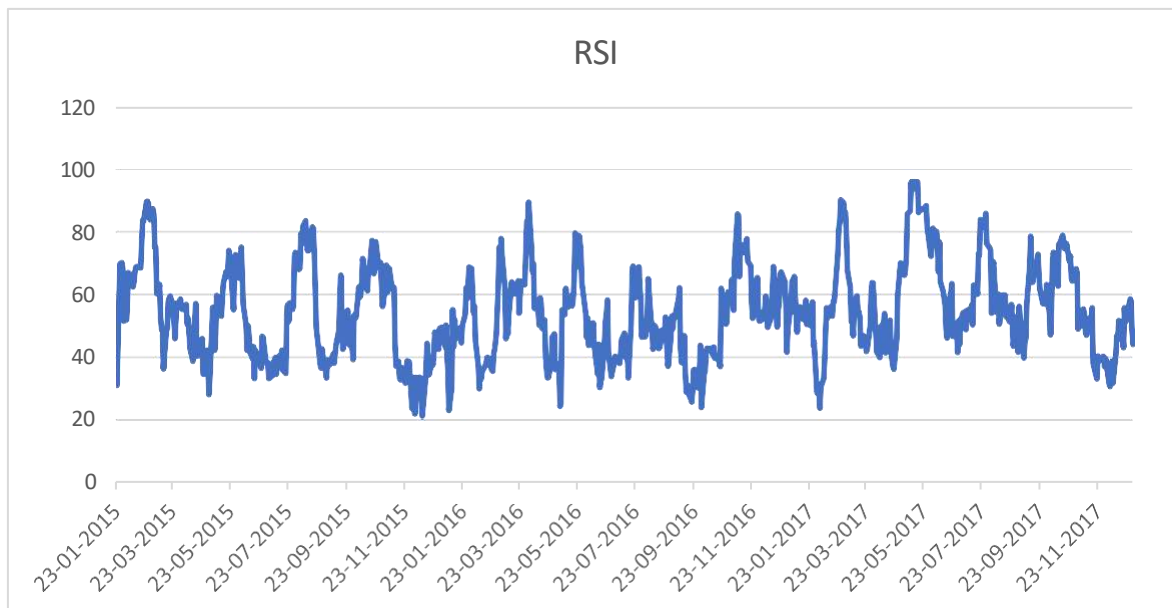


Figure 2.Cognizant Technology Solutions Relative Strength Index during Bribery Scandal(September 2016)

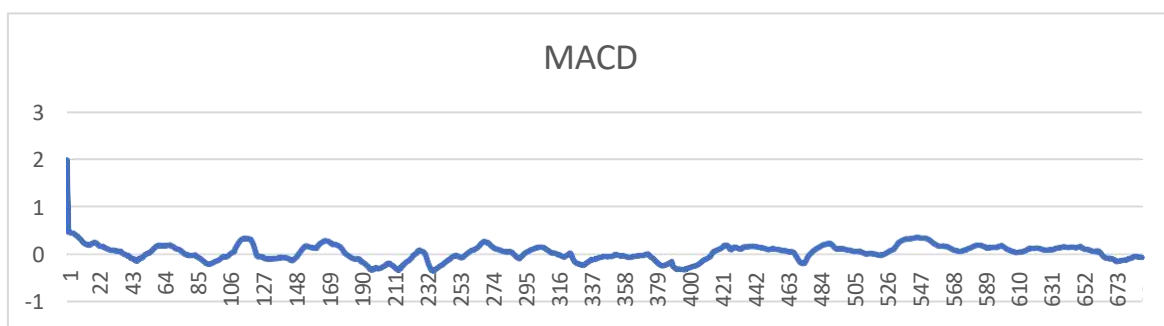


Figure 3.Cognizant Technology Solutions,Moving Average Convergence Divergence during Bribery Scandal(September 2016)

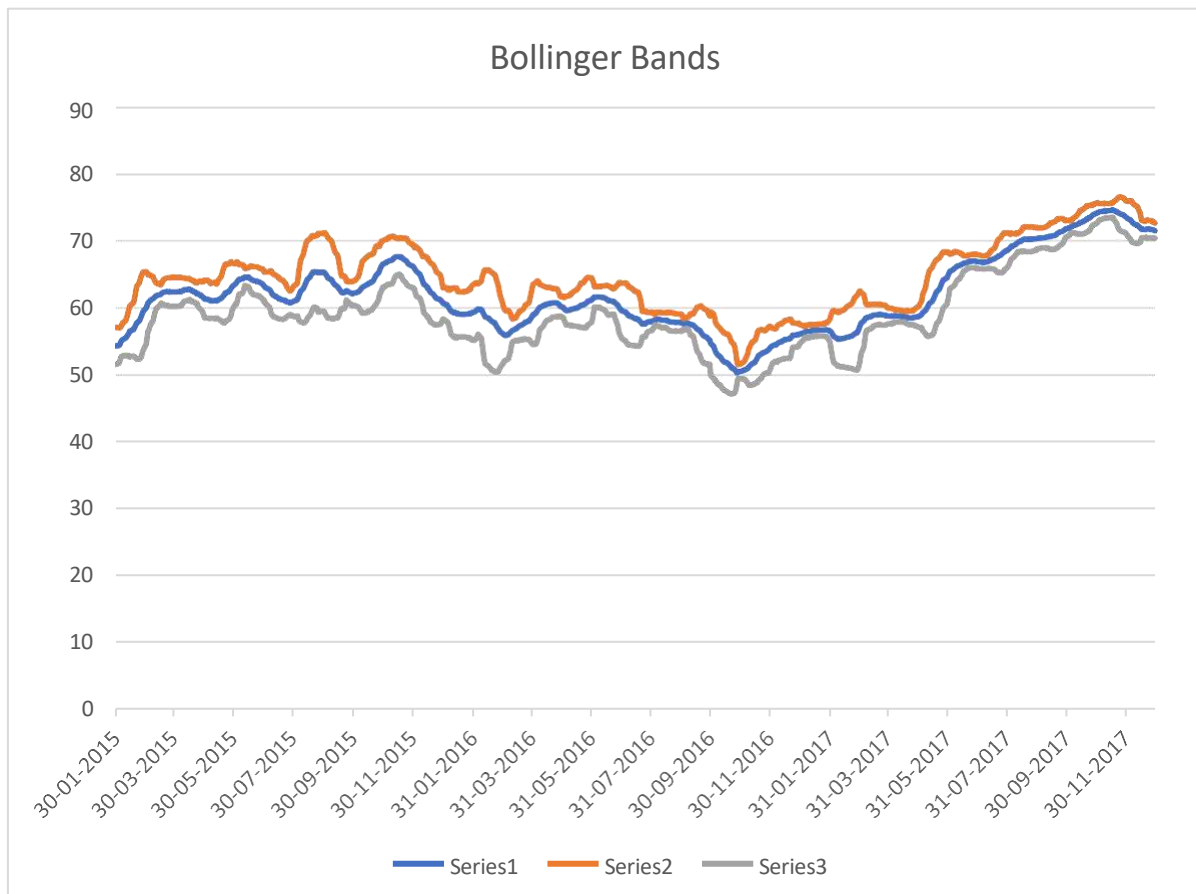


Figure4. Cognizant Technology Solutions, Bollinger Bands during the Bribery Scandal(2016)

The above graph showcases Cognizant Technology Solutions and its structure around the time of its bribery scandal(on September 30, 2016). The first half of the graph is Bollinger bands and the second half is the stochastic oscillator. Before the scandal, the stock prices showed a steady growth with regular fluctuations and the Bollinger bands also showed a normal width. At the time of the scandal, there was a sharp drop in share prices of about 10-12%. Stochastic oscillator as it can be seen fell to a near-zero level. This shows that the stocks were oversold thus justifying the Panic Sell signal. After the scandal, which is late 2016- 2017, the stock prices rebounded back and signaling strong buying of cognizant stocks in the market.

Another such case was of Wirecard (2019). For years there were doubts and questions surrounding Wirecard, especially from the investigative journalists at the Financial Times. In June 2020, Wirecard's auditor Ernst & Young (EY) refused to sign off their accounts since they couldn't verify the \$2.1 Billion supposedly held in trust accounts in the Philippines. This money actually never existed as it was later admitted by Wirecard. To do this, Wirecard created fictitious sales through third-party partners in countries where operations like this are very hard to verify. They confidently claim to have large cash reserves in escrow accounts overseas, mainly in the Philippines. When this became public, wirecard shares dropped by 98% in days from €100 to less than €2. Over a €24 Billion wirecard's market value. Wirecard was once part of DAX 30 Index which made its collapse soon after wirecard's collapse, embarrassing the german market.

This showcases the fact that market reaction and behavior of participants to corporate scandals can be complex sometimes. It depends on a wide range of factors such as the severity and the

nature of the scandal, surprise factor (which means if the news was completely unexpected then the volatility is much stronger but if rumors or some investigations were already present in the public domain then the impact on the stock prices may not be as expected. The magnitude of the financial impact of the crime is also to be understood and analysed along with investors' perception and sentiments of the whole issue.

Usually, when a company is caught in a financial scandal, the immediate damage is very clear, such as the stock price drop, headlines booming everywhere, and a strong hit on the public trust. It is also significant to understand the long-term impact it has on the company's profitability. The main focus of this chapter is to shift from short-term market reactions to understanding the long-lasting effects. Behind every percentage point and financial ratio is a story—of management decisions, shifting investor confidence, legal penalties, and changes in consumer perception. For example, research like Lev and Thiagarajan's work on fundamental signals, or the study by Dechow, Sloan, and Sweeney on earnings management, has shown how corporate misconduct can mask or distort a company's true financial performance. These studies help guide our approach, showing us what to watch out for when evaluating financial health after a scandal.

Objectives of the thesis are as follows:

1. To understand how the stock market and investors respond when a company is accused of financial misconduct.
2. To look at how announcements of corporate finance crimes impact the company's overall long term performance of the company involved.

Limitations are as follows:

- Incomplete Data: Some financial crime cases lacked full disclosure, affecting analysis accuracy.
- Market Efficiency Assumption: Stock prices may not reflect news instantly, impacting event study reliability.
- Small and Selective Sample: Focus on a few firms limits generalization to broader markets or industries.
- External Market Noise: Other events may have influenced stock prices during the event window.
- Single Market Focus: Results are specific to the London Stock Exchange, not globally applicable.
- Model Constraints: GARCH models rely on strict assumptions that may not hold in all cases.
- Subjectivity in Fundamentals: Interpretation of financial ratios can vary across analysts or industries.
- Time Limits: A broader timeframe or more companies could offer deeper insights.

Chapter 2: Understanding the Stock Market's Reaction to announcements of Corporate finance crimes

2.1 Introduction

Financial markets are fundamentally based on trust and transparency. When a financial misconduct occurs, it breaks the trust and normally at the expense of swift, sometimes violent, investor reactions. Enron, HSBC, and Lehman Brothers are planned cases in that respect; and, how expectations dramatically shift when some news became public. This chapter explores how financial markets react to various forms of announcements and what the reaction may tell us about investor behaviour and confidence.

2.2 Literature Review

Angameletti (2019) conducted a comprehensive study on the differential management of Financial Illegality. The main objective of the paper was to analyze the differentiation in assigning responsibilities to different types of financial illegalities, in order to keep the legitimacy of financial capitalism intact. Since the Libor Scandal happened around the time of the financial crisis, this paper spans over a period of 2007-08 till its investigation in 2012. The main focus was the UK because this was the place where LIBOR was administered to the market, but the US legal system also played an important role just like the UK Legal system. The US primarily got involved because many of the organizations listed in the LSE were also involved in the US stock markets. Data from a variety of sources were used such as the decisions from the British Financial Services Authority (FSA) and the decisions from the Serious Fraud Office(SFA) in the UK. Two types of prosecution was found: Trader Manipulation: Individuals (e.g., traders) were prosecuted criminally, focusing on their personal actions and motives.

Lowballing Manipulation: Organizations were sanctioned through settlements, avoiding trials and public scrutiny of systemic fraud.

Using this study, the author was able to figure out the differential treatment in the face of the law. The individual such as those traders who manipulated, etc face criminal charges and thereby face both reputational and monetary damage. While, in order to maintain the legitimacy of financial capitalism. Many companies like Barclays and UBS were prevented from facing any form of public scrutiny using Settlements like Deferred Prosecution Agreements (DPAs) allowed organizations to admit wrongdoing without reputational damage. The law prioritized the prosecution of certain forms of wrongdoing (e.g., trader manipulation) while downplaying others (e.g., lowballing), creating a hierarchy of financial crimes. The only limitation is that only publicly available information is used. All sorts of publicly available information such as private discussions or negotiations, and discretionary actions by regulators and organizations are not studied. This is going to hide all sorts of influences that might have happened with the regulators behind the scenes.

In Berry (1990), the main objective was to understand the usage of daily stock market returns in event study analysis. This included understanding the statistical characteristics of daily stock market returns. The behavior of the residuals derived from single-index market model (SIMM) regressions using daily data and the efficacy of parametric and nonparametric test statistics in detecting abnormal performance. The period of study was from 1962 to 1979.

In this study, USA has been covered in this particular study. And therefore, explains the collection of data from CRSP which focuses on the US Stock Market. Random sample of 2000 firms were chosen and the data was collected for a period of 1962-1979. The researchers relied on the **CRSP value-weighted market index** as a benchmark for their analysis. This index showcases the performance of the overall U.S. stock market, with individual securities weighted based on their market capitalization. For primary variables the authors used the stock market returns and market Index Returns, these are directly collected from a secondary data source in the context of this study. Then Abnormal returns were used as derived variables. This is calculated using returns from the stock in day t and the market return in day t. The study also included several control variables to ensure robustness and also to minimize biases. In this paper, they are portfolio (In this case, each portfolio consists of 25 securities each) & Time Horizon. Injected abnormal returns to test the strength of the statistical methods. Control Variables: These are present to ensure robustness and minimize biases. In the context of this paper, they are Portfolio (In this case, each portfolio consists of 25 securities each) & Time Horizon. Injected abnormal returns to test the strength of the statistical methods. The statistical variables used to understand the residual characteristics were skewness, kurtosis, the KS test, and DW Test. To understand the residual characteristics. To evaluate parametric and non-parametric methods, certain tests were done such as the T-test, Wilcoxon, and sign test. A single Index Market Model (SIMM) was used for this study.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \xi_{it}, R_{it}$$

is the return from stock i at time t. α_i is the intercept, and β_i is the slope, which basically represents the sensitivity of stock i to the market movements. R_{mt} shows the market return on day t and then is the error term, putting forward the difference between the actual and expected return. As mentioned, 2000 randomly selected firms were selected, and data were collected from the CRSP file. Firms were required to have at least 100 consecutive trading days of data. If a firm doesn't meet the criteria, an alternative firm is randomly selected. Then, 80 portfolios, each containing 25 securities, were created to reduce idiosyncratic noise and increase cross-sectional power. The index used for comparison was the CRSP value-weighted market index, which was used as a benchmark for estimating expected returns. Then, the SIMM model was adopted to find the expected returns of each randomly selected firm and do the residual analysis to find the abnormal returns. The statistical tests were done to decide on the suitability of conducting event studies. To test for residuals which is necessary given the fact that they are playing an important role in calculating the abnormal returns again Normality, Autocorrelation, and heteroscedasticity were tested. Certain characteristics of the return series were seen. As we know, Normality, Autocorrelation, and Heteroscedasticity were tested. It was found that daily stock returns are highly non-normal and showcase skewness and Kurtosis. For Autocorrelation, two tests were run one being the DW Test and the other being the Runs Test (which is non-parametric method). The DW test only saw minimal Autocorrelation while the runs test saw the presence of significant autocorrelation on a large number of return series. As far as heteroscedasticity is concerned, in almost 66% of the return series Heteroscedasticity was observed at a 95% confidence interval. For the characteristics of the residuals (i.e. abnormal returns), In this case, normality was better as compared to the raw returns' series. Autocorrelation was minimal both using the DW Test and the Runs Test. Heteroscedasticity persists but is not as rampant as with the Raw Returns Series. Raw daily returns have statistical limitations (non-normality, autocorrelation, heteroscedasticity), making them less suitable for direct analysis.

In Brooks (2003), the main objective was to examine how the equity market responds to unexpected news and announcements. This was based on the ideology that the stock market reacts much more aggressively to unexpected news and announcements as compared to the predictable ones. Analyzing unanticipated events puts forward the complexity of distinguishing between expected and unexpected parts of announcements. The main period of study was 1989-1992. The data was mainly collected from the transaction data of NYSE and AMEX. Intraday Transaction data from NYSE and AMEX were more systematically available during the late 1980s and this is very important when conducting event study analysis. The exact time of the unexpected event was known from the Dow Jones newswire. A sample of 21 unanticipated news was considered. After the data collection phase was completed, pre-event and post-event analysis was done. For the Pre-Event Period, a baseline was established using data from 10 days before the event and then the average value of important variables was calculated on an hourly basis. For the post-event period, market reactions were analyzed minute-by-minute for up to 2 hours after the event. Events were partitioned into two groups:

Daytime Events: Announcements were made while markets were open.

Overnight Events: Announcements made after market hours.

Since Daytime and Night time events were seen separately daytime events exhibited delayed price adjustments and wider spreads. Findings were compared to the similar studies done earlier and that showed that the price adjustments were faster thus suggesting differences in market efficiency. There were certain limitations such as the size of the sample. The sample was of just 21 firms. The time period that was considered was basically the time period when major market changes happened. This limits the understanding and makes it difficult to understand how the modern market reacts to unexpected events. The difference in market structures across the world stock markets can also be another problem. Firms included in the analysis had to have detailed intraday trading data and control firms for comparison. This might have excluded smaller firms or those with less liquidity, potentially skewing the results toward larger, more established companies.

Similarly, Cumming (2013) published a study to show the different listing standards across different stock exchanges leading to the issues of fraud. The paper mainly explains the relationship between listing requirements, enforcement intensity, and fraud occurrence to provide insights into improving investor protection and market quality.

The geographical area covered in the study was again the United States and as a result of which data was collected from the NYSE and the AMEX. The study showed that during daytime events, price adjustments were quite slow with significant changes taking more than hour to stabilize. The initial price reaction typically occurred within 20 minutes; this shows delayed assimilation of new information. The trading volumes increased significantly and remained high for hours. In case of the Overnight events, the prices got adjusted almost immediately at the market opening. Participants processed the information before the trading days started. This caused a faster and more efficient adjustment. In terms of the trading volumes, it increased sharp surge at the market opening hour and normalized way quickly than the daytime events. The initial market showed that the market overreacted with partial reversals in the subsequent hours. The Bid- Ask Spreads widened significantly after unanticipated events, reflecting increased uncertainty and risk for liquidity providers. Spreads were much wider and took longer to normalize due to daytime events mainly due to continuous trading pressure while in the overnight events, the spread was definitely wide but it normalized quickly because as soon as

the market opened the prices were adjusted.

Gianetti and Wang(2016) conducted a research paper to understand whether the announcement of corporate fraud leads to a loss of trust and confidence among households to invest in the stock market. The task is to find whether Fraud revelations cause negative externality. The main period that was studied was 1980-2009 in the USA among the publicly listed firms. The data was collected in 4 categories corporate fraud Data, household Data, state-level data, Fraud Intensity, and Local Context. For data regarding Fraud Intensity and Local Context, Headquarters locations of fraudulent firms were obtained from CompStat and Compact Disclosure. For Fraud Intensity Measures, Proportion of fraudulent firms in a state relative to the total number of public firms. The study showed households in states where corporate fraud is revealed reduce their stock holdings, not only in fraudulent firms but also in non-fraudulent firms. The impact of it is attributed to a loss of trust in the stock market as households that do not even know about fraudulent stocks tend to reduce their participation. The collapse of Arthur Andersen in 2002 sent an exogenous shock, leading to an increase in fraud revelations. The states with more Arthur Andersen clients saw a bigger drop in household stock market participation. Households that had greater lifetime exposure to corporate fraud have lower stock market participation which represents the persistent effect. In states with large fraud revelations, people showcase lower confidence in financial institutions like big businesses and banks. The higher-status individuals who have lower trust in the stock market because the cost of betrayal is higher for them are more likely to reduce their stock market participation more significantly after fraud revelations.

2.3 Data

The Data for 11 companies were collected. These companies were involved in some form of financial crimes at some point. For each company, the financial crime that it was involved in was identified. The date of the first announcement to public was noted and then six months before the announcement to ten days after the announcement was collected. Most of the data was collected from the LSEG website, Investing .com. The companies which were chosen based on the different categories of financial crimes such as accounting scandals, bribery & corruption, market manipulations & fraudulent practices, money laundering, operational crime as well as Tax Evasion and avoidance.

Name of the companies	Category of Financial Crime
Carillion	Accounting Scandal
Tesco	Accounting Scandal
Glencore	Bribery& Corruption
Rolls Royce	Bribery& Corruption
Wirecard	Market Manipulations& Fraudulent Practices
Barclay	Operational Crime
Standard Chartered	Operational Crime
Amazon	Tax Evasion & Avoidance
Google	Tax Evasion & Avoidance

Table 1. Companies with their respective financial crimes taken for study

2.4 Methodology :

The data was then divided into various sections namely Control Window, Estimation window, Quarantine Window , Event Window, and Post-Event Window to do the event study analysis. The control window is taken to simply understand what is the magnitude of returns the company sees on its stock on a normal day.

The actual returns around the event is then compared to the expected Returns (from the model trained on the control window) to calculate the abnormal returns. In our case, we have taken the control window to be 6 months before to 1 month before the event date.

The estimation window is used to calculate the expected returns of a stock in the absence of the event. This estimated what the stock returns would have been had the event not occurred. The expected returns become a benchmark to calculate abnormal returns in the event window. For example, if the event happened on day 0, then the estimation window might be from day – 90 to day -30. In this paper, we have taken the estimation window to be 1 month before to 15 days before the event date.

A quarantine window is present to prevent the contamination of the estimation window by early information leaks or any form of speculation that the market might be facing. This window acts as a buffer between the estimation window and the event window, simply ensuring the model is trained on a period unaffected by any pre-event rumors or insider trading. If the estimation window ends at day -30, and the event window starts at Day -10, then the quarantine window would be from day -29 to day -11. The quarantine window in this paper is from 15 days before

to 7 days before the event.

The event window is present to capture the immediate impact of the financial crime announcement on the stock prices. The window includes the event date and a few days before and after the event date. In our case, we have taken 10 days before and after the event. Abnormal returns are calculated for this period to understand the short-term market reaction.

The post-event window is primarily used to study the long-term impact on the volatility of the stock price of the company involved. This is to understand whether the stock price stabilized, recovered, or continued to underperform and whether the event had a lasting effect on investor sentiments and stock valuation. Thus for each company data was collected accordingly. For the event study analysis, first the returns were calculated from the closing price. Then a benchmark index was chosen based on the industry the company belongs to. Since the entire research is based on the companies which are listed in the London Stock Exchange, sector-specific benchmark was at times not available for the period required. As a result, benchmarks like FTSE100, Stoxx 600 Europe were used. Then, to identify whether this benchmark was suitable for the study of this company, a regression analysis is done. After ensuring that the P-value associated with the intercept and the X-Variable (Market returns) are below 0.05 and thus showcasing significance. Then using the coefficients attached to the intercept and the X-variable, the expected returns were calculated. Then calculate actual returns-expected returns to find the abnormal returns. Cumulative Abnormal Returns are then calculated. This helps to quantify the total impact that the announcement has on the price of the stock. While ARs (Abnormal Returns) measure the difference between the actual returns and the expected return and is necessary to calculate but we identified that a particular announcement might not impact the stock prices on the announcement day itself, it can cause some changes in prices few days before and few days after the announcement date. As a result, CARs are required to add up ARs over several days to capture the full effect of the event window. These CARs are then positioned adjacent to the date, and the event study analysis is visualised.

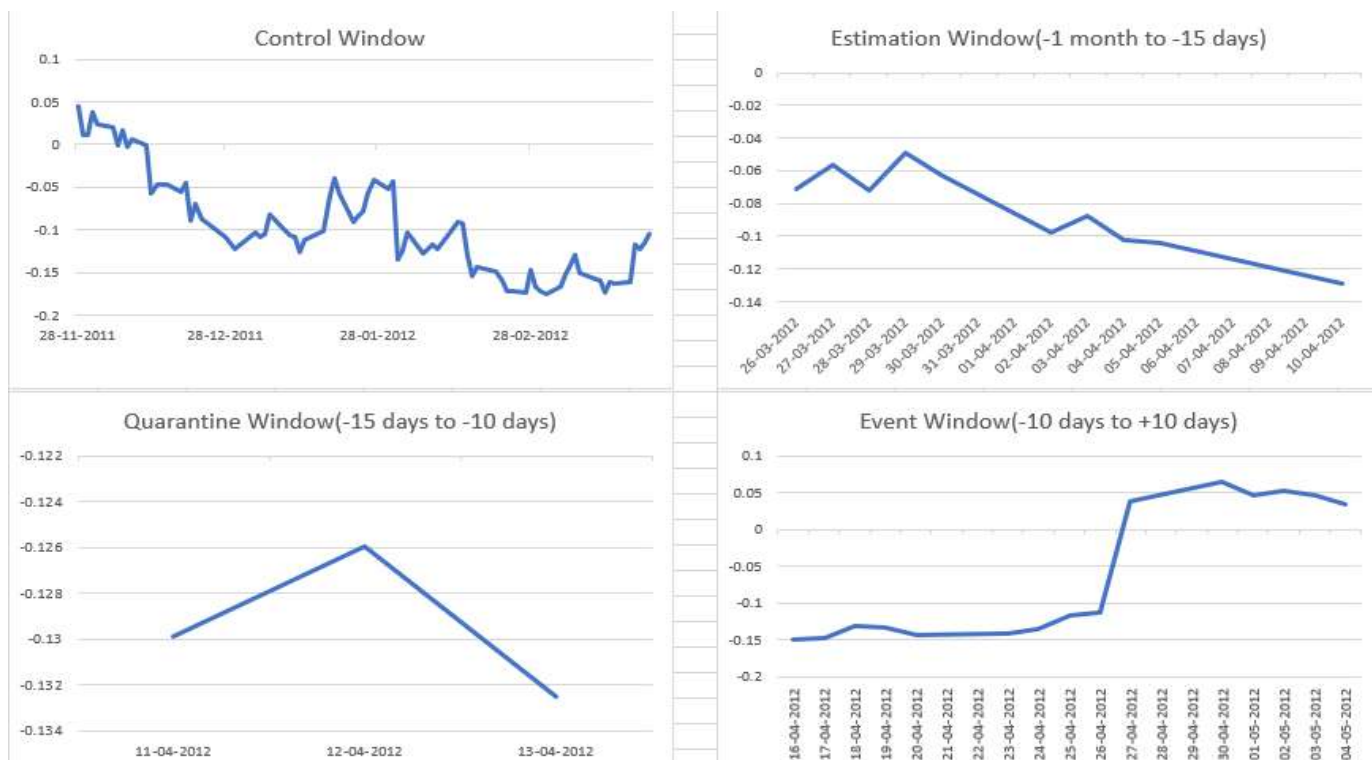
2.5 Results: Stock Market Reaction due to the scandal

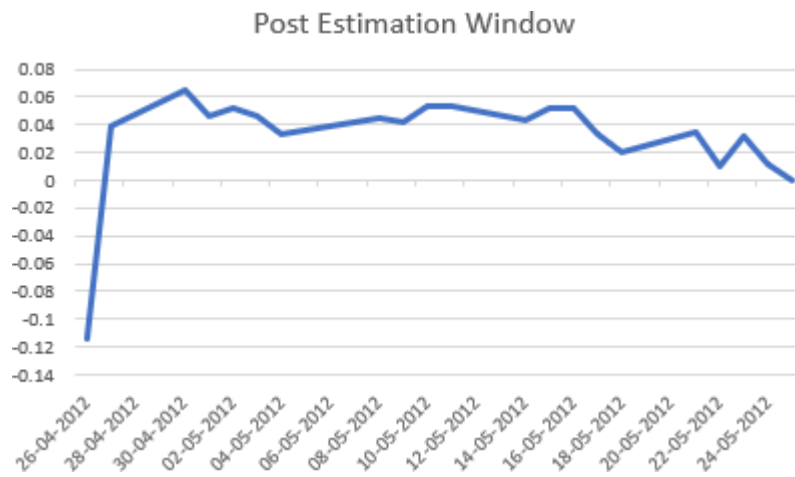
11 companies of the London Stock Exchange, as mentioned above, were considered for this study. These are the companies that were involved in different categories of financial crimes.

Company	Control	Estimation	Quarantine	Event	Post Event	
Amazon	Decline Trend	Downward	Downward	Upward	Strong Upward	
Barclays	Significant Vol	Downward	Firmly Negative	Fall then Up	Upward	
Glencore	Mild Decline	Decline	Flat to slight d	Sharp Decline	Sharp Drop	
Google	Uptrend	Steady Upwar	Slight Downw	Sharp Drop	Gradual Recovery	
HSBC(Swiss Le	Steady Increa	Upward Slopi	Upward	Downward	Downward	
Rolls Royce	Stable	Negative&Dro	Negative	strong positiv	Upward Trend	
Standard Cha	Stable(Pessim	Upward	Moderate rise	Sharp Fall	Stable&Recover	
Tesco	Upward	Mild Downwa	Mild Downfall	Steep Drop	Strong Downfall	
Vodafone	Stable&Norm	Downward	Stable negativ	Up Move, dip	Intial Up move	

Table 2. Companies with their movements in different windows around the first announcement of the crime

Amazon:





5. Event study analysis of Amazon, during different estimation windows(25 April 2012)

Control Window- The CAR line shows a clear and steady downward trajectory over this period. It begins slightly above 0 in late November 2011 and declines slowly, reaching below -0.15 by early March 2012. This shows that Amazon's stock was underperforming relative to the Expected Returns during this period. There are some minor rebounds, but none of them are significant enough to completely reverse the overall decline. This suggests that in the absence of a strong positive tool affecting investor sentiment in the months before the announcement. Some short-term fluctuations can be seen with some upswings in returns around late January 2012. These movements are mostly temporary. There can be several factors behind such a performance. First, Amazon's model at the time was highly focused on growth. It was reinvesting most of its earnings into expansion, logistics Infrastructure, and new markets. As a result, there existed a very thin operating margin, which made investors worry about the profitability.

Secondly, in late 2011 and early 2012, the market was recovering from the Eurozone sovereign debt crisis, which particularly feared a Greek default. Eurozone countries, especially Greece, Spain, Portugal, and Italy, were facing enormous debt burdens, raising fears of default, and the probability of eurozone collapse rose. This was also the time when the world economy was in the recovery phase after the 2008 financial crisis. Particularly in the US, unemployment rates were high, and consumer spending remained very low. More than Tech, Amazon is mostly tied to consumer behaviour. As a result, tech stocks, especially those with high P/E Ratios and low profits, were seen as risky investments. There was a good level of volatility in the global market. Tech stocks and high-value growth firms like Amazon tend to get more sensitive during such economic uncertainty.

Estimation Window: The estimation window continued to show a consistency in the downward trend. The CAR starts close to -0.08 on 26 March 2012 and by 10 April 2012, it declines further to approximately -0.13, indicating a total drop of about 5 percentage points in abnormal returns during this short window. There was no evidence of leaked news or speculation around the case of Tax Evasion in this period. This shows that the market did not anticipate this regulatory announcement that came on 25 April 2012. The downward trend indicates the same as the control window, which is primarily investor dissatisfaction was already growing, and there were broader macroeconomic factors, weak earning outlook, and of course, the competition that further eroded confidence.

Quarantine Window: On 11 April 2012, CAR is at -0.130. On 12 April, there is a slight positive movement, and the CAR reaches -0.126. On 13 April 2012, it went back to a point lower than the previous low(-0.133).

By now, it is clear that Amazon has been underperforming for a long time. As a result, this window shows a period where no event-related news had been broken yet. The movement suggests that no leak in information about the tax case had entered the market. The stock is moving in its general course of movement, which it has been showing for a long time. The lingering doubt is about the profitability, high capital expense, and low margins despite revenue growth. Till now, what the graph shows suggests that the market was already in a defensive mode about Amazon.

Event Window-On 25 April 2012, which is the actual announcement day, there was no sharp drop that occurred. There is a very dramatic reversal on the 26th as CAR shoots up from -0.12 to 0. This is the first time in the time period we have considered that the CAR value was non-negative, suggesting the market did not punish Amazon. There can be several reasons behind it. Firstly, the investors may have interpreted the tax evasion issue to be manageable(may not have considered it to be a criminal charge). Secondly, investors sometimes might have expected worse outcomes, and this result was not as bad as it was feared.

Post Event Window- For Amazon, this tax evasion case turned out to be favourable. The CAR jumped from -0.12 to +0.04. The investors did not feel that such an incident would impact Amazon's Global Operations or profitability. Amazon's Financial power and the future prospects it held outweighed the legal noise that it had to face.

GARCH Model to understand the long term impact:

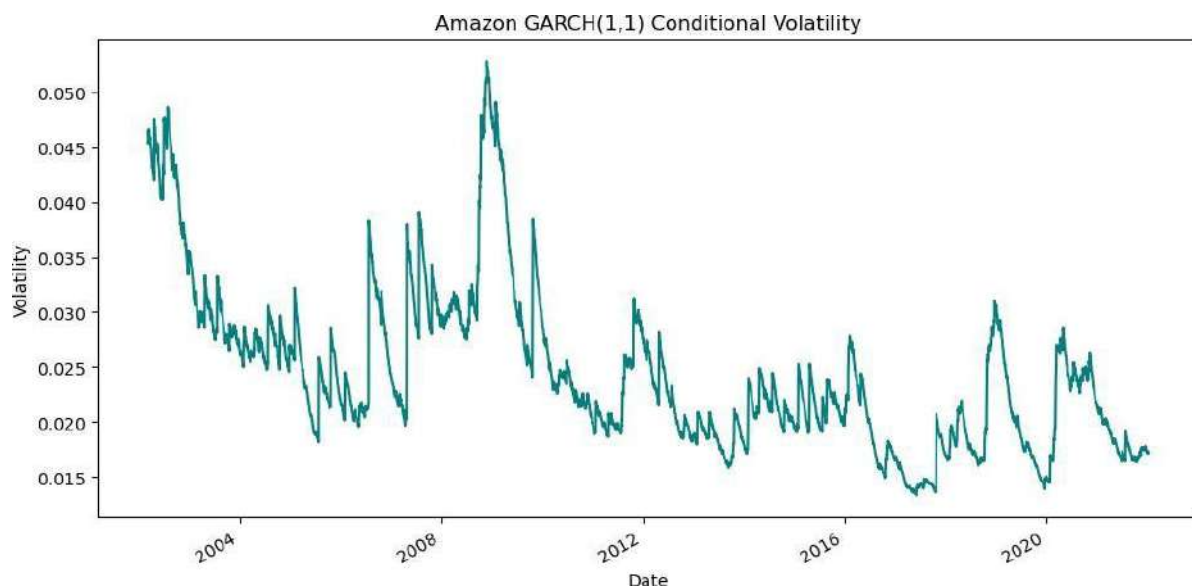


Figure 6. Amazon's GARCH Model during the period of crime

Constant Mean - GARCH Model Results					
=====					
Dep. Variable:	Price	R-squared:	0.000		
Mean Model:	Constant Mean	Adj. R-squared:	0.000		
Vol Model:	GARCH	Log-Likelihood:	11679.1		
Distribution:	Normal	AIC:	-23350.2		
Method:	Maximum Likelihood	BIC:	-23324.2		
		No. Observations:	4999		
Date:	Tue, Apr 22 2025	Df Residuals:	4998		
Time:	10:49:50	Df Model:	1		
Mean Model					
=====					
	coef	std err	t	P> t	95.0% Conf. Int.

mu	1.1390e-03	3.181e-04	3.581	3.429e-04	[5.155e-04,1.762e-03]
Volatility Model					
=====					
	coef	std err	t	P> t	95.0% Conf. Int.

omega	1.7283e-06	2.639e-12	6.548e+05	0.000	[1.728e-06,1.728e-06]
alpha[1]	0.0161	1.796e-04	89.769	0.000	[1.577e-02,1.647e-02]
beta[1]	0.9815	1.293e-03	759.333	0.000	[0.979, 0.984]
=====					

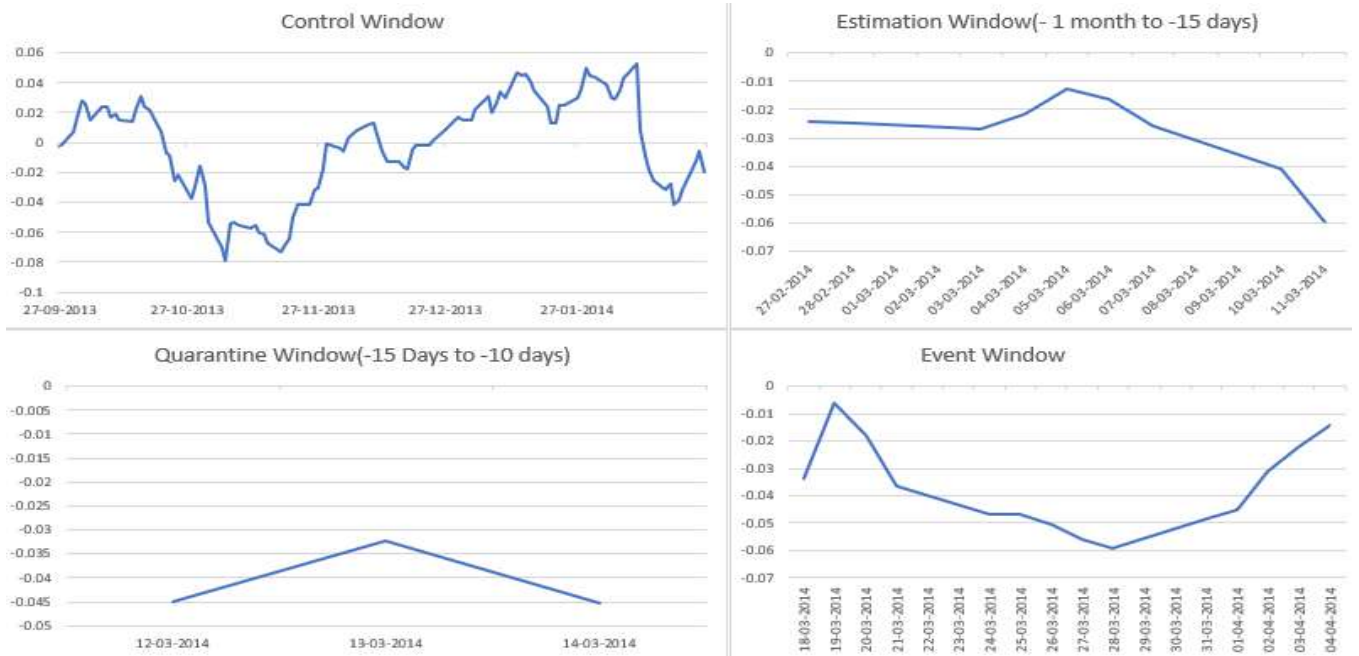
Covariance estimator: robust

Table 3. Amazon's GARCH Model Table

Looking at the GARCH(1,1) conditional volatility graph for Amazon over the twenty years surrounding 2012, a clear shift in the company's risk profile emerges. In the years leading up to 2012, volatility was noticeably higher and more erratic, with pronounced spikes around the early 2000s and a particularly sharp peak during the 2008 financial crisis. This pattern suggests that investors were grappling with uncertainty about Amazon's growth prospects and broader market turmoil. However, after March 2012, the point when the tax avoidance case against Amazon was first announced, there was a visible decline in volatility. The fluctuations become less dramatic, and the baseline volatility settles at a lower level. Even though there are occasional bumps, such as during the pandemic in 2020, the overall trend is one of stabilization. This suggests that, despite the regulatory spotlight, Amazon's market matured, and investor confidence grew, leading to a calmer, more predictable trading environment in the decade following the tax case announcement.

In the context of the pre- and post-2012 analysis, these results confirm what you observed in the volatility graph: Amazon's volatility is highly persistent, but the low omega and moderate alpha suggest that, outside of major events, volatility does not spike dramatically without a significant catalyst. After the 2012 tax case, the market seemed to absorb the news and volatility stabilized, which is consistent with the high beta and low alpha values here. This means that while Amazon's volatility can remain elevated after large shocks, in the absence of new shocks such as the tax case, the market tends to settle down, leading to the calmer post- 2012 environment you identified.

Barclays



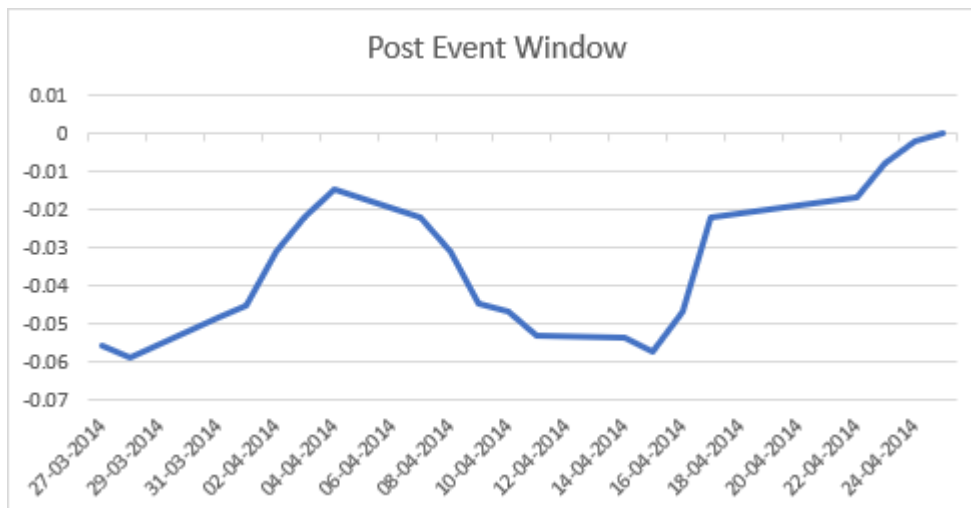


Figure 7. Barclays Event Study analysis during the period of crisis (Barclays Forex Scandal, 26 March, 2014)

The control Window clearly shows that Barclays has been volatile throughout. In the early parts of October, there seemed to be a very strong volatility that declined towards mid- November, showcasing market uncertainty.

There can be multiple reasons behind such a movement. The UK economy was gaining momentum during late 2013. The Bank of England kept interest rates low and created accommodative policies. By this time, the UK Banks, especially the large-cap banks such as Barclays, had cleared the stress tests, raised a large amount of capital, and reduced their exposure to risky assets after the 2008 financial crisis. The strong year-end performance was probably due to the December effect. Equity markets globally tend to rally around this time due to a number of factors, such as positive consumer spending during the Christmas season and the optimism that consumers have due to the incoming new year. So, clearly, Barclays

benefited from this broader bullish wave since various indexes such as the FTSE 100 also increased at that time.

The Estimation Window suggests that there was a gradual downward trend evident. The downfall sped up from 6 March onwards, showcasing the possibility that investors were pricing negative expectations. During this time, there was a significant decline in profit. On 10 February 2014, Barclays reported a 26% fall in adjusted pre-tax profits for 2013. Despite the profit decline, Barclays announced plans to increase bonuses for its investment bankers, which might have made the investors uncomfortable. Around this time, Barclays faced scrutiny over data breaches, including the theft of confidential customer files.

Quarantine Window showed a brief mid-day upward trend on 13th March, possibly showcasing a positive speculative optimism. However, most of the surrounding data remained.

The event window showed that before the event, there was a sharp drop. This is possibly due to investors' likely anticipation of the negative news. On 26 March, which is the day of the event, the downward momentum continued with the lowest abnormal returns around March 28th. In the case of Barclays, the post-event recovery was very quick and caused a steady rise. This shows that the market very quickly adjusted to the new information. This might be due to the market not considering the event to be too severe of an event

In the Post Event Window, it seems like the market digested the impact quite fast and saw that the fine was a really small amount as compared to Barclays' total revenue. They did not consider it to be a very significant event, and this led to a correction with the stock bouncing back to better than the pre-event returns.

GARCH Model to understand the long term impact:

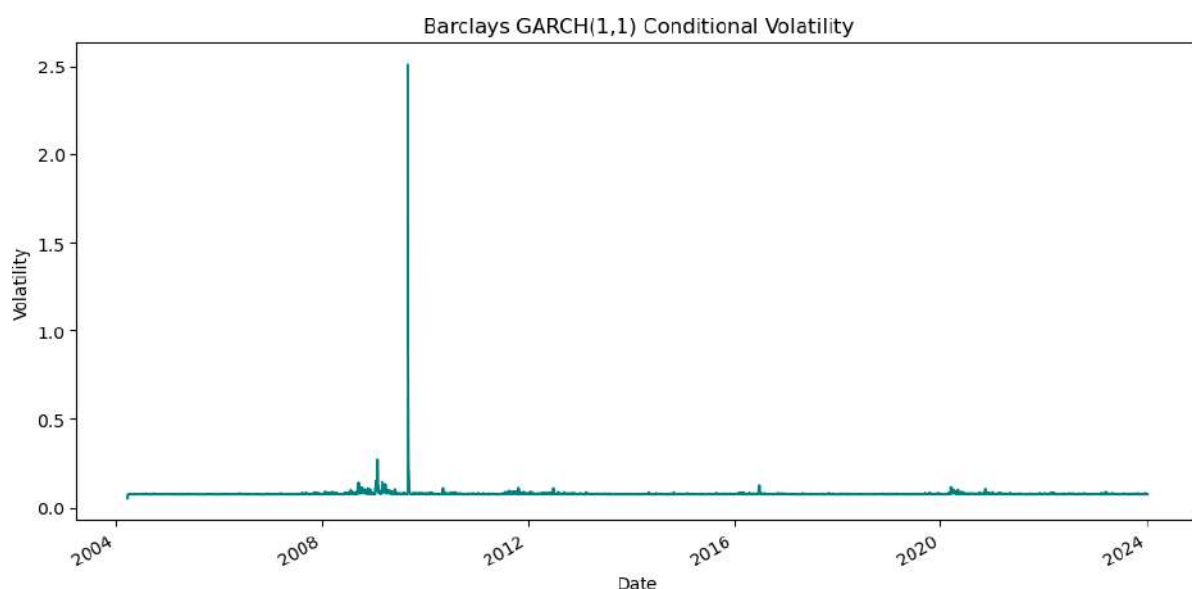


Figure 8. Barclays GARCH Model


```

Constant Mean - GARCH Model Results
=====
Dep. Variable:          Price      R-squared:          0.000
Mean Model:            Constant Mean  Adj. R-squared:      0.000
Vol Model:             GARCH        Log-Likelihood:     6224.95
Distribution:          Normal       AIC:                -12441.9
Method:               Maximum Likelihood  BIC:                -12415.8
                                           No. Observations:   4999
Date:                 Tue, Apr 22 2025  Df Residuals:       4998
Time:                 11:24:19        Df Model:            1
                                           Mean Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
mu          -6.5295e-03  5.516e-03    -1.184    0.236 [-1.734e-02, 4.281e-03]
              Volatility Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
omega       2.6510e-03    0.115  2.310e-02    0.982 [ -0.222,  0.228]
alpha[1]     0.2080      5.545  3.751e-02    0.970 [-10.659, 11.075]
beta[1]      0.4950     18.424  2.687e-02    0.979 [-35.615, 36.605]
=====

```

Covariance estimator: robust
Table 4. Barclays GARCH Model using Python

The GARCH(1,1) model charting Barclays' conditional volatility over a 20-year period (2004–2024) shows a stable trend with no major spikes around the event date of March 26, 2014, when the company faced scrutiny over tax-related financial misconduct. Most of the volatility observed in the earlier years seems tied to broader market events, especially the 2008 financial crisis, and one large spike around 2011, which appears unrelated to the event being studied. Interestingly, despite the significance of the 2014 event, the GARCH model doesn't show any substantial jump in volatility at that point. This suggests that either the market didn't view the event as especially damaging, or it had already priced in the possibility of such news.

A separate event study analysis focused on the six months leading up to the event and one month following, did show noticeable volatility around the announcement. This difference makes sense when we consider what each method captures. Event studies are designed to pick up short-term market reactions and sudden price movements, often over a tight time frame. In contrast, GARCH models look at volatility over time, smoothing out short bumps unless they're strong or sustained. So, while the event study picked up an immediate reaction from investors, the GARCH model didn't reflect it because the overall shift in volatility wasn't large or lasting enough. Essentially, the event made a short-term splash but didn't cause lasting ripples in the market's view of Barclays' risk.

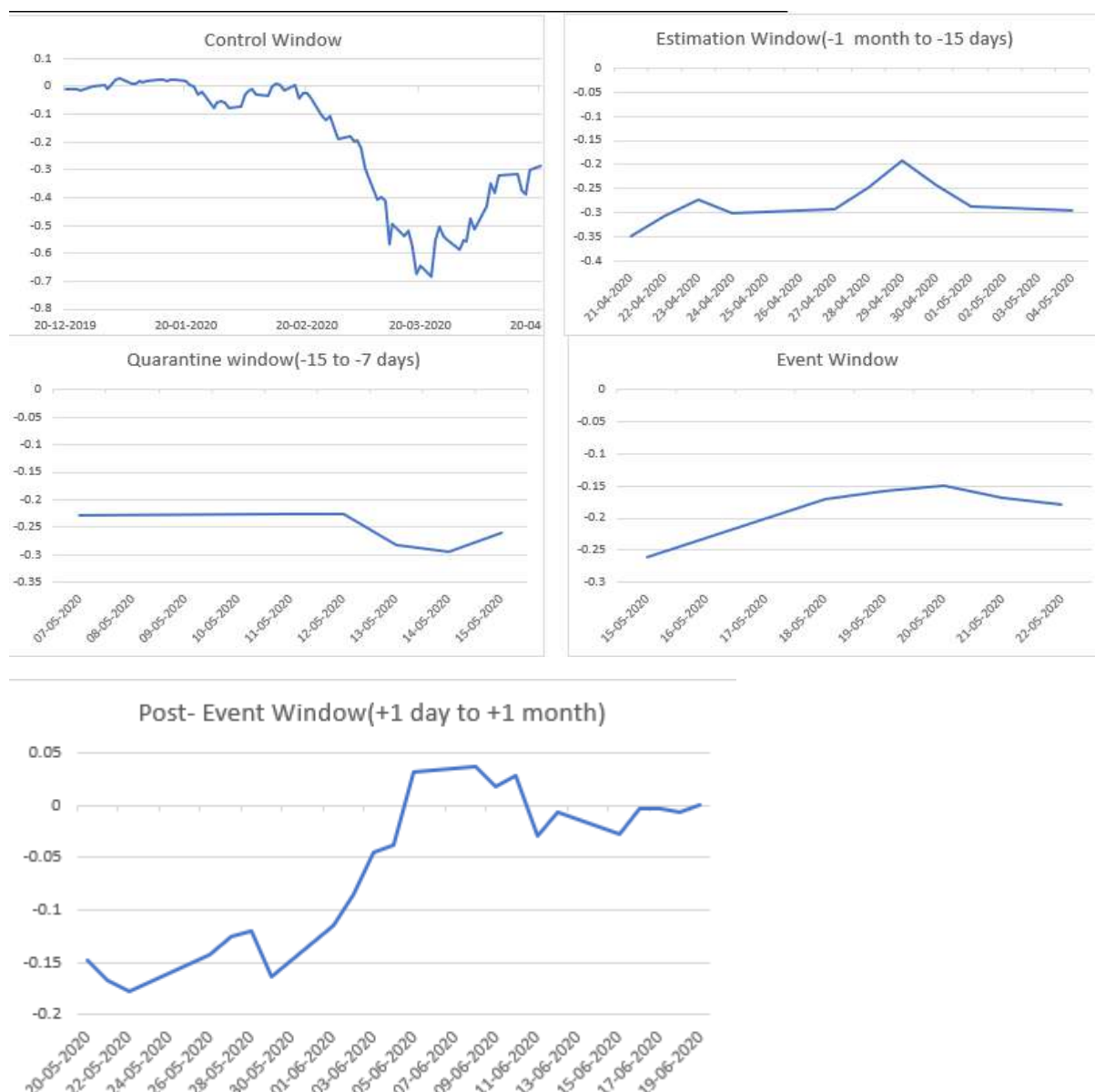


Figure 9. Glencore's Event study analysis using Excel(May, 2022)

Glencore is a multinational natural resource company listed on the London Stock Exchange. This company showed a slight positive trend till late February. After this, there was a steep decline by late March and then a slight recovery.

The sharp drop aligns with the COVID-19 market collapse, which caused a global downfall. This has nothing to do with Glencore's bribery event. It actually showed a normal behaviour when compared with the market condition at that time.

Estimation Window showed an overall downward Trend with a slight minor uptick before declining again. The volatility that is seen is due to the commodity price fluctuations and the slight optimism due to the news of pandemic recovery. There exists no major sign of informational leakage.

Quarantine Window shows that it was consistently negative but showed a further dip on 12th May 2020, and there was any strong recovery after that. The dip is possibly suggesting that the market started sensing that something was wrong. Additionally, the Natural resource sector

was specifically vulnerable due to disruptions in the supply chain, commodity price crashes primarily due to a drop in demand for such commodities, and even contract renegotiations. During this time, the institutional investors might have started to make their portfolios lighter by removing such stocks, hence a selling pressure.

Event Window showed that around 18-19th may, the CAR was negative, and this aligns with the panic reaction of the market to news such as bribery and corruption. Investors saw this as a major reputational and legal risk for the company. Then, around 20-22nd may the upward trend is seen, which suggests that the initial panic has begun to ease. Maybe the investors understood that the fines or penalties are small in comparison to Glencore's size and global operations. Even after seeing such a positive trend, the returns were close to zero, showcasing the investor's concern.

Post post-event window begins with consistent negative returns, showing that investors were quite cautious and visibly uncertain in the aftermath of the event. However, from the end of May to early June, a sharp upward movement is observed, ending in a temporary positive return peak around 6-7 June. This recovery suggests that investors were possibly reassessing the long-term impact of the scandal. Considering both the financial as well as operational risks. This kind of behaviour is consistent with investor behaviour in the natural resource sector, where corporate governance usually takes a back seat if the company's market position and macroeconomic indicators remain strong.

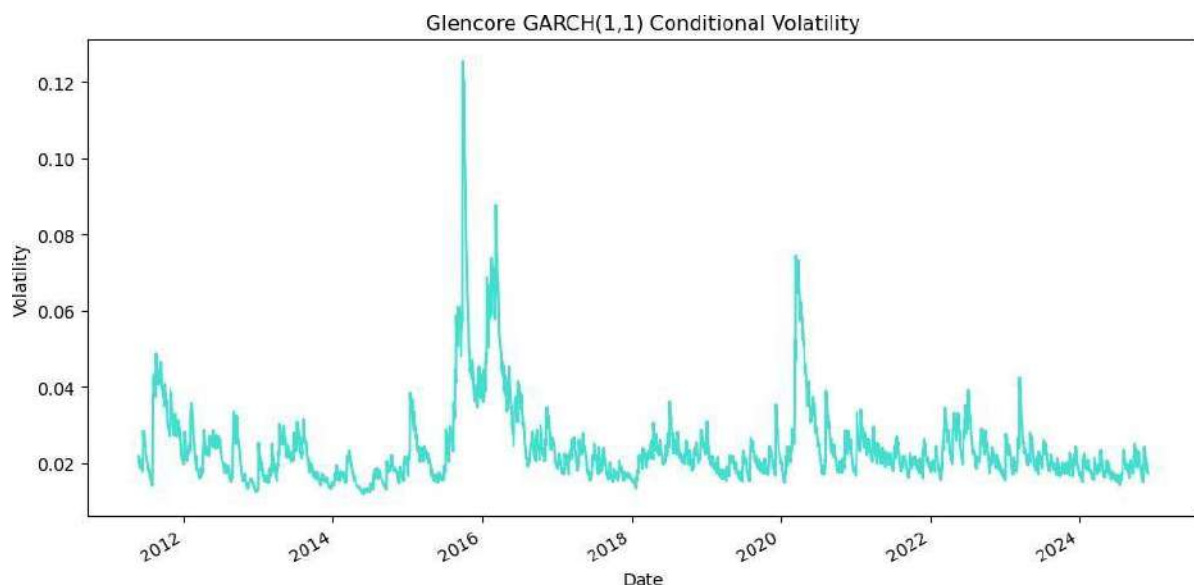


Figure 10. Glencore's GARCH Model

GARCH Model to understand the long-term impact:

```

Constant Mean - GARCH Model Results
=====
Dep. Variable:          Price    R-squared:                0.000
Mean Model:             Constant Mean    Adj. R-squared:           0.000
Vol Model:              GARCH    Log-Likelihood:          8151.15
Distribution:           Normal    AIC:                    -16294.3
Method:                Maximum Likelihood    BIC:                    -16269.7
                                           No. Observations:       3424
Date:                  Tue, Apr 22 2025    Df Residuals:            3423
Time:                  12:21:37    Df Model:                 1
                                           Mean Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
mu           2.3220e-04  3.407e-04      0.682      0.496 [-4.356e-04,9.000e-04]
Volatility Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
omega        1.3827e-05  6.170e-12    2.241e+06      0.000 [1.383e-05,1.383e-05]
alpha[1]      0.1000    1.946e-02     5.138    2.781e-07 [6.185e-02, 0.138]
beta[1]       0.8800    1.542e-02    57.085      0.000 [ 0.850, 0.910]
=====

```

Covariance estimator: robust
Table 5. GARCH Analysis of Glencore using python

The GARCH(1,1) model applied to Glencore's stock returns provides a clearer picture of how the company's volatility evolved over time. Looking at the graph, we notice a distinct spike in conditional volatility around 2015 to early 2016. This period aligns with the global commodity downturn, a time when Glencore, like many other resource-heavy companies, faced significant market pressure. Investor uncertainty was high, and naturally, that was reflected in a rise in volatility.

However, what stands out more in the context of this study is what doesn't appear on the graph namely, a sharp spike around May 2022, when Glencore officially pleaded guilty to multiple charges of bribery and market manipulation. One might expect a scandal of this scale to trigger a strong market reaction, but the GARCH model tells a different story. Volatility during that period remained relatively stable. There's no dramatic rise, no sign of panic in the data.

This relatively muted response can likely be explained by the timeline of events. The UK Serious Fraud Office had already launched its investigation in 2019 and made it public in December of that year. Over the next couple of years, additional details came to light, and Glencore even disclosed its cooperation with regulators. In short, the market had time to absorb the potential legal risks and consequences. By the time the guilty plea was formally announced in 2022, the news was largely expected.

When Glencore's bribery scandal came to light in May 2022, the market reacted quickly. The event study shows that investors responded with a sharp dip in returns around May 18–19, likely due to concerns about legal trouble and reputational damage. A slight recovery followed in the next few days, possibly because investors realized the fines might not hurt Glencore

much, given its size and global reach. Still, the returns didn't fully bounce back, showing lingering doubts. A temporary uptick in early June hinted that some were starting to believe the long-term impact might be limited, something we often see in the resource sector, where market dominance can outweigh governance issues.

But when we look at the GARCH(1,1) volatility graph, the story is different. There's no major spike around the event date. That's because GARCH doesn't capture short-term emotional reactions it's more about spotting consistent patterns in volatility over time. If the market's panic was brief or expected, the model won't flag it as significant. So while the event study zooms in on investor sentiment in the moment, the GARCH model steps back and tells us that, in the bigger picture, not much changed in how risky Glencore looked to the market.

Google(Alphabet.inc)

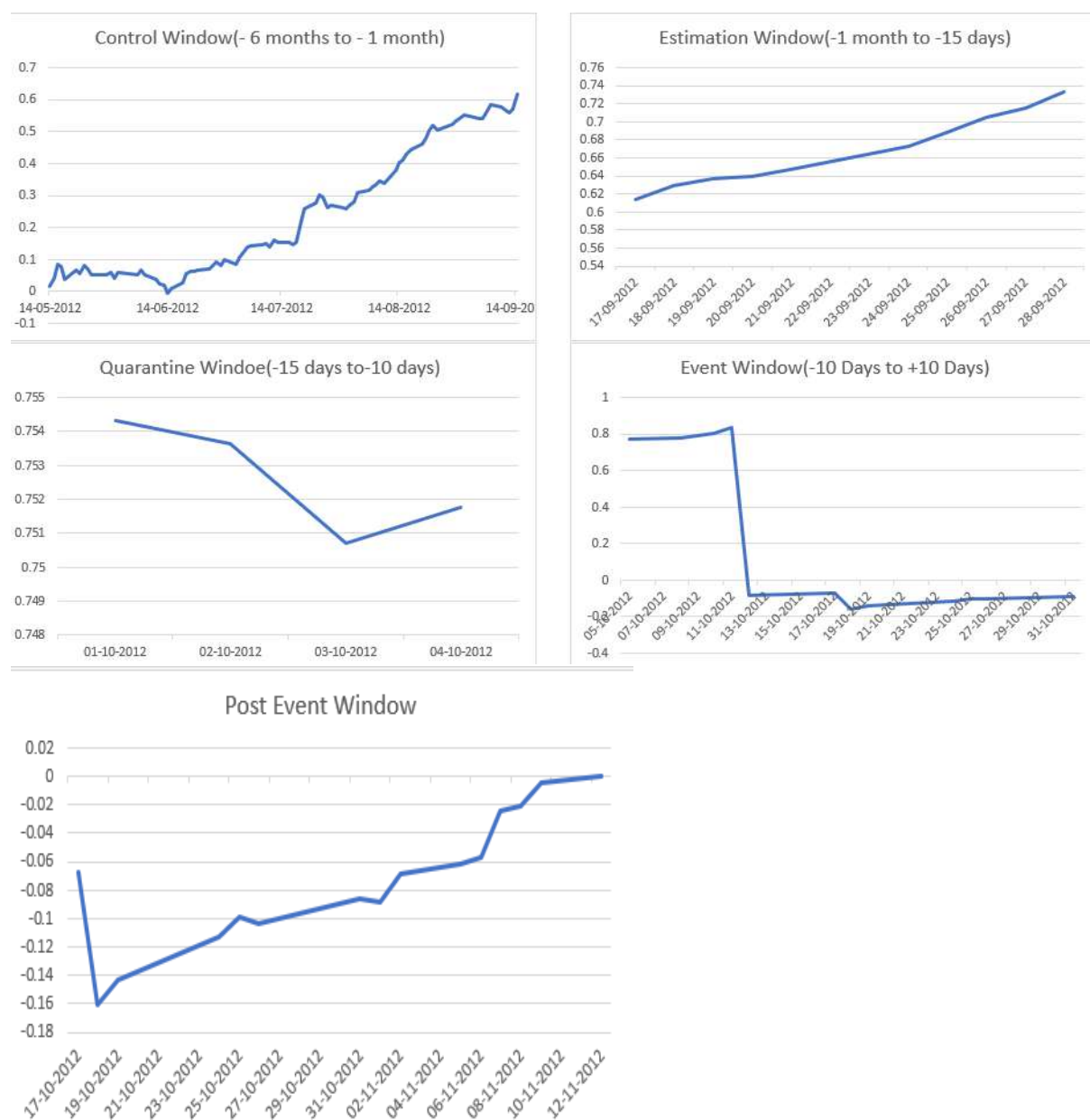


Figure 11. Google's Event study Analysis(October 14, 2012)

The control window in this case shows a strong upward trend. This clearly shows the obvious

positive sentiment about Google in normal circumstances. There was an overall bullish technology sentiment in mid-2012.

The estimation window further supported the upward climb by showing a strong upward trend. The market continued to perform really well shortly before the announcement. This can suggest that the investors expected a strong earnings season and showed high confidence in Google.

The Quarantine Window suggests a slight downward drift. There may have been some information leak or simply rumors about the upcoming announcement. These rumors can be spread in a number of ways, such as the analysts closely monitoring the company's performance may predict that many institutional investors have superior access to additional insights. They may start adjusting portfolios, and that can impact the market behaviour.

Event Window shows a steep drop right after the announcement to nearly zero. Flatline was seen with no significant recovery over the next few days. Clearly, the market reacted sharply and that too negatively to the announcement. The flatline showed that investors had a sense of continued uncertainty and completely lacked the confidence, in the short term.

The post event window shows that initially it started at a very low point and slowly increased, going above zero. The market was still pessimistic but slowly the investors regained the confidence and returned back to the company.

GARCH Model for Long term Impact:

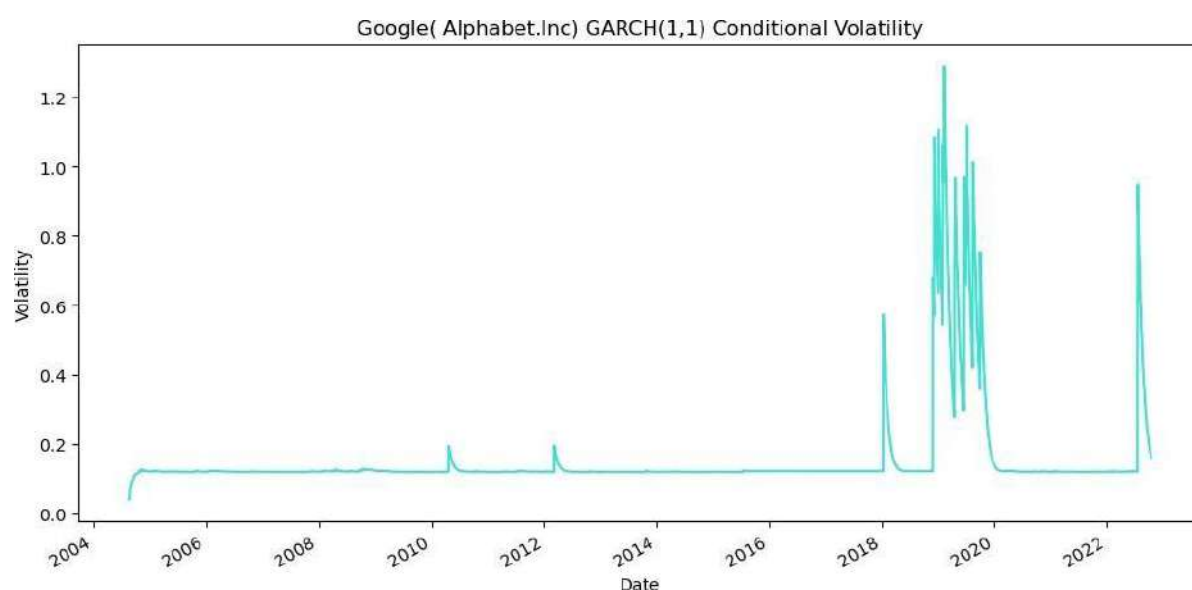


Figure 12. Google's GARCH Model

The GARCH(1,1) model for Google (Alphabet Inc.) reveals some compelling trends in volatility over the period from 2004 to 2024. What's immediately noticeable is that, for much of the time, the stock's volatility remains relatively low and stable — particularly before 2018. However, starting around late 2018 and continuing through 2020, there are substantial spikes, some of which reach extreme levels. These likely coincide with broader market disruptions such as the COVID-19 pandemic and other global economic uncertainties.

Now, turning our attention to the specific event date October 14, 2022, which relates to financial crime or legal controversy surrounding Google there's a curious observation. Despite the

significance of the event, the GARCH model doesn't register any major surge in conditional volatility at or immediately after this point. This may suggest that the market reaction was either muted or already priced in due to earlier disclosures, speculation, or gradual news leaks in the months leading up to the announcement.

Interestingly, a sharp spike does appear post-2022, but it's slightly delayed and not directly aligned with the October event. This delayed volatility could be tied to broader macroeconomic conditions, regulatory actions, or tech sector-specific events rather than the financial crime disclosure itself.

Following the announcement, the market's reaction to Google was both sharp and telling. The event window revealed a steep drop in returns, followed by a flatline that lasted several days. This was not just a dip it was a pause, almost as if investors collectively stepped back to process what had just happened. The lack of an immediate bounce-back reflected a deep sense of uncertainty, and perhaps a bit of disbelief, especially given Google's usual standing in the market.

In the days that followed, the post-event window started to show a slow recovery. Returns crept back up, not dramatically, but steadily. It felt like investors were cautiously stepping back in, still wary, but beginning to regain trust. This was not a market chasing quick gains it was one reassessing the bigger picture.

The GARCH model backs this up to an extent. Right after the event, volatility spiked just as one would expect when something unexpected shakes confidence. Another point to note is that an extended stretch of low volatility echoes the flatlined returns. It was as if the market had gone completely quiet, but was hesitant. Maybe the investors were not rushing to sell, but they weren't buying either. Only later does volatility pick up again, likely as sentiment began to shift and news around the event settled.

In this case, both the event study and the GARCH model paint a similar picture. The reaction wasn't just about numbers, it also reflected emotion, hesitation, and gradual recovery. Google's stature may have helped stabilize the longer-term outlook, but in the short term, the market's caution was unmistakable.

HSBC(Swiss Leaks)

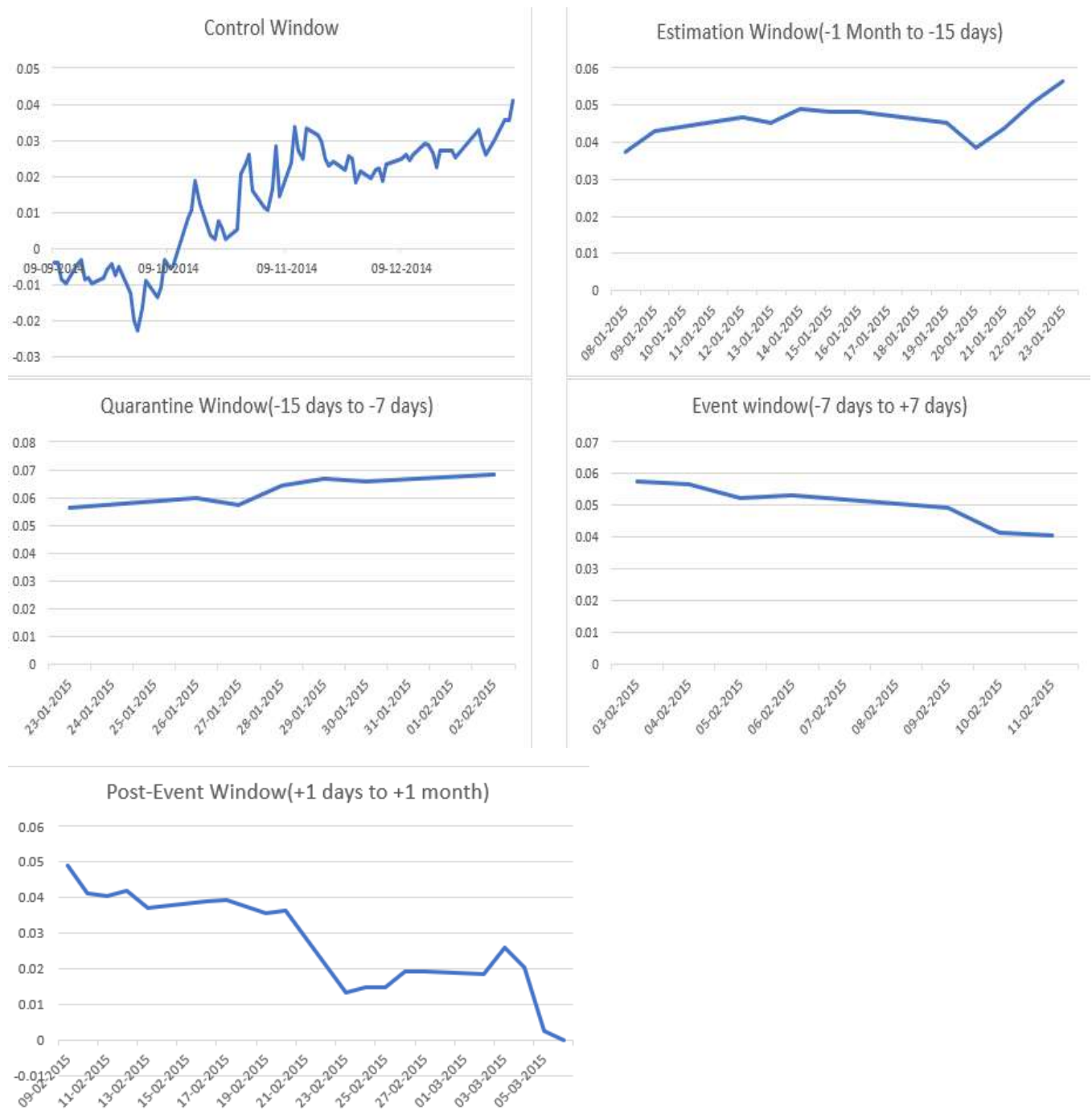


Figure 13.HSBC(Swiss Leaks) Event study Analysis(8 February, 2015)

Control Window shows that in the months leading up to February 2015, HSBC's stock was doing fairly well. This control window, which captures the period from six months to one month before the scandal, showed a clear upward trend. Investors seemed confident in the bank's performance, and there weren't any obvious warning signs. It was business as usual, and the market appeared stable.

The Estimation Window that between one month and about two weeks before the event, the stock continued to show a calm and steady pattern. This estimation window is meant to reflect the normal behavior of the stock without any influence from the upcoming news, and that's

exactly what we see here. There was no unusual volatility, and overall sentiment still looked pretty neutral to positive.

Quarantine Window shows that between 15 to 7 days before the announcement, returns were slightly positive. This quarantine window is usually set aside to avoid any data that might be affected by early leaks or rumors. Interestingly, in HSBC's case, the stock didn't show any signs of nervousness. If investors had caught wind of something, we might have seen more hesitation, but that wasn't the case here.

The Event Window is where things changed. Starting about a week before the announcement and continuing a week after February 8, the stock took a noticeable hit. Once the Swiss Leaks story went public, the drop in returns suggests investors reacted quickly and negatively. The event likely sparked concerns about regulatory scrutiny, reputational damage, and the long-term consequences for the bank.

Post-Event Window shows that in the weeks following the news, the downward trend didn't stop. The post-event window spanning a month after the announcement shows that the market remained cautious. The stock didn't bounce back, and it seemed like investors were still processing the impact. It's clear the scandal had a lingering effect on HSBC's valuation and investor confidence.

GARCH Model for Long term Impact:

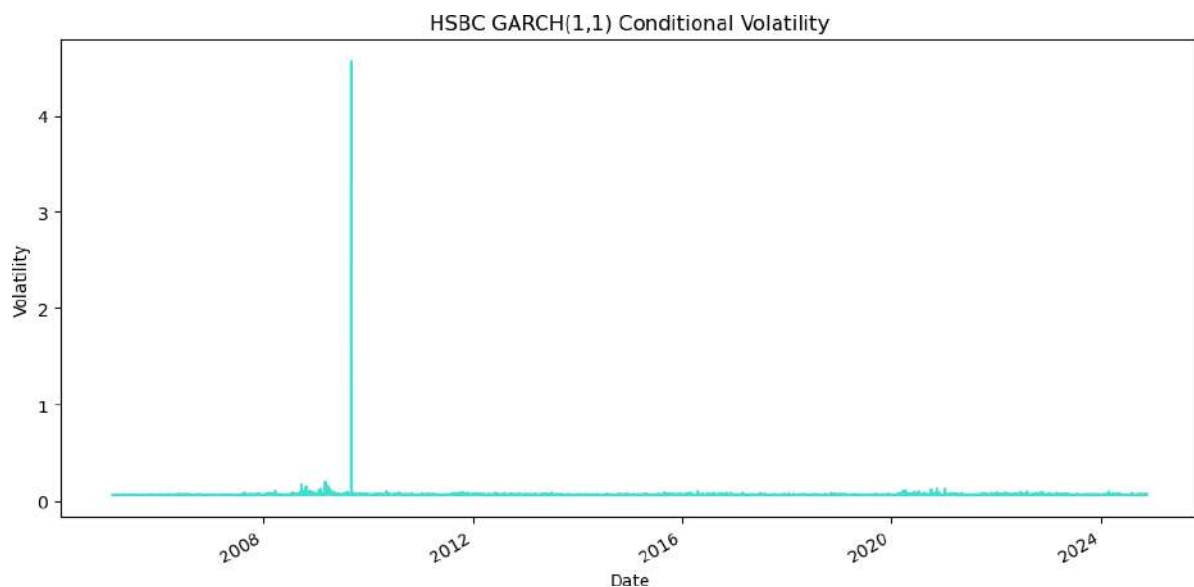


Figure 14. HSBC (Swiss Leaks) GARCH Model

Constant Mean - GARCH Model Results					
Dep. Variable:		Price	R-squared:		0.000
Mean Model:		Constant Mean	Adj. R-squared:		0.000
Vol Model:		GARCH	Log-Likelihood:		6489.72
Distribution:		Normal	AIC:		-12971.4
Method:		Maximum Likelihood	BIC:		-12945.4
			No. Observations:		4999
Date:		Wed, Apr 23 2025	Df Residuals:		4998
Time:		21:14:09	Df Model:		1
Mean Model					
	coef	std err	t	P> t	95.0% Conf. Int.
mu	-0.0127	9.813e-03	-1.298	0.194	[-3.197e-02,6.493e-03]
Volatility Model					
	coef	std err	t	P> t	95.0% Conf. Int.
omega	3.6814e-03	3.041e-03	1.211	0.226	[-2.279e-03,9.641e-03]
alpha[1]	1.0000	0.672	1.488	0.137	[-0.317, 2.317]
beta[1]	0.0000	2.036e-04	0.000	1.000	[-3.991e-04,3.991e-04]

Covariance estimator: robust
Table 6. HSBC's GARCH Model

The GARCH(1,1) results for HSBC paint an interesting picture of how the market digested the Swiss Leaks scandal. Despite the seriousness of the allegations and the widespread media coverage, the volatility graph doesn't show any sharp spike around February 2015. This suggests that investors, while likely concerned, didn't see the news as a threat to HSBC's financial stability. Looking closer at the model, the alpha value sits at a full 1.0, implying that any shocks to returns had an immediate impact on volatility. However, the beta is essentially zero, which is unusual; it means that volatility didn't persist beyond the initial reaction. Together, the model shows that whatever worries the investors had were short-lived. This lack of sustained volatility aligns with the idea that HSBC's global reach and balance sheet strength gave investors confidence that it could weather the reputational fallout. The Swiss Leaks may have triggered questions about ethics and governance, but in terms of market behavior, the response was relatively calm and short-term.

Looking at both the event study and the GARCH model, it's clear they each capture a different layer of the market's reaction to the Swiss Leaks. The event study shows a more visible impact, such as the returns dropped noticeably in the days around February 8, and the downward trend continued into the following weeks. Investors seemed to respond immediately, and that response wasn't just a blip. It lingered, reflecting real concerns about what the scandal could mean for HSBC's future. But when you shift to the GARCH model, the tone is a bit different. There's no dramatic spike in volatility; things stay relatively stable. That suggests investors were uneasy but not in full-blown panic mode. They were reacting cautiously, not chaotically. So while the event study highlights the hit to stock performance, the GARCH model shows that the underlying uncertainty didn't spiral. In a way, the two pieces fit together: the scandal

clearly dented confidence, but the market seemed to believe HSBC would absorb the blow without a meltdown.

Rolls Royce

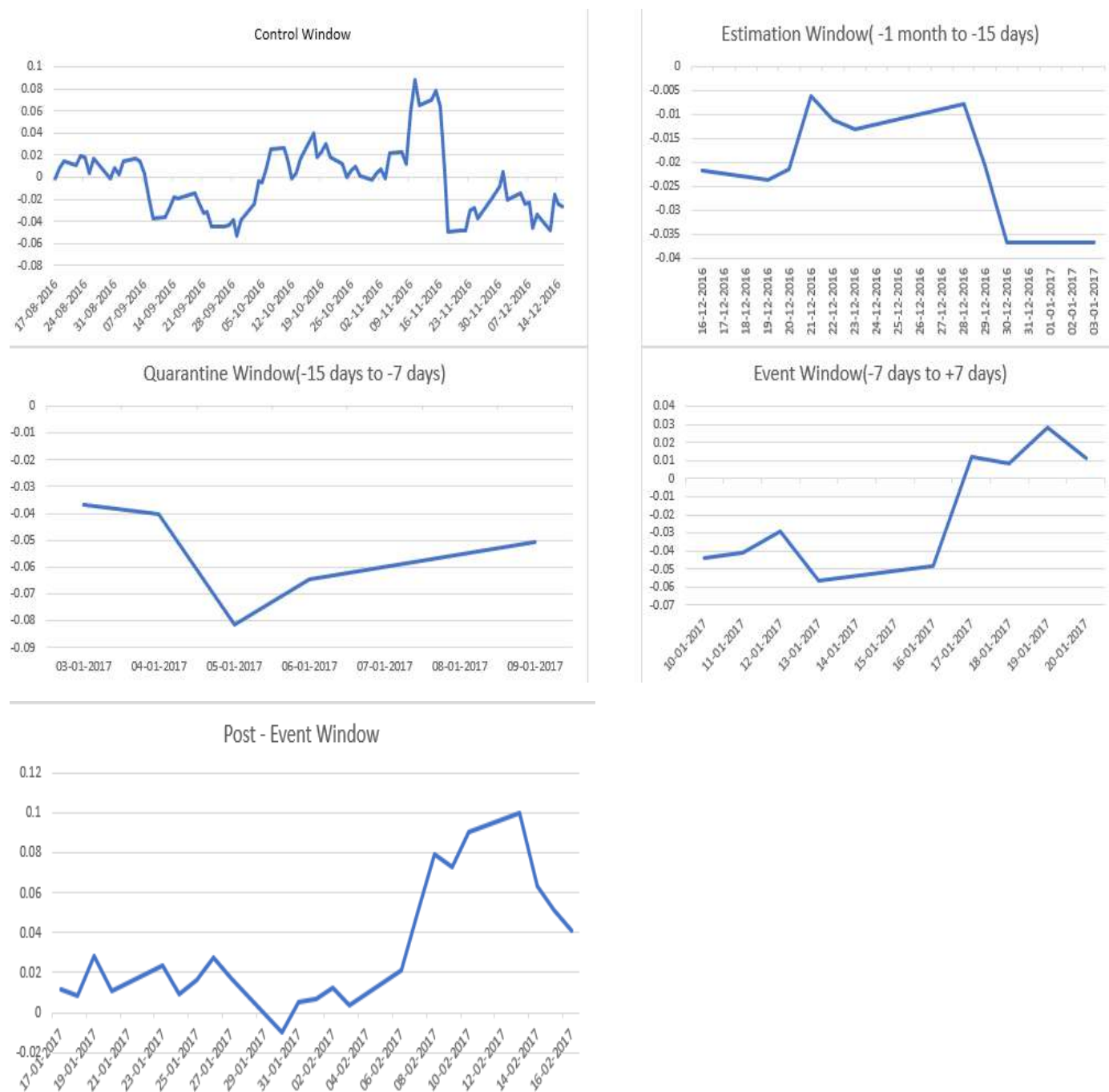


Figure 15. Rolls Royce's Event Study Analysis (January 17, 2017)

Control Window shows in the months leading up to the event, from mid-September to mid-December 2016, Rolls-Royce's stock returns stayed relatively steady, with small ups and downs that didn't raise any major red flags. Most of the movement stayed close to zero, showing that the market wasn't reacting to anything out of the ordinary. However, there was a slight dip toward the end of November, which could either be coincidental or perhaps an early sign that some news was starting to circulate behind the scenes.

Estimation Window shows that from mid-December 2016 to early January 2017, during the estimation window, the returns remained mostly in the negative zone. There was a noticeable drop just before the window ended, which stood out. This period is typically used to understand how the stock would have performed under normal circumstances, without any influence from the upcoming event. The idea is to set a baseline so we can later spot any unusual changes around the event itself.

Quarantine Window running from January 3 to January 9, 2017, shows a clear downward trend. This period is usually left out of calculations to avoid mixing in any early reactions or rumors that might have started spreading before the official news came out. The consistent drop suggests that something might have been brewing, perhaps investors were sensing that an announcement was coming, or speculation had started to influence the market.

Event Window includes the actual announcement date of January 17. Here, we see a major shift. Returns moved sharply from negative to positive territory. It's clear the market took the news surprisingly well. Even though the event was about a bribery settlement—a negative headline the reaction was quite the opposite. It seems investors saw the announcement as a turning point, bringing clarity and perhaps a sense of closure after a long period of uncertainty.

Post-Event Window, in the weeks after the announcement, from January 25 through mid-February, the stock continued to climb. Returns rose steadily, peaking around mid-February. This sustained momentum suggests that investors felt confident about the company's future now that the issue had been addressed. The strong post-event performance indicates that, despite the nature of the event, the resolution gave the market a reason to be optimistic about Rolls Royce's direction moving forward.

GARCH model for long term impact:

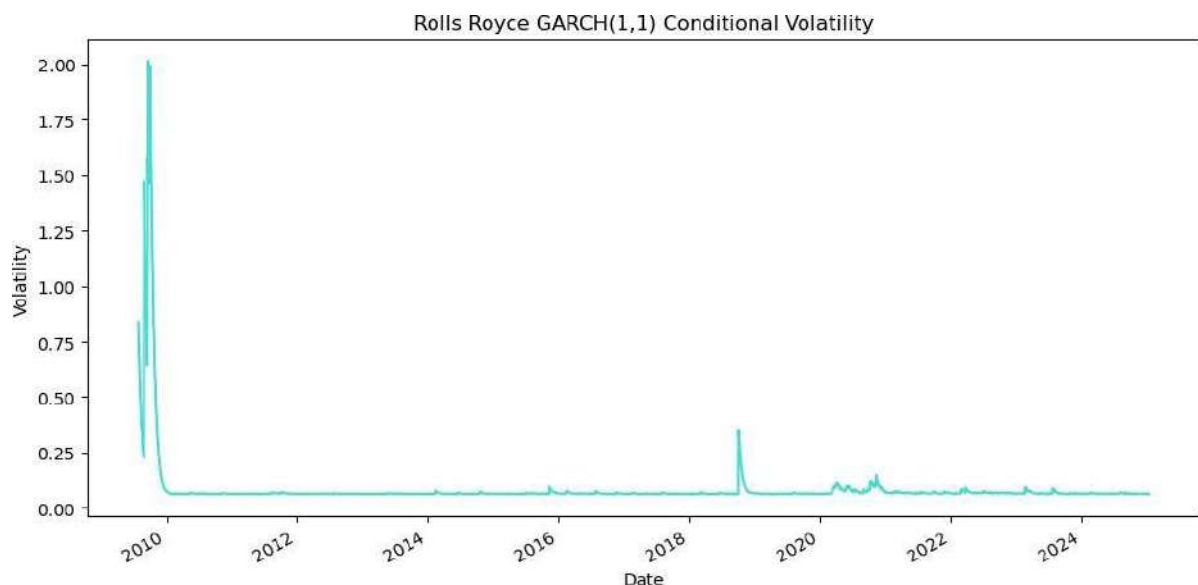


Figure 16. Rolls Royce Garch Model

Constant Mean - GARCH Model Results					
=====					
Dep. Variable:	Price	R-squared:	0.000		
Mean Model:	Constant Mean	Adj. R-squared:	0.000		
Vol Model:	GARCH	Log-Likelihood:	6193.86		
Distribution:	Normal	AIC:	-12379.7		
Method:	Maximum Likelihood	BIC:	-12354.6		
		No. Observations:	3903		
Date:	Wed, Apr 23 2025	Df Residuals:	3902		
Time:	21:59:37	Df Model:	1		
Mean Model					
=====					
	coef	std err	t	P> t	95.0% Conf. Int.

mu	1.1422e-04	3.891e-04	0.294	0.769	[-6.483e-04,8.768e-04]
Volatility Model					
=====					
	coef	std err	t	P> t	95.0% Conf. Int.

omega	4.5318e-04	6.941e-05	6.529	6.601e-11	[3.172e-04,5.892e-04]
alpha[1]	0.1000	0.150	0.665	0.506	[-0.195, 0.395]
beta[1]	0.8800	2.263e-02	38.892	0.000	[0.836, 0.924]
=====					

Covariance estimator: robust
Table 7. Rolls Royce's GARCH Model(Summary)

When Rolls-Royce was publicly linked to a major bribery and corruption case in January 2017, it was the kind of news that might typically concern investors for a bit. Yet, interestingly, the GARCH(1,1) volatility model tells a more tempered story. Around the time of the announcement, there was no dramatic surge in volatility and no immediate spike that would suggest panic or a sudden wave of uncertainty in the market. Instead, the volatility curve stays fairly low and steady. This quiet response is notable given the severity of the headlines. It suggests that while the event raised eyebrows, investors may have already priced in some of the risk or felt reassured by the company's willingness to settle with regulators and move forward.

What's especially telling is that the largest volatility spikes appear much earlier, around 2009–2010, and then again in late 2018 and not near the 2017 announcement. This implies that the market viewed the scandal less as a destabilizing shock and more as a reputational hit that, while serious, wouldn't threaten the company's long-term performance when compared with the financial crisis of 2008. It's possible that Rolls-Royce's global presence, diversified operations, and the fact that they proactively cooperated with authorities helped maintain investor confidence. The lack of lingering volatility also shows that uncertainty did not drag on for months after the news broke. In a way, the market probably seemed to have taken a "wait-and-see" approach, acknowledging the issue without overreacting.

When looking at the Rolls-Royce bribery settlement in January 2017, the event study and the GARCH model seem to tell two different sides of the story. The event study shows an immediate and surprisingly positive reaction and returns moved sharply into positive territory right after the announcement, and the momentum carried on for weeks. It's as if the market had

been holding its breath, and the news brought a sense of relief. Despite the nature of the announcement, which was a serious corruption case, investors seemed to view it as the company finally turning the page. The clarity and perhaps even the finality of it gave people the confidence to step back in.

But the GARCH model sees things a little differently. There's no spike in volatility around the announcement. Things stay relatively calm, which tells us that while prices moved, the market wasn't shaken. Investors weren't blindsided; they were probably expecting some resolution and had already factored it in. So while the event study picks up the positive price movement, the GARCH model shows that it didn't come with a wave of fresh uncertainty. Together, they offer a more complete picture, and this wasn't a panic followed by recovery; it was a quiet moment of reassurance. The market wasn't just reacting to bad news—it was reacting to closure, and that made all the difference.

Standard Chartered

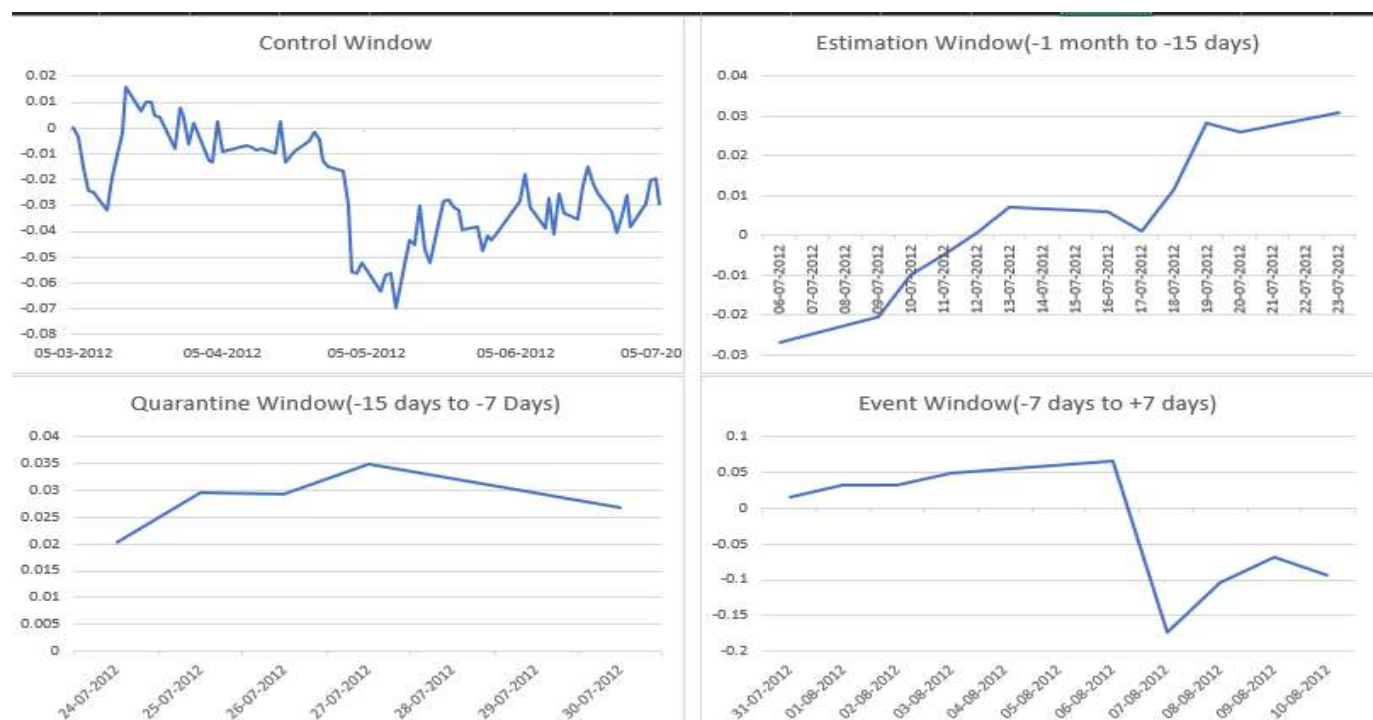


Figure 17. Standard Chartered Bank's Event Study Analysis (6 August, 2012)

Control Window shows that from March through early July 2012, Standard Chartered's stock moved within a fairly steady but negative range. There wasn't any dramatic movement, returns hovered between -0.02 and -0.07, suggesting that investors weren't overly enthusiastic but also not alarmed. This period gave a good sense of the bank's regular market behavior, free from any headline shocks or surprises. It served as a kind of "calm before the storm," showing what the stock looked like under normal circumstances.

The Estimation Window shows that in the weeks leading up to the event, specifically between July 6 and July 22, the stock started gaining ground. There was a noticeable upward trend, with returns climbing from slightly negative to solidly positive territory, peaking around 0.03. This positive shift suggested growing confidence in the market. Maybe investors felt reassured about

the bank's direction, or perhaps broader market conditions were helping lift financial stocks in general. Either way, this period helped establish what could be considered "normal" returns for the bank at that moment in time.

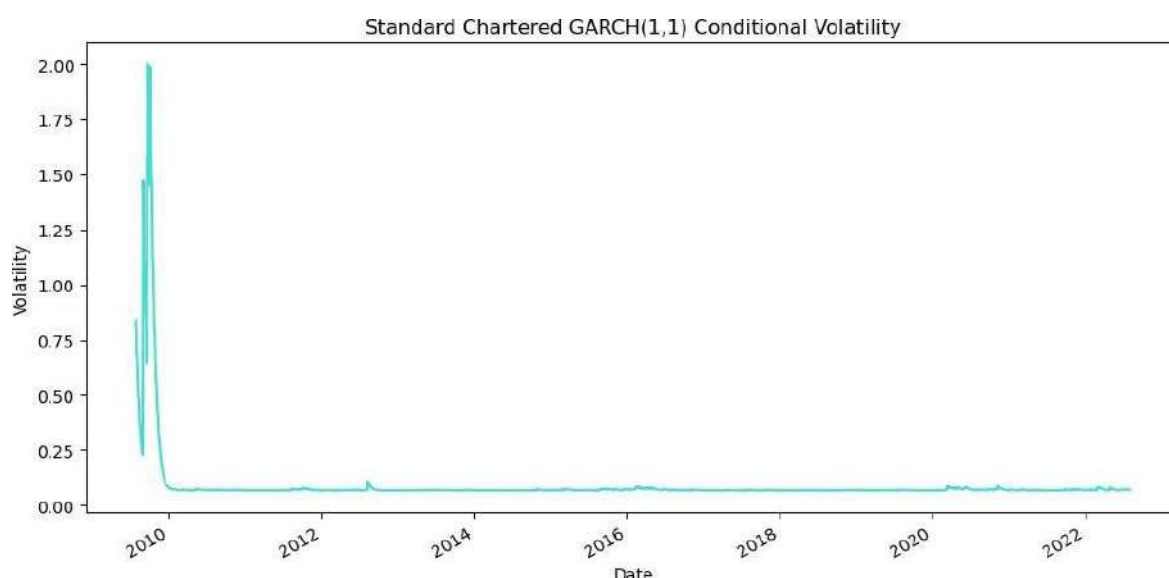
Quarantine Window clearly shows that between July 23 and July 30, in the window just before the public announcement, the stock held steady in positive territory. Returns stayed in the 0.025 to 0.035 range. This is what's known as the quarantine window a time we typically leave out of the analysis since it's possible that rumors or insider whispers could start affecting prices. Interestingly, there wasn't much turbulence here. Things looked quiet on the surface, giving no real hint of the storm that was about to break.

Event Window, this is the point where the big moment came: August 6, 2012. News broke that Standard Chartered had allegedly handled billions of dollars worth of transactions with sanctioned Iranian entities, an explosive revelation. The stock's reaction was swift and harsh. From July 31 to August 13, it plunged, falling as low as -0.18. Investors were clearly spooked, worried not just about fines but also about damage to the bank's reputation and possible regulatory fallout. This sharp decline reflected a real loss of confidence, as the market tried to process the full weight of what had happened.

Post-Event Window

But just as quickly as it fell, the stock began to find its footing again. Between August 14 and September 6, the returns started to recover gradually. By the end of the post-event window, they had crept back close to zero. It's a classic example of the market overreacting at first and then beginning to calm down. Investors seemed to regain some composure, perhaps reassured that the bank would survive the crisis or expecting a settlement that would limit the damage. While the event clearly rattled markets, the recovery suggested that the initial panic had softened with time.

GARCH Model for Long term Impact:



```

Constant Mean - GARCH Model Results
=====
Dep. Variable:          Price      R-squared:          0.000
Mean Model:            Constant Mean  Adj. R-squared:      0.000
Vol Model:             GARCH        Log-Likelihood:     5206.74
Distribution:          Normal       AIC:                -10405.5
Method:               Maximum Likelihood  BIC:                -10381.1
                                           No. Observations:   3285
Date:                 Wed, Apr 23 2025  Df Residuals:      3284
Time:                 22:50:42        Df Model:           1
                                           Mean Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
mu           -2.4440e-04  2.145e-04      -1.139      0.255  [-6.649e-04,1.761e-04]
Volatility Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
omega        5.2027e-04  3.382e-05     15.382  2.147e-53  [4.540e-04,5.866e-04]
alpha[1]      0.1000  9.022e-02      1.108      0.268  [-7.682e-02, 0.277]
beta[1]       0.8800  2.064e-02     42.629      0.000  [ 0.840, 0.920]
=====

```

Covariance estimator: robust

Figure 18. Standard Chartered Bank's GARCH Model

When the news about Standard Chartered's alleged sanctions violations came out on August 6, 2012, the market didn't take it lightly. The event study clearly shows a steep drop in returns around the announcement, with the stock reacting almost immediately. For a few days, the decline was sharp enough to suggest real concern among investors, not just about the financial penalties, but about the broader implications for the bank's reputation and regulatory future. Interestingly, though, the market didn't stay in that state of fear for long. Within the following weeks, returns began to recover, slowly trending back toward zero. This kind of movement suggests that while the announcement shook confidence at first, investors may have seen it as a manageable crisis, one that the bank could work through.

But the GARCH model tells a more measured version of the story. Volatility levels didn't spike dramatically around the announcement, which means that although prices dropped, the market wasn't thrown into panic. It responded, yes, but not chaotically. The parameters of the model support this, too; there's some short-term impact, but nothing extreme. And the persistence of volatility was high, but calm, signaling that uncertainty lingered quietly in the background rather than exploding outright. In a way, this contrast is telling: the event study picks up on the emotional response to how prices moved in the moment, while the GARCH model gives insight into the deeper current of investor sentiment. The two together show a market that was rattled, but not broken. Investors took the hit, processed it, and then slowly started to regain their footing.

TESCO

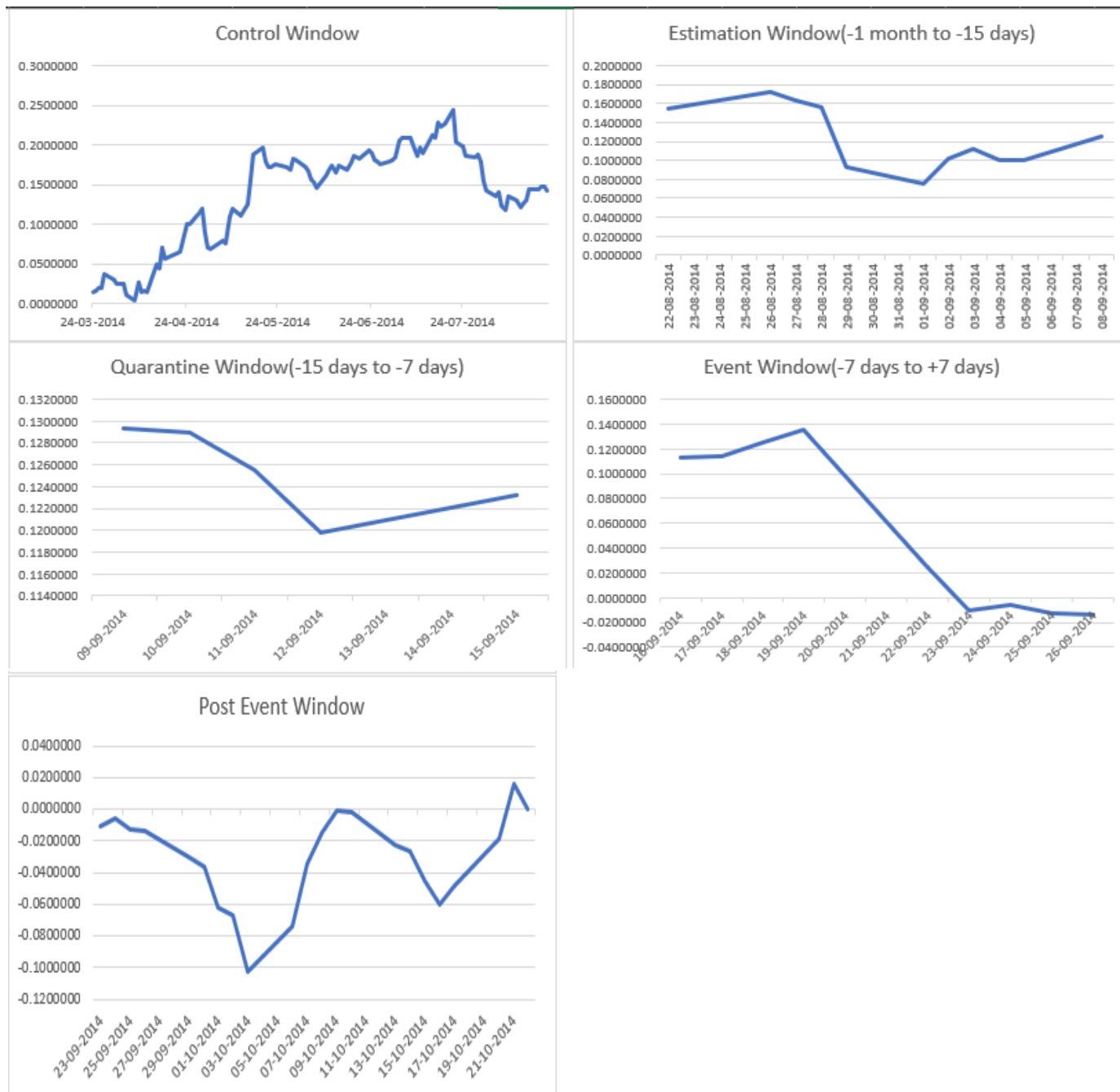


Figure 19. Tesco's Event study Analysis(2014)

Control Window shows that Tesco's stock seemed to be doing fairly well. The trend was generally upward, which suggests that investors were confident in the company's performance. There were no major signs of trouble, and everything appeared stable. This phase essentially reflects what the market looked like under normal conditions before any negative news surfaced.

In the Estimation Window we notice a mild downward movement in returns. While nothing drastic happened, the drop could indicate that investors were picking up on subtle cues—maybe internal issues were starting to show or small rumors were beginning to circulate. This period is important because it helps establish a baseline to compare how the market reacts once the actual news breaks.

Quarantine Window shows that there was a noticeable dip in performance. This might mean

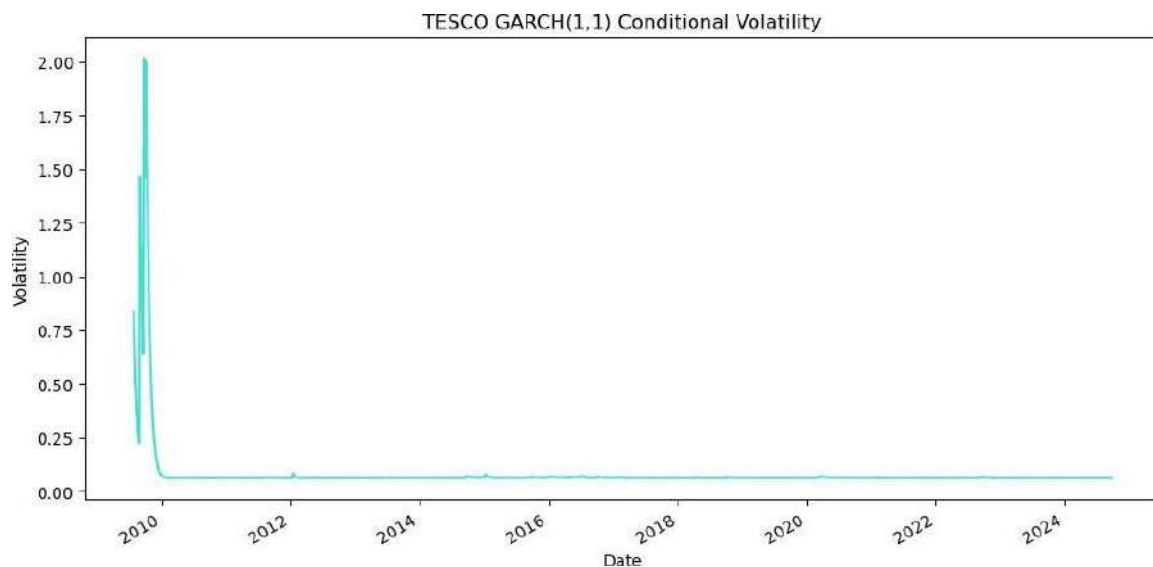
that some investors were getting nervous or had an inkling that something wasn't right. It's possible that early information started to leak or there was speculation about financial inconsistencies, prompting cautious selling before anything was made public.

EventWindow

The real impact is seen during this window, especially after the announcement on September 22. There's a sharp and immediate fall in returns, which shows that the market reacted strongly to the news of Tesco overstating its profits. Investors likely lost trust, leading to a sell-off. The decline was swift and steep, reflecting just how damaging the news was to Tesco's reputation and perceived stability.

In the Post-Event Window we see that even after the announcement, the stock didn't bounce back. Instead, it stayed volatile and mostly negative. Although there were small periods of recovery, the overall direction remained downward. This shows that the damage wasn't just short-term. Investors were still worried about the company's future, possible regulatory consequences, and whether the management could fix the situation.

GARCH Model for Long term Impact:



```

Constant Mean - GARCH Model Results
=====
Dep. Variable:          Price      R-squared:                0.000
Mean Model:             Constant Mean  Adj. R-squared:           0.000
Vol Model:              GARCH        Log-Likelihood:           5206.74
Distribution:           Normal       AIC:                     -10405.5
Method:                 Maximum Likelihood  BIC:                     -10381.1
                                           No. Observations:        3285
Date:                   Wed, Apr 23 2025  Df Residuals:           3284
Time:                   22:50:42         Df Model:                 1
                                           Mean Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
mu           -2.4440e-04  2.145e-04      -1.139      0.255  [-6.649e-04,1.761e-04]
              Volatility Model
=====
              coef      std err          t      P>|t|      95.0% Conf. Int.
-----
omega        5.2027e-04  3.382e-05     15.382  2.147e-53  [4.540e-04,5.866e-04]
alpha[1]      0.1000    9.022e-02       1.108      0.268  [-7.682e-02, 0.277]
beta[1]       0.8800    2.064e-02     42.629      0.000      [ 0.840, 0.920]
=====

```

Covariance estimator: robust
Figure 20. Tesco's GARCH Model using python

Taking a glance at Tesco's GARCH(1,1) conditional volatility chart is like reading a tale of two market environments. What immediately jumps out is the sheer contrast between the early years and the later ones. The chart screams "high alert" around 2009 and 2010, with volatility shooting sky-high, easily surpassing a value of 2.0. Then, almost as if someone flipped a switch, the turbulence subsides. From 2011 onwards, the line flattens out dramatically, hugging the bottom of the chart and indicating a period of remarkable stability. Now, let's hone in on 2014—the year Tesco announced it had overstated its profits, an event that undoubtedly rattled investors. Yet, peering at the chart around this point, you'd be hard-pressed to notice anything amiss. There's no discernible spike, no tremor in the otherwise placid line. This absence of volatility during a period of significant corporate turmoil underscores how the GARCH(1,1) model, when viewed over an extended time frame, tends to smooth out short-term shocks. While event studies might capture the immediate, visceral reaction of the market to the news, the GARCH model provides a broader perspective, suggesting that the 2014 event, while impactful, didn't fundamentally alter Tesco's long-term risk profile.

Vodafone

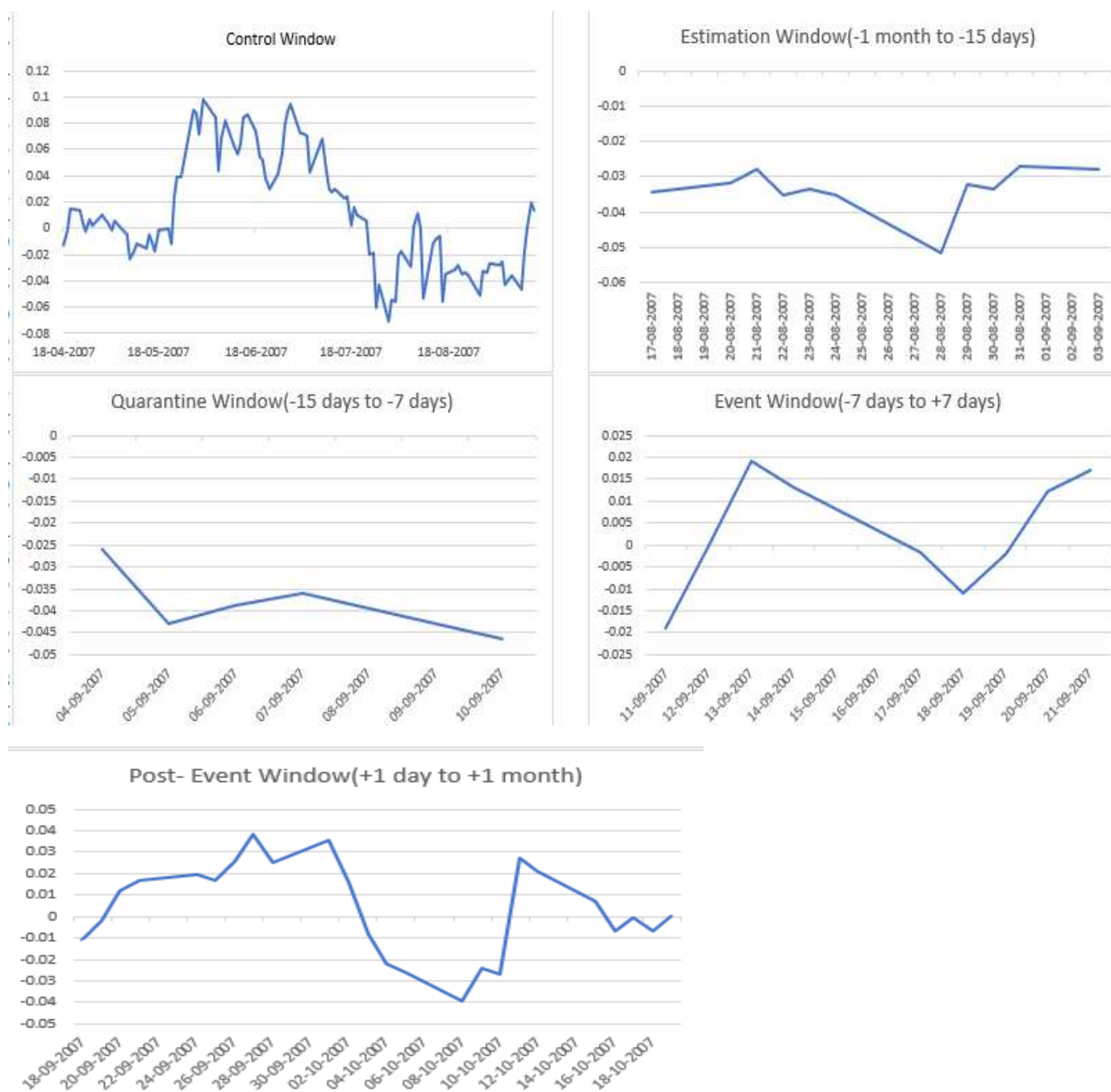


Figure 21. Vodafone's Event Study Analysis(19 september,2007)

In the **Control Window** (from April to mid-August 2007), Vodafone's stock returns moved up and down but generally stayed within a normal range. This period didn't show any major abnormalities, which makes it a good baseline to compare how the stock behaved before and after the announcement.

Looking at the **Estimation Window** (mid-August to early September), returns were mostly negative. This suggests that, leading up to the announcement, the overall mood around the stock was a bit pessimistic. This window is important because it helps us understand what "normal" returns looked like just before the event.

The Quarantine Window (from 15 to 7 days before the event) continued to show that negative trend. There wasn't any sudden movement, which means there likely weren't any leaks or early

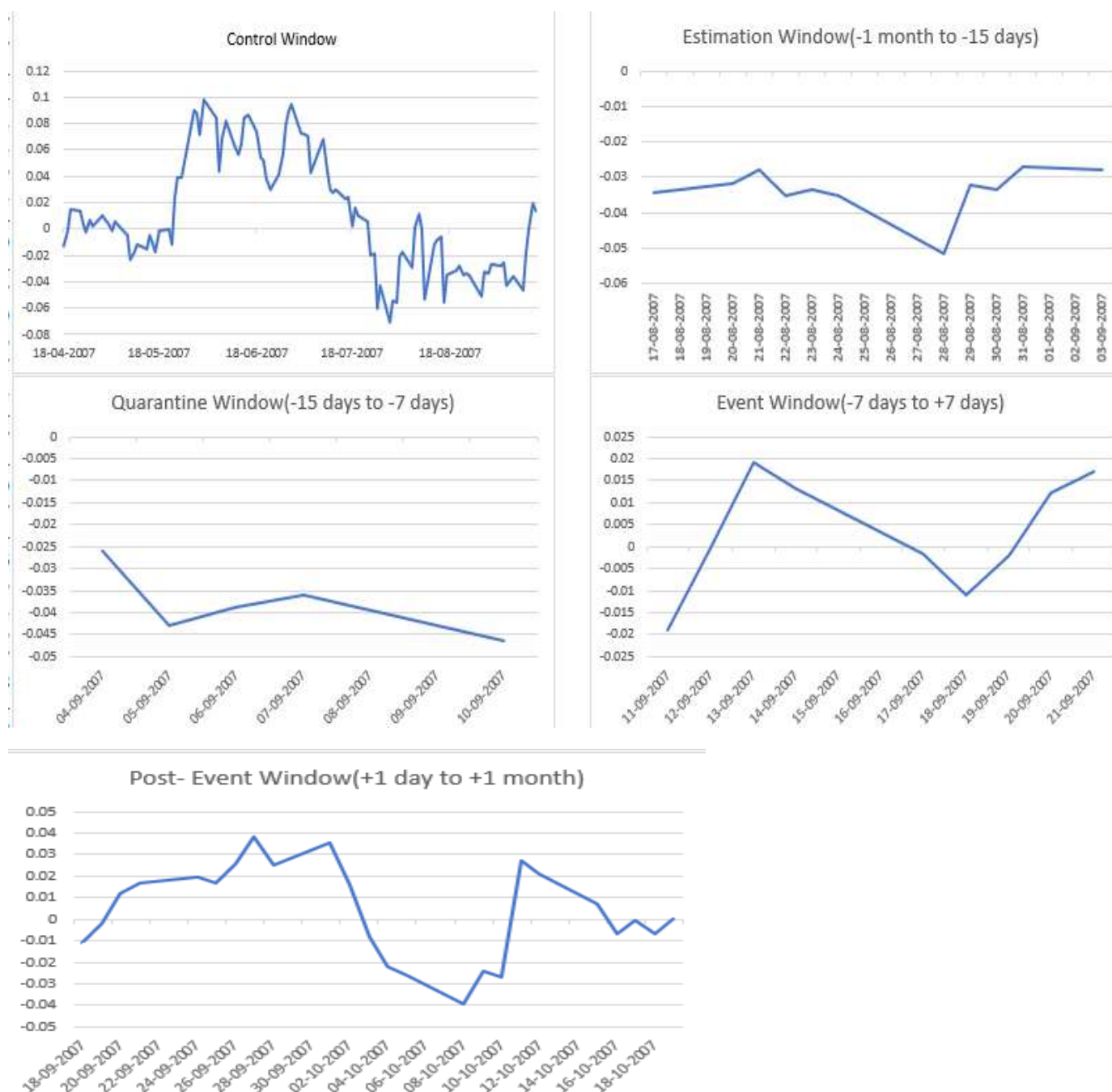


Figure 22. Vodafone's Event Study Analysis(19 september,2007)

In the **Control Window** (from April to mid-August 2007), Vodafone's stock returns moved up and down but generally stayed within a normal range. This period didn't show any major abnormalities, which makes it a good baseline to compare how the stock behaved before and after the announcement.

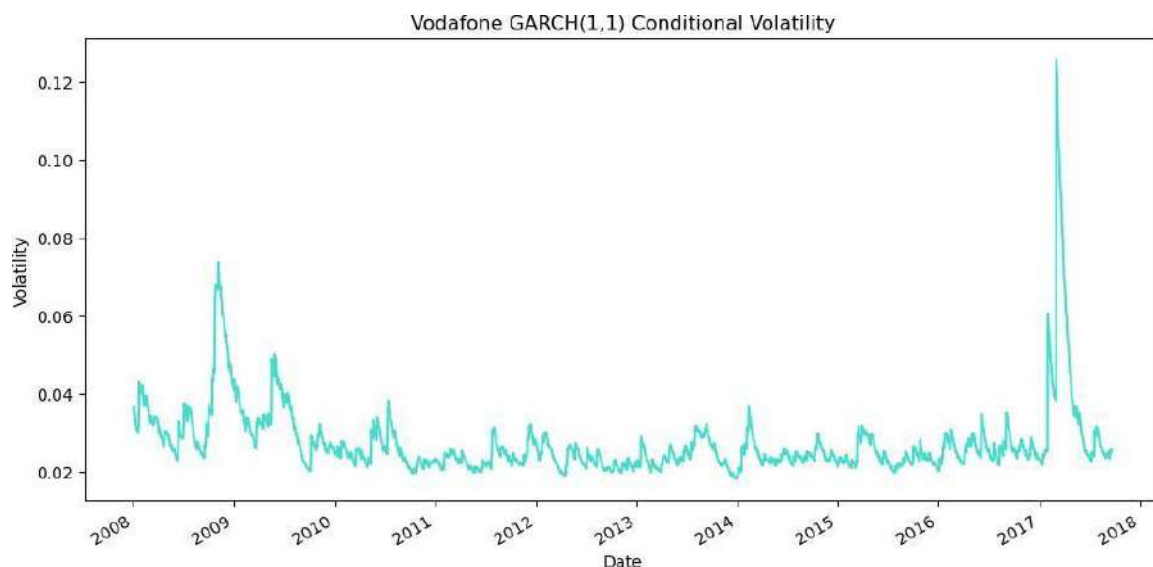
Looking at the **Estimation Window** (mid-August to early September), returns were mostly negative. This suggests that, leading up to the announcement, the overall mood around the stock was a bit pessimistic. This window is important because it helps us understand what "normal" returns looked like just before the event.

The Quarantine Window (from 15 to 7 days before the event) continued to show that negative trend. There wasn't any sudden movement, which means there likely weren't any leaks or early

reactions to the news. It kept the pre-event data clean and unaffected by the upcoming announcement.

Things changed noticeably during the Event Window (7 days before to 7 days after September 19, 2007). Around the announcement date, there was a clear spike in returns, showing that investors responded positively to the news. The reaction suggests the announcement was seen as good news and boosted investor confidence in the short term.

Finally, during the Post-Event Window (from 1 day after to about a month later), returns stayed positive at first but then dipped before leveling out again. This pattern shows that while the initial reaction was strong, the excitement faded slightly as the market settled and processed the information more fully. Overall, the announcement gave Vodafone a noticeable short-term boost, even if the longer-term impact evened out.



Constant Mean - GARCH Model Results					
=====					
Dep. Variable:	Price	R-squared:	0.000		
Mean Model:	Constant Mean	Adj. R-squared:	0.000		
Vol Model:	GARCH	Log-Likelihood:	5285.47		
Distribution:	Normal	AIC:	-10562.9		
Method:	Maximum Likelihood	BIC:	-10539.8		
		No. Observations:	2398		
Date:	Thu, Apr 24 2025	Df Residuals:	2397		
Time:	12:53:18	Df Model:	1		
Mean Model					
=====					
	coef	std err	t	P> t	95.0% Conf. Int.

mu	-2.3730e-04	5.492e-04	-0.432	0.666	[-1.314e-03,8.390e-04]
Volatility Model					
=====					
	coef	std err	t	P> t	95.0% Conf. Int.

omega	1.6941e-05	1.402e-09	1.209e+04	0.000	[1.694e-05,1.694e-05]
alpha[1]	0.0500	1.294e-02	3.865	1.112e-04	[2.464e-02,7.536e-02]
beta[1]	0.9300	6.312e-03	147.337	0.000	[0.918, 0.942]
=====					

Covariance estimator: robust
Table 8. Vodafone's GARCH Model

The difference in results between the Excel event study and the GARCH(1,1) model for Vodafone comes down to what each approach is actually measuring. The event study, which looks at a relatively short time frame of six months before to one month after the announcement on September 19, 2007. It is designed to capture how investors reacted specifically to that news. In this case, it shows a clear positive reaction around the announcement date, with a spike in returns and a short-term boost in confidence. On the other hand, the GARCH model takes a much longer view, analyzing volatility over a full decade before and after the event. Rather than focusing on return spikes, it's tracking how uncertain or volatile the stock has been over time. So, while the event study highlights a quick market reaction, the GARCH model is more about identifying patterns in investor behavior and overall market risk. This is the reason the two tell different stories. While one is zoomed in on a specific moment, the other is zoomed out to see the bigger picture. Both are useful, but they answer different questions.

The difference between the results from the Excel-based event study and the GARCH(1,1) model for Vodafone can be explained by the distinct purpose and scope of each method. The event study focuses on a much narrower window, specifically, six months before and one month after the announcement on September 19, 2007. This method is designed to detect how stock returns behave around a particular event, capturing abnormal returns that differ from normal market movements. In this case, the study shows a noticeable spike in returns during the event window, suggesting that investors viewed the announcement positively and reacted with increased buying activity. This short-term reaction reflects a burst of confidence, possibly driven by optimism or favorable expectations.

In contrast, the GARCH(1,1) model looks at a much broader time frame, analyzing data over a span of ten years before and after the event. It doesn't focus on returns directly but instead models the conditional volatility on how much the returns fluctuate over time. What this model shows is not necessarily how investors felt about the announcement itself, but rather how uncertain or unstable the market was over a longer period. Because it considers long-term trends, the impact of any single event, no matter how significant in the short term, can appear muted when viewed in the context of a decade's worth of market behavior. For example, the large volatility spike around 2017 in the chart reflects a much broader market event unrelated to the 2007 announcement, which might overshadow the short-term volatility response from that earlier period.

So, the event study captures the immediate, focused market reaction to a specific piece of news, while the GARCH model tells a more extended story about overall market uncertainty. They're both valid tools, but they offer different insights; one zeroes in on short-term price impact, while the other provides a long-term view of risk and volatility.

Chapter 3: Understanding the Long Term Impact of Announcements of corporate finance crimes on the companies

3.1 Introduction

While a company may face immediate, tangible consequences from financial wrongdoing (such as a drop in stock price, cessation of business, and public fear for that company's future), the longer-term consequences of financial wrongdoing for the company can be much more complicated and ambiguous. Beyond simply stock price drops or public backlash, financial misconduct can create long-lasting effects on a firm's profitability, investor confidence, reputation, and financial status.

In this chapter, we explore the broader long-term impact of corporate financial crimes rather than the contiguous, eventually resolving volatility of these companies. Using the experienced imperfections of financial misconduct in the general business context of companies like Enron, HSBC, Lehman Brothers, Cognizant, and Wirecard, we explore how companies recover, or don't recover, over time once the immediate mess is dealt with, and the other, more important factors and considerations that affect the resolution trends of these companies over time.

3.2 Literature Review

Parachuri, and Misangyi(2015) conducted a study to investigate how any financial misconduct at one firm affects the investors' perception of other firms in the same industry. Most of the time it is seen that investors generalize that financial misconduct by one of the firms can be done by other firms(the bystander firms) in the same industry. The financial restatement events of 2004 were considered to see the market reactions following any financial misconduct. For this study, the data of firms in the United States were taken covering 219 Industries and 84 financial restatement events. The author used the market-based event study model to analyze how such financial misconduct can impact the stock market returns of bystander firms. The study confirms an overall contamination effect. The bystander firms in the same industry tend to experience a significant decline of 0.27% in CARs after announcements of such financial misconduct. However, Non-Industry bystander firms did not experience an impact on their valuation. Larger Industry bystander firms faced a greater decline in CAR. The industry bystander firms with CEO duality faced lesser impact.

Olsen, Claw(2017) did the following study on similar lines. The main objective in this paper was to see whether investors react negatively to previously undisclosed reports of corporate fraud. Do the investors consider it as a material based on which they make decisions in the stock market? It was conducted over a 5-year period from January 1, 2009 to December 31, 2013. Event study analysis was used to conduct the study and the market fluctuations were controlled using the 3 main factors, namely Market Beta, SMB, and HML. The study clearly found that investors do react negatively to such reports, generating a CAR of -1.61% which is statistically significant. For small capitalized companies the financial impact from it is not significant but for large firms, with billions in the market the situation is different.

When any positive news was released along with bad news, the negative impact of the malfeasance report was reduced but not completely eliminated.

Davidson, Worell and Lee(1994) how the stock market reacts to a public announcement of corporate crimes. The period of study was from 1965 to 1990. The data was collected from the

Wall Street Journal. The study examined around 535 such announcements and then Market model Event study analysis was adopted. On average, the stock market did not give a statistically significant reaction to announcements of corporate illegalities. However, when crimes were categorized the market did react negatively to certain types of crimes. Different crimes had different levels of negative impact on the market. Other crimes such as price fixing did not have any clear negative impact.

Brunhart(2015) aims to understand the impact of the zumwinkel Affair on the volatility aspect of the stock market and the investor's behavior towards it. The Zumwinkel affair is one of the largest Tax Scandals that has happened. The study uses an **event study methodology** combined with an **augmented GARCH model** to measure stock price fluctuations and volatility during and after the tax scandal. This study was conducted during the period from January 1, 2006 to January 4, 2011. The geographical area covered in this study was the country of Liechtenstein. The story revolves around two banks, namely Verwaltungs- und Privatbank AG (VPB) and Liechtensteinische Landesbank AG (LLB) traded on the Swiss stock exchange. Two econometric models were used the event study method and the augmented GARCH Model. The event study part was a long-term study of a 728-day window. The augmented GARCH Model was used to understand the past shocks in the stock prices, past volatility as well as the effect of external factors, such as the financial crisis (2008–2009) and political pressure. The short-term impact on stock prices which was studied through event study analysis showed negative abnormal returns immediately after Zumwinkel's arrest. Stock prices fell significantly within the initial 30 days after which it recovered. No such long-term impact on stock prices was detected after 30 days. In terms of Stock Price volatility, the risk from stocks increased significantly after the event, specifically for the VPB Shares. The Financial crisis of 2008 contributed to it. Political pressure on tax havens, legal reforms, and capital outflows **added** uncertainty, leading to **higher risk levels** in Liechtenstein's financial sector. Fligstein(2016) explains why fraudulent practices become so pervasive in the mortgage-backed securitization industry during a financial crisis. It shows how firms' position in the market influences their probability of committing fraud. It primarily focuses on the economic crisis of 2007-2009. The mortgage securitization industry was one of those industries which faced major impact due to it. The main analysis is of the settlements and the lawsuits that were initiated between January 1, 2008 and January 1, 2014 but resolved before September 1, 2014. It was found that fraud was not just an exception which happened due to the presence of few bad actors but a widespread industry practice. 32 of the 60 largest financial firms engaged in fraud- related activities and reached regulatory settlements. Fraud was not just of a single type but a huge variety of them . This involved commercial banks, Investment banks, mortgage specialists and savings and loan institutions. According to the paper , the 2007-2009 financial crisis was not caused by bad economic policy or any poor risk management measures, it was because of the systemic fraud at every level of the mortgage securitization industry. Reurink(2016) aims to provide a comprehensive overview of the concept of white-collar crime and its relevance for analyzing. Even though financial crimes have been rampant looking at the large number of widespread financial crises, systematic sociological research on the various different types of illegalities has remained limited. It does not specifically focus on any particular country but works towards providing a theoretical review of white-collar crime research. However, much of the work is based on Anglo-American research. The study emphasizes on the need for economic sociologists to engage more deeply with issues of financial crime as it is very important to understand the dynamics of modern finance capitalism. It argues that capital Market structures, elite networks, and to some extent deregulations create an environment for

financial crimes to occur. Many financial crimes avoid criminal prosecution and are instead dealt with civil or regulatory penalties.

Chapter 10 of the book *International Handbook of white collar and corporate crime* specifically gives detailed understanding of companies such as Enron, Adelphia Tyco, HealthSouth and WorldCom engaged in fraudulent Financial Practices. It explains the deceptive accounting techniques, insider trading and manipulation of financial statements. The paper also explains the role of whistleblowers by taking the case of Sherron Watkins, the Enron Whistleblower, who put forward the accounting fraud within the company. The scandals led to massive financial losses for investors and the employees working in the fraud hit companies, losing retirement savings. Many top executives were even sentenced to prison. This showcased the failure of the regulatory bodies for the loopholes in the system which allowed for this kind of frauds to happen in the first place. In Chapter 11, explains Bernie Madoff's Ponzi Scheme. This chapter primarily talks about the 3 infamous individuals Bernie Madoff, R. Allen Stanford and Boss Jezda. They created the Ponzi schemes which were flourishing during the times of economic prosperity but saw a severe downfall during the financial downturns when too many investors decided to withdraw their funds. It also shows the failure of the regulatory bodies who did not act when red flags came up. The Fraudsters built credibility by showing selective exclusivity and showcasing a false sense of security. These Ponzi Schemes covered multiple countries. This shows the multiple reach of the white collar crimes. This created a sense of distrust among the investors in the market.

Yu(2013) published a paper mainly explaining the three main aspects regarding corporate finance. What are the factors leading to fraud? What are the detection as well as the prevention mechanisms and what are the consequences of Fraud? The model analyses the theoretical models and empirical evidence on the factors influencing fraud, corporate governance, regulation, etc from past research. The author concludes that fraud is a persistent issue since even after several regulatory reforms such as the Sarbanes-Oxley Act, Corporate fraud remains fairly rampant. It was also realized that the detection mechanisms were imperfect and simply traditional monitoring agents were used. Fraud leads to significant losses for shareholders, higher financing costs for firms, and broader economic distortions, including misallocation of resources and negative industry spillovers.

Zeume(2017) analyzed the impact of bribery on the firm's value, using the passage of the UK Bribery Act 2010. The study showcased whether bribery increases or decreases the value of the firm. Event study analysis was done by taking into account March 25, 2009, when the draft of the UK Bribery Act was passed by the UK Government Commission. Then Cumulative Abnormal Returns (CARs) were calculated using the 4-factor Carhart Model. The study showcased the analysis in the Long-term stock returns by considering: Firm Revenues, Mergers & acquisitions as well as Joint Ventures. The Act mentioned previously, led to a permanent decline in the value of UK firms. Non-UK Firms competing with UK firms gained market value after the act passed. There seems to be no significant increase in joint ventures by UK firms in corrupt countries. This showcases that they did not attempt to bypass the Act by relying too much on third-party Traders.

3.3 Data & Methodology

To understand the long-term impact accurately, data is collected directly from companies' financial statements, which are found in their annual reports and quarterly earnings releases. These documents give a really transparent view of a company's performance, showcasing how revenue, profit margin, debt levels, and other factors have evolved over time. Numerous variables such as the Cash flow from operations, free cash flow, interest payment on debt, dividend payments, net income, inventory turnover ratio, capital expenditure, and Return on equity. This financial data taken over a span of 5 years both before and after the misconduct was revealed, will give a better understanding of whether the event of the announcement of financial crime had a lasting impact on the company's skill to create profit and sustain operations. This chapter aims to give better evidence of how financial misconduct can shape a company's future.

The data for all the companies discussed in Chapter One is collected. Using the fundamental analysis of the financial statements and other documents, we will try to understand the impact.

The process starts with collecting the income, balance, and cash flow statement of the company 5 years before and after.

Then, assessing the various profitability metrics such as the gross margin, operating margin, Net profit Margin, ROE, and ROA.

To analyse the liquidity and solvency, various ratios such as the current ratio, quick ratio, D/E Ratio, and Interest coverage ratio. To do the cash flow analysis, one must check on the cash flow from operations and Free Cash Flow. Keeping track of revenue growth, earnings growth, and CapEx Growth is of utmost importance.

These metrics can be shaped and manipulated, but it is unusual to do so without drawing the attention of investors, auditors, and regulators.

3.4 Results

Amazon

Amazon faced the first public announcement regarding tax evasion and avoidance on March 12, 2012, by Reuters. It showed that, despite Amazon having virtually over £3.3 billion in UK Sales, it did not pay any corporate taxes. To understand the impact of this news on the long-term (primarily over the next three years) profitability of Amazon. As a result, the financial statements of Amazon were considered from 2009 to 2015.

In 2009, Amazon's gross margin stood at 22.6%, which gives a clear picture of how the company was managing its costs during a period of rapid growth. This means that for every dollar in sales, Amazon was able to keep just over 22 cents after covering the direct cost of selling its products. For a retail and e-commerce giant operating at massive scale, that's actually quite solid. The North American segment did better, with a margin of 25.6%, while the international side lagged a bit at 19.2%, which isn't surprising given the extra costs involved in expanding and building infrastructure abroad. Overall, this margin specifies that Amazon

was running a tight and efficient operation. They were not just chasing growth they were doing it in a way that still protected their bottom line. That's an important detail to keep in mind as we later examine how the company handled challenges, like the tax-related scrutiny it faced in 2012.

The net profit margin stood at 3.68%, which means the company kept just under four cents of profit for every dollar it brought in through sales. While that might seem low at first glance, it actually tells an important story about how Amazon operated back then. The company was still in its major growth phase, putting in money into expanding its reach, improving logistics, and developing new technologies. Instead of chasing high short-term profits, Amazon focused on building a foundation for long-term success. This small margin reflects how the company managed to grow aggressively while still staying profitable, which is impressive for a business working with such high sales volume and tight pricing strategies.

Amazon's operating margin in 2009 was 4.61%, which means the company made just over four and a half cents in operating profit for every dollar of sales before interest and taxes were factored in. It highlights how efficiently Amazon ran its core business, especially given its razor-thin pricing and massive scale. The margin reflects Amazon's ability to control costs, streamline operations, and reinvest in key areas like logistics and technology, all while still keeping the business running profitably. It's a strong signal of disciplined management during a time of rapid growth.

Amazon posted a return on equity of 15.4%, which shows that the company generated about 15 cents of profit for every dollar shareholders had invested. It is a good level of return, especially for a company still in expansion mode. It indicates that Amazon was using shareholders' money wisely, turning their investments into meaningful profits. A healthy ROE like this not only reflects strong earnings performance but also signals to investors that the company is balancing growth and profitability in a smart, sustainable way. In terms of Return on Assets, which was at 6.53% for 2009, showing that the company was able to generate over six cents of profit for every dollar of assets it owned. This might sound modest, but for a business with such a large asset base warehouses, tech infrastructure, and inventory, it actually points to efficient use of resources. A ROA in this range suggests that Amazon was showing good returns out of its assets while continuing to invest heavily in growth. It's a sign that the company wasn't just getting bigger, but also better at making its assets work harder.

Looking at Amazon's financials, the company's current ratio stood at 1.34, which basically means it had enough short-term assets to cover its short-term liabilities with a little room to spare. That's a reassuring number, especially for a company operating in the fast-paced world of online retail. It suggests that Amazon wasn't stretching itself thin and had a decent buffer to pay off bills and other immediate obligations. They were managing their day-to-day finances in a stable and balanced way, which is important for maintaining operations during periods of growth or uncertainty. When we remove inventory from the picture and consider the quick ratio, Amazon still comes out ahead, with a figure of 1.05. That's a pretty healthy sign. In simple terms, even if it couldn't sell any of its products right away, the company still had enough liquid assets, like cash and receivables, to take care of what it owed. For a business that holds a lot of inventory, that's not always easy to achieve. This ratio shows that Amazon wasn't overly dependent on moving stock just to keep the lights on. They had cash flow discipline and were managing their short-term resources well.

Now, when it comes to long-term financial strength, the debt-to-equity ratio(D/E Ratio) offers a deeper insight. At 1.66, it tells us Amazon was using more debt than equity to finance its operations. That might sound a bit risky at first, but it makes sense when you look at the bigger picture. Back then, Amazon was expanding aggressively and investing in warehouses, tech infrastructure, and global logistics. That kind of growth takes capital, and instead of issuing more shares and diluting ownership, they chose to take on debt. It's a strategic decision that can really pay off if the company has the earnings power to back it up.

The interest coverage ratio came in at 18.8 times. It means Amazon was earning nearly 19 times what it needed to pay in interest on its debt. That's a clear signal that the company wasn't struggling with its debt load; in fact, it had a lot of breathing room. It shows that while they were borrowing money, they were doing it from a position of strength, not desperation. This kind of ratio gives both investors and creditors confidence that Amazon was in control of its financial obligations and could weather potential hiccups in the economy without breaking stride.

The cash flow from operations came in at \$3.29 billion, nearly doubling from the previous year. That kind of growth shows the company's core business was running efficiently and generating strong cash, even during a post-recession environment. More importantly, Free Cash Flow (FCF) reached \$2.92 billion, signaling that Amazon had plenty of cash left after investing in infrastructure, enough to fund expansion without relying on outside financing.

On the growth side, revenue jumped by 28%, from \$19.17 billion in 2008 to \$24.51 billion in 2009. This wasn't just due to domestic sales, but the international markets and new segments like AWS were starting to make an impact. Net income also rose sharply, growing 40% to \$902 million, showing that Amazon was scaling not just in size, but in profitability too.

Finally, capital expenditures grew to \$373 million, up around 38% from the prior year. This increase aligned with Amazon's investment-heavy strategy such as building tech, warehouses, and global reach, while still keeping enough cash on hand to stay agile. All in all, these numbers reflect a company in strong financial health, aggressively growing without losing control of its cash flow.

In 2010, Amazon maintained a gross margin of 22.3%, which is consistent with previous years. For a company operating in low-margin retail, this stability signals strong cost control. Even as Amazon expanded globally and built out services like Prime and AWS, it kept costs in check, a sign of operational discipline.

Using reported figures, operating margin was approximately 4.1%, and the net profit margin came out to around 3.4%. These margins may seem modest, but for a company reinvesting heavily in growth, they are perfectly aligned with strategy. The company wasn't chasing profits, it was building long-term infrastructure.

In terms of returns, Amazon generated a Return on Equity (ROE) of roughly 16.8% and a Return on Assets (ROA) of about 6.1%. These values show efficient use of both shareholder capital and total assets, especially during a period of rapid expansion.

In terms of Liquidity appeared a bit rough. The current ratio was at 0.81 and that suggests Amazon had fewer short-term assets than liabilities. However, with quick inventory turnover and steady sales, this might reflect efficient operations rather than risk.

On the solvency side, the debt-to-equity ratio was about 1.74, indicating a high reliance on liabilities. Still, Amazon's interest coverage ratio, estimated above 23 times, showed it could easily meet its debt obligations, signaling that the debt level was manageable.

While the exact 2010 cash flow from operations wasn't in the summary, a reasonable estimate based on 2009 figures is around \$3.5 billion. Subtracting the estimated CapEx of roughly \$979 million, Amazon likely had free cash flow of about \$2.5 billion, giving a strong support for growth and flexibility.

Amazon's revenue growth was striking, jumping nearly 40% from 2009. Net income grew by over 25%, and infrastructure investments also ramped up. This kind of performance confirms that Amazon was scaling effectively without compromising financial strength.

In 2011, Amazon continued its rapid expansion, but that came with a clear dip in short-term profitability. The gross margin edged up slightly to 22.4%, a small but positive sign that Amazon was maintaining cost efficiency despite scaling.

However, operating margin fell sharply to 1.8%, and net profit margin dropped to 1.3%. This was largely due to Amazon's heavy investments in logistics, technology, and international expansion. The focus was clearly on long-term growth over near-term profits.

Returns also clearly dipped as ROE came in at 7.4%, down from 16.8% the previous year, and ROA dropped to 3.0%. The company had increased its asset base significantly, but the returns hadn't yet caught up.

On the liquidity side, Amazon looked stronger. The current ratio improved to 1.17, indicating better short-term financial stability. The quick ratio (estimated at 0.95) was close to ideal, suggesting the company could meet obligations without relying on inventory turnover. While Amazon's debt-to-equity ratio rose to 2.0, it wasn't alarming, especially since the company maintained a solid interest coverage ratio of 9.6 times, showing it could comfortably handle its debt. Amazon also reported \$3.9 billion in operating cash flow, with free cash flow at around \$2.09 billion after accounting for a sharp rise in CapEx to \$1.81 billion. These numbers highlight Amazon's strong cash-generating ability even during high-investment phases. Finally, revenue jumped 40% to \$48.08 billion, while net income fell from \$1.15 billion to \$631 million. The story of 2011, in short, was one of bold reinvestment with Amazon trading margin for market share and long-term dominance.

Amazon(Profitability Ratios)				
	ROE	Net Profit Margin	Gross Margin	ROA
2009	15.40%	3.68%	22.60%	6.53%
2010	16.80%	3.40%	22.30%	6.10%
2011	7.40%	1.30%	22.40%	3%
2012	17.20%	-0.06%	24.80%	-0.12%
2013	0.77%	0.37%	27.20%	0.68%
2014	-2.24%	-0.27%	29.50%	-0.44%
2015	4.45%	0.56%	33.08%	0.91%

Table 9. Amazon's Fundamental Analysis

2. Barclay

The financial performance of Barclays Plc over the period 2011-2015 was dominated by a sharp decline in profitability, which was largely due to the reputational and operational expenses caused by regulatory scandals. One of the major scandals during this period was the 2014 foreign exchange (forex) rigging scandal. Return on Equity (ROE), another key measure of shareholder return, also declined sharply over the same period. Barclays had long sustained double-digit ROEs, which reflected great capital effectiveness, prior to 2011. But since 2012, when originally the LIBOR crisis originally emerged for the first time, ROE began to go down and fell below 5% by 2014. This fall was exacerbated by the forex misconduct in 2014, when Barclays, along with other global banks, was found guilty of manipulating foreign exchange markets. The subsequent fines of over \$2.9 billion by 2015 hit the bottom-line profitability squarely and revealed systemic governance failure.

While profitability was hard hit, Barclays did maintain some resilience and subsequent recuperation in its solvency and liquidity profile towards the close of the five years. Of perhaps greatest symbolism here was the debt-to-equity (D/E) level, which reached a highly risky level of 12.4 in 2012. This level of leverage represents an extremely high level of financial risk, especially with rising legal liabilities as a consequence of the forex scandal that Barclays became embroiled in. Noticing this vulnerability, Barclays began deleveraging in 2013. The bank raised a £5.8 billion rights issue to bolster its capital base, in response directly to regulatory pressure and investor request.

Since 2013, Barclays has made structural changes to strengthen its solvency. The establishment of the Barclays Non-Core Unit allowed the bank to isolate and divest high-risk and low-return assets, thereby reducing capital intensity. The unit subsequently helped reduce the bank's total risk-weighted assets (RWAs) and increase its Common Equity Tier 1 (CET1) capital ratio, which is a key solvency metric under the Basel III accord.

Liquidity measures also improved step by step. The bank went to great lengths to meet Liquidity Coverage Ratio (LCR) requirements early on by building up its stock of liquid assets and reducing short-term wholesale funding dependence. Barclays shifted to a less volatile liability profile through growing its deposit stock and reducing market-based funding dependence, improving its funding stability and liquidity standing. Despite cash flow volatility, the long-term liquidity and solvency ratios began to move in the correct direction by 2015, which meant that the bank had managed to begin stabilizing its financial position even as profitability was strained.

Efficiency continued to be a major concern at Barclays at this time. The cost-to-income ratio, one of the most commonly used measures of efficiency, remained over 70% in some years, well above the optimal benchmark of 50%. This is because banks tend to target a ratio that is usually closer to 50%. The 70%, which was seen in the case of Barclays, basically suggests that it was paying way too much to earn one unit of revenue. This inefficiency was a result of a range of internal and external factors. Much of this expense was driven by legal costs, particularly those related to the 2014 forex scandal. In addition to other large banks, Barclays was guilty of rigging global currency markets, resulting in large fines and settlements. While Barclays undertook drastic efforts to cut more than 19,000 jobs, it failed to achieve corresponding gains in operational effectiveness. Moreover, restructuring complexities and lackluster performance in investment banking constrained the overall effects of these efforts.

Overall, Barclays was in a tough spot. Efficiency had merely picked up slightly by the close of 2015, and Barclays had yet to catch up with the more streamlined operations of its international rivals.

Barclays' valuation on the capital markets indicated the underlying issues. The price-to-earnings (P/E) was consistently lower than the industry standards, with the investors devaluing the bank's earning potential because of continued susceptibility to regulatory risks, internal restructuring, and leadership uncertainty. Likewise, the price-to-book (P/B) value frequently fell below 1.0, reflecting the market's doubt about the reported value of the bank's assets. This was further compounded by doubt over legacy roles in the Non-Core Unit and uncertainty regarding the actual size of future litigation costs. The Investors showed nervousness, particularly as Barclays went through major leadership changes, most prominently the ousting of Antony Jenkins by Jes Staley in 2015, leaving a large amount of unanswered questions about strategic coherence.

Whereas financial metrics provided a numerically defined snapshot of Barclays' state during the years after the forex scandal of 2014, it was the qualitative indicators, those harder to quantify but which have a far-reaching in impact, that most accurately outlined the direction for the bank. At the core of Barclays' issues were severe failures of governance, as mentioned earlier, the LIBOR scandal and then subsequently uncovered in the forex case, made a bad reputation about the company. These incidents indicated not only one-off slip-ups, but to more profound, systemic problems within the bank's culture, a culture that seemed to value short-term gains at the expense of moral behavior and long-term health.

In response to the recognition of the need for cultural transformation, Barclays initiated the "Transform" initiative in 2013 under then-CEO Antony Jenkins. This was not another restructuring exercise it was to be a root-and-branch transformation in the way the bank did business, thought, and defined success. One of the strategic objectives was to move from a purely revenue-and-profit-driven performance model towards one that took into account conduct, compliance, and customer outcomes as well. Jenkins stressed the need to rebuild trust not just with regulators and shareholders, but also with staff and the wider public. It was a brave and much-needed move, particularly within a market that is more in the spotlight than ever.

Barclays				
Year	ROE	Net Profit Margin	Gross Ma	ROA
2011	6.21	323.917128	42.10%	0.26%
2012	-0.61	-3295.383542	36.10%	-0.03%
2013	2.03	992.516091	99.63%	-0.24%
2014	1.29	1557.548361	29.90%	0.26%
2015	0.95	2130.272231	18.76%	0.06%
2016	3.96	508.7405941	23.80%	0.23%
2017	-1.35	-1489.421387	26.7	-0.08%

Table 10. Barclays Fundamental Analysis

3. Google

In October 2012, Google received unprecedented international media exposure when reports were published regarding its corporate tax avoidance methods. The exposure gathered reactions varying from worry and concern from investors to obsession from media outlets depicting the

company as a "bad" corporate citizen, laying bare the financial scrutiny and fiscal ethics, alluding to the company maintaining an insular management strategy. In order to assess whether the publicity announcement affecting Google materially impacted financial profitability, we reviewed financial performance data from the years between 2009 and 2013. We scrutinized various measurements, including Return on Equity (ROE), Net Profit Margin, Earnings Per Share (EPS), and Net Income, in an attempt to examine both operational and long-term effects.

Prior to the publicity controversy, Google was consistently financially strong according to all measures. ROE demonstrated an increasing trajectory from 18.11% in 2009, 19.73% in 2011, before falling in 2012 to 14.97% (the year the tax avoidance controversy broke) and 14.80% in 2013. The fall in ROE could indicate a potential loss in investor confidence, or potentially a rising cost to the firm in adequate provisions (legal) or administration (internal restructuring) costs incurred to manage the implicated publicity.

A reduction was also observed in Google's Net Profit Margin, which exhibited an increase from 27.57% in 2009 and 29.01% in 2010 before falling to only 23.32% in 2012. These decreasing numbers suggest increasing costs of operations, legal, reputational and possibly attributable to the negative publicity related to the tax avoidance controversy. Importantly, these numbers suggest a decreased operational effectiveness despite

compensation and stimulation of operations.

Google				
Year	ROE	Net Profit	Gross Mar	ROA
2009	18.10897	27.56754	35.14%	18.05%
2010	18.39277	29.00651	35.40%	14.70%
2011	19.7301	25.6879	30.97%	13.42%
2012	14.97176	23.32153	25.43%	11.45%
2013	14.79802	23.27131	27.74%	11.65%
2014	13.82201	21.88452	24.99%	11.01%
2015	13.58586	21.80053	25.81%	11.09%

Table 11. Form 10 K, United States Security and Exchange Commission

4. Rolls-Royce

The Rolls-Royce bribery scandal, which was disclosed in February 2012, is an interesting example of using financial data to understand the long-term financial implications of corporate finance crimes. When the scandal was first made public, the company did not experience an immediate financial collapse, however, the effects of the scandal were felt over the next number of years, with pronounced effects on the company's profitability and capital efficiency. Return on equity (ROE), one way to measure a firm's ability to produce profits from its owners' equity, is especially interesting in this case. In 2013, one year after the disclosure of the bribery scandal, Rolls-Royce had a very healthy ROE of 21.88%. This suggests that the company was experiencing some level of resiliency in the short run, the revenues were derived from potential large long-term contracts that had already been awarded and/or revenues recognized from previous business, and the costs associated with the regulatory and legal ramifications from the announced investigation had not yet started to materialize. However, starting in 2014, there has

been a stark and obvious declining trend. The ROE had declined drastically to 2.01% in 2014, and was down further to 1.67% in 2015, along with the pressure and scrutiny placed upon them from regulators in multiple jurisdictions while complying with strict governance requirements, and starting to implement operational change. The largest impact was in 2016, when Rolls-Royce lost approximately £4.03 billion, causing ROE to plunge to an unprecedented low of – 216.31%. The negative ROE signifies not just a loss of profitability, but negative value created with the capital base of the company. The financial statements of the time verified that the loss demonstrates the combination of non-cash impairments, restructuring costs, and provisions where evidence of wrongdoing was pending in respect of the global corruption investigations. Indeed, in a settlement of bribery-related investigations in the UK, US, and Brazil, at the start of 2017, the company agreed to pay £671 million in fines (a factor that should make most of the corruption investigations fixed costs from 2017 forward). Interestingly, by 2017, Rolls-Royce's ROE rebounded to 68.20%, demonstrating a drastic operational turnaround.

Although this increase must be handled prudently. The increased possible reconstruction of operational performance may not actually be a recovery in this respect but represent one-offs such as disposing of assets (asset sale), deferred tax changes, and profits from extraordinary income, which inflated net income. In addition to this, the significant loss of equity due to deficits meant even a slight improvement in net income can amplify the ROE % surprisingly high amount. So while the numerical recovery looks as if recovery takes place, it does not illustrate restoration of sustainable business-describing recovery. The period between 2013-2017 gives an indication that the financial consequences of the bribery scandal of 2012 took about two years to appear and prey on the company from a financial health perspective for a minimum of three to four years. The long-lasting effect of minimal returns on equity reminds us how long ethical misconduct increases corporate performance harm. This case illustrates and showcases as an example the long-lasting, latent and potentially hidden cost of brand or reputational risk, regulatory non-compliance, and time to restore market credibility from a governance and investor lens.

Rolls Royce				
Year	ROE	Net Profit Margin	Gross Margin	ROA
2013	21.87847	8.889318636	21.30%	6.85%
2014	2.005563	0.99737915	23.31%	0.58%
2015	1.674641	0.612021858	23.82%	0.38%
2016	-216.309	-26.96088265	20.38%	-15.78%
2017	68.20097	25.80486907	19.46%	12.11%
2018	227.4715	-15.21393604	7.61%	-7.51%
2019	30.21175	-6.10719238	5.68%	-4.06%
2020	65.00513	-26.80142084	-1.77%	-10.74%

Table 12. From Financial Reports of Rolls Royce

5. Standard Chartered

The sanctions scandal involving Standard Chartered during the period 2008-2013 shaped a significant moment in the bank's past, something that slowly changed its financial performance, its reputation, and its overall strategy. While the external headline was simply that it facilitated another almost \$100 billion in transactions on behalf of Iranian entities and groups under U.S. sanctions, the internal consequences unfolded far more discreetly in the subsequent years. What

makes this case so fascinating is how the bank's financial metrics, while not necessarily failing outright, began to express the underlying stress on the institution. From 2009, metrics of profitability began to illuminate the earliest signs of strain for the bank. For example, the bank's Return on Equity (ROE) dropped from an acceptable 12.72% in 2009 to just 9.08% in 2013. To see a decline in ROE like this over a 5-year period is indicative that the institution was growing increasingly inefficient in converting shareholder dollars into net income. It may not have represented a catastrophic fall, but it was wholly consistent and may have been an early indicator of how the bank began to absorb the costs of legal costs, reputational damage, and growing regulatory costs. The same story is illustrated by its Earnings Per Share (EPS), which fell from a peak of 200.8 pence in 2011 to 164.4 pence in 2013. Although these numbers suggest reduced profit margins, they signal loss of momentum and more significantly, suggest a growing complexity and pressure surrounding the internal environment of the business. A further point of analysis of this change can be found in the bank's growing dependency on debt. In 2009, its debt-to-equity ratio was a healthy 0.44, in 2013, it had surged to 2.74. This is a huge change in how the bank finances its operations. Rising debt might imply that the bank needed to bolster its balance sheet, perhaps in order to cushion future fines or to finance its internally driven reform and upgrade of compliance costs. This type of adjustment could only keep the business running for so long, and would raise concerns regarding long-term financial stability and risk, especially in an environment at odds where confidence and trust were crucial. Curiously, the market had not entirely abandoned Standard Chartered. The Price-to-Earnings (P/E) ratio, which measures the willingness of investors to pay for a unit of earnings, remained consistent and even began to climb slightly back upwards as it moved into 2013. This could be explained by continued belief from investors on the bank's global advantage and stability or perhaps it was just evidence of the public's trust lagging behind internal imperfections. Also, while market capitalization had small drops and continued to fall into 2010 it too had a rise in 2013 suggesting that perhaps the bank was not left with absolutely no credibility, though it certainly did not seem to be on the rise. Looking back, we can now see what the actual impact was from the sanctions breach was not that of immediately collapsing, but an erosion of trust. The severing of trust was done in small degradation, continuous erosion of margin, and increased debt, none of which are particularly exciting to read about, but when considered as a whole are detrimental to an organization. The bank was still making profits, but it can be seen from the evidence that profits continued at much higher level of effort and risk. The bank was working physically harder to get each pound of return, while unknowingly also carrying the burden of public scrutiny and regulatory inquiries. This is a clear example of longer-term implications.

Standard Chartered				
Year	ROE	Net Profit Margin	ROA	
2009	12.71763	52794768	0.90%	
2010	11.55135	70897668	1.10%	
2011	12.11623	87003321	1%	
2012	10.98937	95068935	1%	
2013	9.081867	78863400	0.60%	
2014	5.825724	49593470	0.40%	
2015	-4.75284	-33574644	-0.30%	
2016	-3.61522	-22552240	9%	

Table 13. Standard Chartered's Fundamental Analysis

6. TESCO

In 2014, Tesco, a household name in the UK retail landscape, found itself at the center of a serious accounting scandal. The company admitted to overstating its profits by an astonishing £263 million, a revelation that sent shockwaves through the business world and raised questions about corporate governance and transparency. The fallout from this scandal was not short-lived. By examining Tesco's financial performance before and after the event, we can see the profound impact it had on the company's long-term profitability and public trust.

One of the most telling indicators of this decline is the company's Return on Equity (ROE). In 2013, Tesco had an ROE of about 6.6%, indicating that it was still managing to generate a reasonable return on shareholders' investments. But in 2014, the figure plummeted to -81.5%. This wasn't just a minor dip; it reflected a dramatic collapse in profitability. The net income turned deeply negative, falling to over -£5.7 billion. At the same time, shareholder equity was shrinking, mainly due to asset write-downs and a general loss of investor confidence. These figures point to the heavy toll the scandal took on the financial core of the business.

Tesco's Net Profit Margin tells a similar story. It dropped from 1.5% in 2013 to a startling -9.3% in 2014. This means that Tesco was losing more than nine pence for every pound it earned in revenue. While the internal accounting errors were the immediate cause, this financial pain was compounded by a tough external environment. The UK retail sector was undergoing a transformation. Budget supermarkets like Aldi and Lidl were eating into Tesco's market share, and consumers were increasingly gravitating towards online shopping and convenience stores. Tesco, slow to adapt to these shifts, found itself exposed at the worst possible time.

Curiously, the Earnings Per Share (EPS) figure rose sharply in 2014 to 70.82p from just 12.07p the year before. But this apparent improvement is misleading. It's likely the result of accounting adjustments or one-off gains rather than any genuine improvement in the company's operations. EPS can be distorted by changes in tax liabilities, asset revaluations, or other extraordinary items that don't reflect the underlying health of the business.

The Debt-to-Equity (D/E) Ratio is another area where the impact of the scandal becomes clear. In 2013, the ratio stood at 0.76, a manageable level of debt relative to equity. But by 2014, it had ballooned to 1.79. This surge suggests that Tesco was relying heavily on borrowing to stay

afloat, likely because its equity base had been eroded by the scandal and related losses. A high D/E ratio signals increased financial risk, as it makes the company more vulnerable to interest rate hikes and less able to invest in future growth.

Investors also lost faith, as shown by the decline in the Price-to-Earnings (P/E) ratio. In 2013, Tesco's P/E ratio was close to 30, which suggested optimism about its future earnings. But by 2014, it had dropped to just under 4. This steep decline shows how quickly investor sentiment shifted. Even though EPS appeared high, the market didn't believe the company could sustain that performance.

In summary, Tesco's 2014 accounting scandal had deep and lasting effects on its profitability and reputation. The data show a company that was not only struggling to deal with internal failures but also grappling with external pressures from a rapidly changing retail environment. The scandal exposed weaknesses in Tesco's leadership and financial controls, leading to a collapse in key financial metrics and a sharp decline in market confidence. More than a decade later, the case remains a cautionary tale about the cost of compromising on financial integrity and the importance of transparency in maintaining stakeholder trust.

TESCO				
Year	ROE	Net Profit Margin	Gross Margin	ROA
2010	16.0681	4.383647076	8.09%	5.76%
2011	15.8081	4.360154325	8.30%	5.65%
2012	0.720245	0.165830604	8.15%	5.54%
2013	6.588779	1.52618909	6.31%	0.05%
2014	-81.5443	-9.257594246	6.31%	1.93%
2015	1.497214	0.236988591	-3.87%	-2.51%
2016	-0.84191	-0.096571704	5.24%	2.58%

Table 14. TESCO's Fundamental Analysis

Conclusion

Each company assessed in this dissertation had its own reactions to the public revelations of financial misconduct, often in different timeframes, which is important because it can give insight into how the markets assess risk, as well as recovery. Upon news about the expectation of tax avoidance Amazon proved to be quite remarkable. Its stock price fell briefly and came right back to an upward stock trajectory, which likely reflects the confidence given from the global scale of value and the corporate structure of its formative business case. Barclays saw a brief drop when it faced consequences for tax behavior, but received a rapid upward trajectory because the investors assessed that the penalty was negative, but more symbolic, and would not become a serious financial threat. Glencore's revelations regarding bribery and attempts to manipulate the market represented a more cautious reaction from investors. However, with its strengths, market position can be viewed as overpowering, it positively eventually appeared with little or no lasting damage. Google (Alphabet Inc.) also guided the market with less than strong reaction. The investor market was quite calm although higher multiples were assessed, due to the issues it faced with questions of legal oversight. The longer the market waited and rated to access also showed the impressive stability of Google's own business matters of fundamental value and accountability for continuous innovation. HSBC's exposure of their freedoms in Swiss Leaks received greater and worse reaction, however, once volatile

conditions backed off it appeared more that stakeholders and those involved gave the incident greater influence to pass through into the companies operations as it was present to have a lasting influence on the its reputation, which led to long term value losses.

There was an interesting contrast with Rolls-Royce, the market was largely positive post-bribery settlement. Investors appear to have viewed the resolution as something of a turning point, which was supported by the subsequent steady improvement in the condition of the company's finances. In the case of Standard Chartered, whilst sanctions violations did lead to a prompt market sell off, there was a quicker rebound in terms of confidence—trusting the bank to overcome this problem operationally. In the case of Tesco, we were talking about failure that is more serious and causally significant; the response from the market was considerably more dire; not only were they unable to restore confidence, they were unable to restore a level of financial stability, which must mean something quite worrying about the internal controls around accounting function in the company. In Vodafone's case, the market's reaction was quite optimistic. The share price improved following disclosure, perhaps investors were viewing the accounting issue as relatively insignificant or well-contained. So all these cases show us one thing: there is often a gut reaction to a financial scandal and the markets may turn briefly negative, but the consequences are often proportional to how a company deals with the ensuing crisis, its level of transparency with stakeholders, and the underlying structure of their business.

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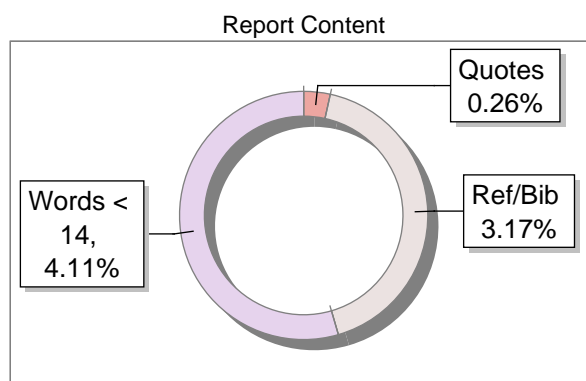
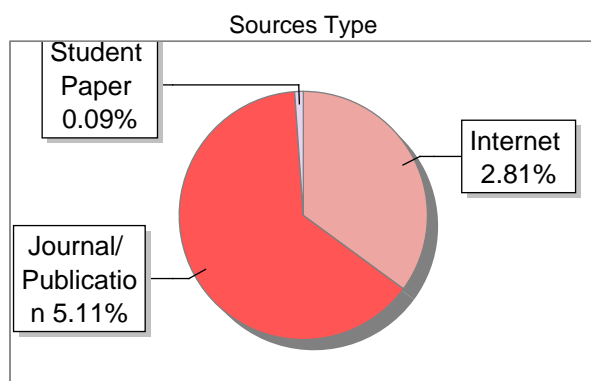
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