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UBS-Credit Suisse merger:

A PATH TO VALUE CREATION?

Supervisor
Ch. Prof. **ANASTASIA GIAKOUMELOU**

Graduand
LORENZO LAMENTA
Matriculation Number 890549

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Abstract

This thesis uses MacKinlay's event research method to investigate the short-term value creation induced by UBS-Credit Suisse deal in Switzerland. The study is divided into three chapters: a literature review on Mergers and Acquisitions (M&As), an examination of the prelude to the transaction, and the empirical analysis which includes a Monte Carlo simulation in R for assessing different paths of the UBS stock price reaction. The event study results show a short-term value loss of about 18 billion CHF. This means that market has reacted negatively to this announcement. The findings align with existing market information and sentiment regarding the transaction, highlighting potential concerns and uncertainties surrounding the integration of two financial giants. The empirical analysis casts light on the instant financial implications of a UBS-CS merger and enriches the M&A literature in banking.

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Lastly, I want to acknowledge my own perseverance and determination in pursuing this goal. The commitment and tenacity I have maintained have been essential in achieving the desired outcome.

«χαλεπὰ τὰ καλά» is
Greek for "beauty is hard"

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Introduction

This section has the purpose of providing the reader with an initial understanding of the subject researched and to argue for the importance of the thesis.

Nowadays, Mergers and Acquisitions (M&As) are a significant strategic tool for company growth, restructuring, and market expansion. These operations have the potential to reshape industries, create synergies, and add significant value to the companies engaged. Keeping fixed the principles of flexibility and adaptability to the market, the firms need to increase their dimensions to remain competitive in a global environment, exploiting the productive and economic benefits. According to Gaughan (2010[1]), M&As can lead to significant changes in the competitive landscape, enabling firms to achieve economies of scale, enhance market dominance, and acquire new technologies and competencies. However, M&As also carry substantial risks and uncertainties. The process of acquiring or merging a business can be lengthy and fraught with challenges, often leading to failure. According to Christensen et al. (2011), more than 70% of Mergers and Acquisitions fail, and for this reason the complex dynamics should be studied by both researchers and practitioners. Especially, the value creation component of takeovers sparks heated debates and is a prominent topic for academic inquiry. Different articles from different time periods indicate a disparity in their conclusions on short-term value creation, measured by stock price fluctuations generated by an M&A announcement.

[1] Gaughan, P. (2010). *Mergers, acquisitions, and corporate restructurings. Wiley.*

This thesis focuses on the merger between UBS and Credit Suisse, two of Switzerland's greatest financial institutions.

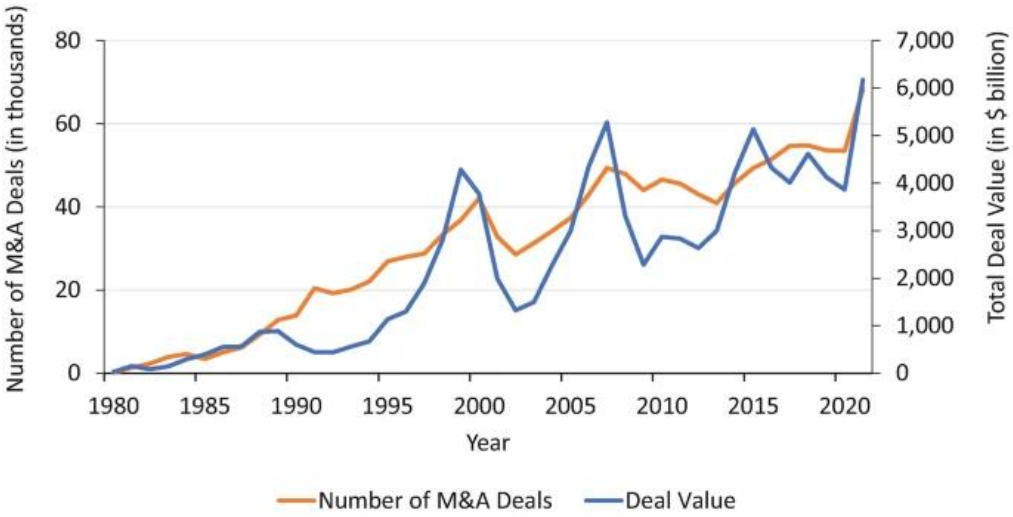
Research background and motivation

Globalization has driven the rapid rise of the Mergers and Acquisitions business in recent decades. Global markets have become more linked, with fewer trade restrictions and entrance hurdles, creating new opportunities for enterprises. On the other hand, competition has expanded to unprecedented levels, putting further pressure on firms to constantly develop in order to remain competitive. According to Thanos and Papadakis (2012[2]), Mergers and Acquisitions are the most typical form of company expansion.

Figure 1 displays the global number and value of M&A deals from 1980 to 2022, indicating significant growth. It is a well-known and investigated phenomena that Mergers and Acquisitions occur in waves that peak immediately before economic downturns. Intuitively, this market response makes sense. During a recession, management's emphasis shifts to more pressing issues, such as maintaining the business model. Funding acquisitions becomes more expensive when borrowing rates rise to reflect market risk, and stock offerings are pricey for current shareholders. Because the company's market capitalization tends to shrink during a recession, an equity issuance dilutes current shareholder ownership even more.

[2] Thanos, I. C., & Papadakis, V. M. (2012). *The use of accounting-based measures in measuring M&A performance: A review of five decades of research. Advances in Mergers and Acquisitions, 10, 103-120.*

Figure 1: Global number of M&A Deals



Specifically, The graph shows that the dot.com bubble burst in the early 2000s, marking the conclusion of the fifth M&A wave. The fifth wave was truly international, with M&A activity increasing significantly in Europe, Asia, Central and South America, and the United States (Gaughan, 2015[3]). The M&A industry recovered swiftly following the dot.com[4] bubble burst, setting new records for total value and number of transactions in 2007, right before the global financial crisis (starting with the fall of Lehmann Brothers in 2008). This time, particularly in Europe, the recovery from the financial crisis was slower, owing mostly to the Greek debt problem in 2009, which inevitably cracked into the European debt crisis.

Despite all of the previous setbacks, the challenging regulatory environment in the M&A market, and more recent incidents leading to rising uncertainty, , M&A activity has remained relatively strong. At the end of 2019, the overall

[3] Gaughan, P. A. (2015). *Mergers, Acquisitions, and Corporate Restructurings (6th ed.). John Wiley & Sons.*

[4] The dot-com bubble (or dot-com boom) was a stock market bubble that emerged in the late 1990s and peaked on Friday, March 10, 2000. This period of market expansion coincided with broad adoption of the World Wide Web and the Internet, resulting in a scarcity of accessible venture capital and a quick increase in values for new dot-com startups.

value of transactions was about $3700 billion, with a total number of transactions around 50.000, exceeding the peak immediately before the financial crisis. The rapid expansion of COVID-19 has been one of the most significant economic and M&A issues in 2020. While it is difficult to forecast exactly how the COVID-19 will affect M&A activity in the long run, its considerable short-term repercussions have already evident.

M&A performance has been extensively discussed in the literature since the 1960s. (Das & Kapil, 2012[5]). The massive increase in the total value and number of M&A transactions has piqued the interest of academics from different sectors, including finance, organizational behaviour, economics, accounting, and strategic management. The impact of Mergers and Acquisitions on firm performance has been specifically studied and researchers have traditionally looked at the stock price reactions of companies participating in the combinations following deal announcements, post-M&A accounting-based operating performance gains, and the impact of various deal characteristics on these performance indicators.

Previous research indicates that when a takeover is announced, both bidder and target shareholders benefit from positive returns. Following a takeover, target firm shareholders see strong short-term returns and receive the majority of the combined gains. (Jensen and Ruback, 1983). However, the evidence regarding the benefits for acquiring companies and their stockholders remains unclear. This provides a strong reason to investigate the matter further, hence this thesis approaches it from the perspective of the acquiring company. Despite research indicating poor performance by acquirers, organizations and managers continue to engage in M&A activity. A potential reason is that existing knowledge and comprehension of the various stages of this complex phenomenon of Mergers and Acquisitions may be insufficient.

[5] Das, A., & Kapil, S. (2012). *Explaining M&A performance: A review of empirical research. Journal of Strategy and Management, 5(3), 284-330.*

More research is needed to have an extensive understanding of the challenging phenomenon of M&As, as existing literature is not unanimous on several subjects. One of the goals of this thesis is to provide the reader with valuable information about the UBS-CS merger.

Research purpose and questions

The purpose of this thesis is to analyse whether the UBS-Credit Suisse deal had a significant impact on the short-term value creation and to examine the UBS stock price reaction after the announcement date of the merger using the Monte Carlo simulation. If I find significancy in the empirical result, I will further verify the consistency with the main theories involved during the M&As process. Based on the research background and motivation the following questions are formed:

- Did the UBS-CS merger announcement create short-term value for both the target and the bidder firm?
- What was the UBS stock price reaction after the deal announcement?
- Are the empirical results consistent with any of the most well-known M&A theories?

Research method and data

The empirical research for this thesis is conducted as a quantitative study. The sample consists only of closing prices for both UBS and Credit Suisse, and a Swiss benchmark is chosen to take explicit account of the risk associated with the market. Due to a lack of high-frequency data, closing prices have a daily frequency to help smooth out the noise effect. The event study method is used to examine the presence of abnormal returns deriving from the deal between the two banks, and a t-test is employed to verify the statistical significance of the results. Abnormal returns are calculated using three different approaches, and comparisons are made through graphical analysis. To assess the UBS

stock price reaction following the announcement date, the Monte Carlo simulation is performed in R. This has been a bail-out merger case, and different hypotheses could arise during the study due to the extraordinariness of the event.

Structure of the study

This thesis is structured into three chapters. Chapter 1 provides a literature review on Mergers and Acquisitions (M&As), offering a comprehensive overview of existing research and theoretical frameworks in this topic. Chapter 2 outlines the troubles and challenges that Credit Suisse has suffered resulting in undermined investor confidence, risk management failures, and huge financial losses. The decision to combine with UBS has been an emergency rescue deal engineered by Swiss authorities to avoid a systematic crisis. Chapter 3 presents the data, and the methodological approach used in the empirical analysis as well as the results of the study and their interpretation. The last part of this chapter draw conclusions and provides limitations and new ideas for future research possibilities.

Chapter I: Literature review

In this chapter, the reader will be provided with a detailed overview of Mergers and Acquisitions (M&As) to lay the groundwork for assessing the UBS-Credit Suisse transaction. The explanation of the theories involved is supported by existing literature and opinion is given regarding relevance to the case analysed. The concept of short-term value creation through M&As is based on the Efficient Market Hypothesis (Fama, 1970).

1.1 Theoretical framework

For decades, the phenomenon of Mergers and Acquisitions has generated scientific interest, making it a widely studied topic in financial economics. M&As are often among the largest monetary transactions and most important events in any business, involving significant restructuring of the companies engaged and influencing a wide range of stakeholders. Not to mention the broader societal implications of employment consequences, changes in competition, and strategic ownership, as well as potential efficiency benefits and their impact on overall economic welfare. To evaluate the performance of M&As, Bruner (2002[6]) distinguishes between four approaches: event studies[7], accounting studies, surveys of executives, and clinical studies.

In this thesis, I focus on the event study methodology that is commonly employed in studies of short-term value creation through M&A. It assumes that the market reacts quickly and precisely to specific events, such as M&A activity. However, the Efficient Market Hypothesis has sparked disagreement and controversy. Some empirical studies continue to call this concept into

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

[7] This method is a stock-market-based approach that examines abnormal returns to shareholders. It can be applied to assess either the short-term or long-term shareholder wealth effects of M&As.

doubt, since they found no relevant evidence to support the volatility of stock prices driven by M&A.

Fama (1965[8]) argued that M&A announcements result in an abnormal return for investors since stock prices reflect all available information. Similarly, Healy et al. (1997[9]) stated that the impact of shareholders in bidding firms is insignificant to M&A outcomes. However, later studies looked at deals disclosed between 1964 and 2000 and provided evidence that shareholders do actually earn abnormal returns from the M&A transaction.

Fama (1970[10]) claimed his prior research (Fama, 1965) and classified market efficiency into three levels: weak, semi-strong, and strong. These levels define the extent to which stock prices reflect information:

- **Weak Form Efficiency** implies that stock prices already include all historical price information. As a result, technical analysis, which is based on historical price data, is inefficient in forecasting future price fluctuations.
- **Semi-Strong Form Efficiency** indicates that stock prices fully incorporate both historical data information and publicly available information. This means that the future expectations of investors are reflected in stock prices at the announcement of the M&A transaction.
- **Strong Form Efficiency** states that both public and private information can impact stock performance, making difficult to determine whether M&A is reflected in the market.

[8] Fama, E. F. (1965). *The Behaviour of Stock-Market Prices. Journal of Business, 38(1), 34-105.*
[9] Healy, P. M., Palepu, K. G., & Ruback, R. S. (1997). *Which Takeovers are Profitable? Strategic or Financial? Sloan Management Review, 38(4), 45-57.*
[10] Fama, E. F. (1970). *Efficient Capital Markets: A Review of Theory and Empirical Work. Journal of Finance, 25(2), 383-417.*

The study is based on the Semi-Strong Market Efficiency Hypothesis, which assumes that the market reacts correctly to M&A announcements, resulting in stock performance.

1.1.1 Event studies review

Five comprehensive summaries of M&A research from the 1970s to early 2000s found that takeovers result in positive and statistically significant returns for both acquirers and target shareholders. Following a takeover, target company shareholders often reap the majority of the short-term value creation. According to Bruner (2002), almost all of the 20 studies he analysed reported positive total returns, with 11 of them statistically significant and returns ranging from 0.14% to 11.3%. He contends that the size gap between acquirer and target may make it difficult to measure joint gains. Because the acquirer is often much larger, the dollar value of a tiny percentage loss for acquirer owners may outweigh the cash worth of even a high percentage gain for the shareholders of a smaller target firm. Numerous studies have addressed this issue by establishing a portfolio of acquirer and target companies and analysing either the absolute dollar value of returns or the weighted average returns. Andrade et al. (2001[11]) studied mergers from 1973 to 1998 and found that the average abnormal returns during the three-day event window were consistent across decades, ranging from 1.4% to 2.6%. The average return was 1.8%, which was statistically significant at the 5% level. Moreover, Jensen and Ruback (1983[12]) found that during tender offers[13] and mergers, target companies' stock prices fluctuate by 30% and 20%

[11] Andrade, G., Mitchell, M., & Stafford, E. (2001). *New evidence and perspectives on mergers. Journal of Economic Perspectives, 15(2), 103-120.*

[12] Jensen, M. C., & Ruback, R. S. (1983). *The market for corporate control: The scientific evidence. Journal of Financial Economics, 11(1-4), 5-50.*

[13] A tender offer is a proposal to buy some or all of a corporation's stock from its shareholders.

respectively. Datta et al. (1992[14]) conducted a meta-analysis of 41 empirical papers published in major journals using the event study approach to quantify the effects of Mergers and Acquisitions on target and bidder firms' stock values in the US market. Based on 75 observations, their main analysis shows that, on average, bidders achieve statistically insignificant benefits of 0.388% in the month following merger announcement.

In line with Martynova and Renneboog (2008[15]), the empirical literature is unanimous in its conclusion that M&As are expected to create value for the target and acquirer shareholders combined (in terms of the announcement abnormal returns), with most of the value created accruing to the shareholders of the target corporations.

However, the conclusions on bidder shareholder returns are not clear and consistent. The empirical evidence on the wealth impacts of acquiring companies is mixed, and according to Das and Kapil (2012[16]), the academic community is split on whether takeovers give any real benefits to acquirers. Jensen and Ruback (1983) conducted an analysis of 13 research published between 1997 and 1983 on the stock market reaction to takeover announcements. Their report summarizes facts on tender offers and mergers in the US market from 1956-1980. The authors observed that in successful tender offers, bidder firms' abnormal returns are significantly positive, ranging from 2.4% to 6.7%, with a weighted average of 3.8%. In mergers, evidence on bidder returns is mixed, making interpretation more complex. Overall, their analysis implies that bidding firms receive about zero profits from mergers.

Additionally, there are several challenges in evaluating bidder returns. First, targets might be small relative to the acquirer, resulting in minimal influence

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[14] Datta, D. K., Pinches, G. E., & Narayanan, V. K. (1992). *Factors influencing wealth creation from mergers and acquisitions: A meta-analysis. Strategic Management Journal, 13(1), 67-84.*

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

[16] Das, N., & Kapil, S. (2012). *Exploring the drivers of corporate liquidity in India. Journal of Financial Management and Analysis, 25(2), 18-27.*

on the acquirer's share price during a successful acquisition. Second, the share price response to the M&A transaction can only be seen as a surprise element. If the acquirer is known to be involved in the takeover strategy, the share price reaction to any acquisition news will simply reflect how the market considers the takeover to differ from the expected takeover. Third, if the target rejects the acquisition, the takeover process may take a long time to complete. As a result, the unpredictable conclusion of the event makes it difficult to isolate the market's impression of the bid (Fuller et al., 2002[17])

In conclusion, it is very useful to understand the length of the event study and how this affects the returns of an M&A transaction. Martynova and Renneboog (2008) and Tuch and O Sullivan (2007[18]) both emphasize the fact that long-run window event studies may be subject to methodological problems. Lyon, Barber, and Tsai (1999[19]) assert that "the analysis of long-run abnormal returns is treacherous." Kothari and Warner (2004[20]) also question the reliability of long-term methods and highlight the contrast with short-term methods, which they find relatively straightforward and trouble-free. As a result, they believe that the results of short-run testing may be relied on with greater confidence than long-run tests, which is why the long-term event study method is excluded from this thesis's empirical examination.

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[17] Fuller, K., Netter, J., & Stegemoller, M. (2002). *What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. Journal of Finance, 57(4), 1763-1793.*

[18] Tuch, C., & O'Sullivan, N. (2007). *The impact of acquisitions on firm performance: A review of the evidence. International Journal of Management Reviews, 9(2), 141-170.*

[19] Lyon, J. D., Barber, B. M., & Tsai, C. (1999). *Improved methods for tests of long-run abnormal stock returns. Journal of Finance, 54(1), 165-201.*

[20] Kothari, S. P., & Warner, J. B. (2004). *Econometrics of event studies. In B. E. Eckbo (Ed.), Handbook of Corporate Finance: Empirical Corporate Finance (Vol. 1, pp. 3-36). Elsevier.*

1.2 Types of M&As

M&As enhance a company's strategy and offer opportunities for growth through corporate restructuring, control shift, and external expansion. The two terms are often used interchangeably, however there are important economic distinctions and implications, as highlight by DePamphilis (2018[21]).

In a merger, two firms combine their operations, management, stock, and other business activities to form a "new" legal entity; on the other hand, an acquisition requires one company to buy another through an asset or a share deal.

1.2.1 Horizontal, Vertical, and Conglomerate M&As

M&As can be classified depending on several parameters, and a first classification is based on the relatedness of business (Zotti, 2019[22]):

- **Horizontal M&As** are deals in which both firms operate in the same industry and at the same stage of production. Acquiring direct competitors can boost market share, revenues, and profits while reducing competition. Furthermore, because the businesses are comparable, it provides for economies of scale and synergies and promotes cost efficiency by removing duplicate and wasteful activities from operations and combining departments. Since UBS and Credit Suisse were competitors in the same business (financial institutions), the transaction has been a horizontal merger.

- **Vertical M&As** involve the combination of companies operating in the same industry but at different level of the production chain. These mergers are usually undertaken to ensure more control of the supply

[21] DePamphilis, D. M. (2018). *Mergers, Acquisitions, and Other Restructuring Activities: An Integrated Approach to Process, Tools, Cases, and Solutions. Academic Press.*
[22] Zotti, R. (2019). *Mergers and Acquisitions: A Practical Guide for Private Companies and Their Advisors*. Springer.

chain process and limit reliance on any other companies, which may lead to reduced costs and increased productivity and efficiency (Pike and Neale, 2009[23]).

- **Conglomerate M&As** occurs when the acquirer and the target company are operating in different industries and are involved in distinct, unrelated business activities. This type of merger is often driven by diversification and cross-selling opportunities. The primary benefit of conglomerate integration is the ability to reduce risk through the combination of enterprises with varying seasonal or cyclical sales and earnings patterns (Ross et al., 2013[24]).

1.2.2 Financial and Strategic M&As

According to Clark (2013[25]), a second classification is made considering the type of buyer:

- **Financial M&As** involve venture capital funds, private equity funds, or a specific firm acquiring a target company to gain a profit from the sale. In these transactions incentive and efficiency improvements are the primary motives. Financial buyers prioritize identifying private companies with potential for growth and generating a return on investment through future sales, rather than seeking synergies but they are not interested in operating in the market and hence does not prioritize business integration.

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[23] Pike, R., & Neale, B. (2009). *Corporate Finance and Investment: Decisions and Strategies (6th ed.). Pearson.*
[24] Ross, S. A., Westerfield, R. W., & Jaffe, J. (2013). *Corporate Finance (10th ed.). McGraw-Hill Education.*
[25] Clark, D. (2013). *Mergers and Acquisitions: A Practical Guide for Private Companies and Their Advisors. Routledge.*

- **Strategic M&As** are transactions in which the buying firm as well as the target firm operate in the same industry sector and/or value chain. In this case the buying firm believes that the combination of the two firms will result in a more efficiently operating company and/or an improved market position, aiming to increase long-term shareholder value and support sustainable growth. Analysing strategic Mergers and Acquisitions is challenging due to the numerous variables involved in each deal.

  The merger between UBS and Credit Suisse can be viewed as an example of strategic buyer (UBS) interested in a strategic match with the target (Credit Suisse), with the goal of integrating it and focusing on the synergies deriving from the deal to provide an incremental long-term shareholder value.
  In particular:

  1. **Strategic fit**: the strategic fit between UBS and Credit Suisse is a primary driver of their merger. UBS sought to strengthen its position in the global banking market and broaden its capabilities, particularly in investment banking and wealth management. Integrating Credit Suisse allows UBS to boost its market position and leverage on synergies.
  2. **Incremental Long-Term Shareholder Value**: the merger is expected to increase long-term value for shareholders by incorporating the strengths of the two banks. The integration is expected to result in cost savings, higher operational efficiencies, and improved overall financial performance for the combined firms, delivering more value for shareholders over time.

3. **Sustainable Growth Strategy**: by acquiring Credit Suisse, UBS wants to adopt a more sustainable growth plan. The combination is intended to help UBS grow its customer base, diversify its revenue streams, and strengthen its competitive position in the global financial services market.

1.2.3 Distressed M&As

Distressed M&As refers to deals involving enterprises experiencing financial difficulties, such as insolvency, bankruptcy, or other serious financial troubles. These transactions are driven by the need for the distressed company to find a sustainable solution to its financial problems, which is generally accomplished through a sale, merger, or restructuring.

In her book Karol (2018[26]) explores the different stages of financial distress and explains that the most attractive reason to buy distressed business is the depressed price. According to Novikoff (2010[27]) the target situation could arise from a series of motives and mistakes and buyers need to be sure about their ability to face out with this particular scenario. Evaluating a distressed firm is challenging due to the considerable risk associated with different factors (e.g. time is one of the critical issues because the situation could quickly deteriorate under these unstable financial conditions). As Altman and Hotchkiss (2006[28]) point out, there is often a considerable difference between a distressed company's book value and its market value, complicating the valuation process. Earnings estimates are also plagued with uncertainty, which can influence the terms and structure of M&A transactions. For this

[26] Karol, R. (2018). *Buying a Distressed Business: A Winning Strategy. Wiley*
[27] Novikoff, A., et al. (2010). *Distressed Business and Turnaround Strategies. Wiley*
[28] Altman, E. I., & Hotchkiss, E. (2006). *Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyse and Invest in Distressed Debt. Wiley*

reason, the knowledge of specific topics and a careful due diligence are essential to limit the downside.

Based on the stages[29] of financial distress explored by Karol (2018), UBS-CS takeover can be associated with a Pre-Bankruptcy transaction. This occurs when the target company is experiencing financial difficulties but has not filed for bankruptcy.

The goals of this type of transaction are liquidity improvements and operational restructuring. After a successful integration, Karol (2018) offers practical advice on how to manage the Post-Acquisition phase, including strategies to generate synergies and achieve turnaround.

1.3 Reasons for M&As

There are many reasons that drive companies to pursue M&A transactions and one of the most important is synergies ("Value Creation"). According to the Corporate Finance Institute (CFI), synergies are defined as follows: "Synergy is the concept that the whole of an entity is worth more than the sum of the parts. [...] In other words, by combining two companies in a merger, the new company's value will be greater than the sum of the values of each of the two companies being merged" (CFI, 2022[30]). Moreover, according to Mintzberg (1989[31]), the united firm generates greater value than the individual firms (2+2=5) and identify and evaluate synergies is important throughout the M&A process. These synergies can be classified into two categories which are cost mitigation and revenue improvement.

[29] Pre-Bankruptcy / In-Bankruptcy / Post-Bankruptcy
[30] Corporate Finance Institute. (2022). *Synergy*.
[31] Mintzberg, H. (1989). *Mintzberg on Management: Inside our Strange World of Organizations. Free Press.*

Cost mitigation: these synergies produce additional gains and can arise from economies of scale, economies of scope or complementary strengths (O'Sullivan & Sheffrin, 2003[32]). Economies of scale are the result of spreading fixed costs across more inputs translating into lower fixed cost per unit. Businesses benefit from economies of scope when they share centralized functions or develop interrelationships at various points in the business process (The Economist, 2008[33]).

Revenue improvement: Chartier et al. (2018[34]) found that revenue synergies occur when external expansion leads to increased revenues. A corporation can maximize revenue synergy by focusing on three dimensions: where to sell, what to sell, and how to sell.

However, in addition to synergies and their breakdown, there are a lot of other motivations that drive M&A transactions.

Figure 2: Reasons for M&A

[32] O'Sullivan, A., & Sheffrin, S. M. (2003). *Economics: Principles in action. Prentice Hall.*
[33] The Economist. (2008). *Guide to Financial Management. The Economist Newspaper Ltd.*
[34] Chartier, C., Allen, C., Collins, J., & Johnson, R. (2018). *Maximizing revenue synergies in mergers and acquisitions. Harvard Business Review.*

These will be divided into strategic and behavioural reasons:

1.3.1 Strategic reasons

1) **Economies of scale:** it is described as one of the most common causes for takeovers in order to optimize the operating scale. The allocation of fixed costs over a diverse manufacturing base is a common source of cost savings (Cummins and Xie, 2008[35]). This means that companies can save costs due to their size by producing goods in huge volumes. However, size may not always provide an advantage. For instance, organize and manage larger firms can be challenging, leading to increased expenditures and Mergers and Acquisitions might offer additional issues due to differences in business cultures (Steigenberger, 2014[36]). Berk and DeMarzo (2020[37]) deduced from this that smaller businesses can react more swiftly to changes in the economic environment while simultaneously maintaining a tighter contact with clients. Thus, it can be concluded that economies of scale offer significant benefits, but they also have different drawbacks.
2) **Vertical Integration:** vertical integration provides control over the entire or a portion of the value chain. This is frequent in sensitive goods businesses, where production secrets account for a major portion of the product's value and the ability to supervise them provides a competitive advantage. According to Vernon and Graham (1971[38]), it has already been established that the vertical merger can make it

[35] Cummins, J. D., & Xie, X. (2008). *Mergers and Acquisitions in the U.S. Property-Liability Insurance Industry: Productivity and Efficiency Effects. Journal of Banking & Finance, 32(1), 30-55.*
[36] Steigenberger, N. (2014). *The Challenge of Integration: A Review of the M&A Integration Literature. International Journal of Management Reviews, 16(4), 408-431.*
[37] Berk, J., & DeMarzo, P. (2020). *Corporate Finance (5th ed.). Pearson.*
[38] Vernon, R., & Graham, E. M. (1971). *Patterns of International Investment in Industrial Economies. National Bureau of Economic Research.*

possible to increase the efficiency of the integrated firm and achieve additional profit.

3) **Talent acquisition:** acquire a firm might be motivated by expertise as well as the goal to pursue vertical integration through M&As. Mergers are typically done when a corporation requires additional knowledge. This could be accomplished by recruiting additional employees or consultants. However, hiring more staff or consultants can lead to problems in unfamiliar areas. Indeed, purchasing talent from an established organization is a more efficient alternative. Thus, investing in expertise through M&As may increase prices, but the benefits of knowledge and new technology might outweigh the expenses.
4) **Monopoly gain:** another key motivation for M&As include competition and even monopoly benefits. Thus, all horizontal mergers eliminate competition and boost company efficiency (Gugler et all, 2002[39]). Merging two companies with non-differentiable products might decrease competition by unilaterally controlling prices, potentially raising one or both products above pre-merger levels. In addition, mergers eliminate fair market competition, resulting in higher pricing for consumers. Moreover, according to DePamphilis (2014[40]), an M&A between two competitors can result in a firm control and minimize quantities, allowing them to raise prices while maintaining demand. The literature frequently discusses and concludes that the acquisition or merger of two significant rivals automatically decreases competition in the market or industry. This can lead to increased earnings for the companies involved. The acquiring firm must bear the costs of this profit growth, as it is required to pay higher amounts for integrating the

[39] Gugler, K., Mueller, D. C., Yurtoglu, B. B., & Zulehner, C. (2002). *The effects of mergers: An international comparison. International Journal of Industrial Organization, 20(5), 625-653.*
[40] DePamphilis, D. (2014). *Mergers, Acquisitions, and Other Restructuring Activities (8th ed.). Academic Press.*

target. To restrict dominant positions or reductions in competition, governments should enact antitrust laws. Eckbo (1981[41]) described these monopolistic positions as very valuable and powerful, and without these laws, more and more companies might merge. If a merger with a competitor result in a dominant market position, it can be used to coordinate pricing and output strategies with other competitors. This is surely the case of UBS-CS merger in which a successful takeover should lead to a market dominance in the Swiss banking industry.

5) **Efficiency gains:** another reason for M&A is so-called efficiency gains. Bertrand and Zitouna (2011[42]) classify efficiency gains into five categories: production rationalization, economies of scale and scope, technological innovation, purchasing economies, and lower slack. However, it is important to make the distinction between related Mergers and Acquisitions and conglomerates. In related mergers and acquisitions, management has a better understanding of the target company due to their similarities. In contrast, a conglomerate merger presents additional integration challenges due to the market, goods, and geographical location. These frequently preclude the potential of efficiency gains and tends to lead to lower profitability.
6) **Tax benefits:** in addition to the efficiency gains presented above, taxes and tax savings also play an important role because according to Duarte and Baroz (2018[43]) companies are constantly looking for better tax conditions. Indeed, tax savings can be generated by relocating

[41] Eckbo, B. E. (1981). *Horizontal mergers, collusion, and stockholder wealth. Journal of Financial Economics, 11(1-4), 241-273.*
[42] Bertrand, O., & Zitouna, H. (2011). *The effects of mergers and acquisitions on productivity and efficiency: Evidence from French manufacturing firms. Applied Economics, 43(2), 291-307.*
[43] Duarte, F., & Baroz, S. (2018). *Tax strategies in mergers and acquisitions: The quest for better tax conditions. Journal of Corporate Finance, 50, 123-145.*

operations and throughout M&As. Nonetheless, the IRS[44] recently decided that no takeovers should be conducted solely for the purpose of saving money on taxes. As a result, it is highly doubtful that this will be permitted in practice. Furthermore, the prospect of a takeover by another firm can better align the interests of managers and shareholders, and managers may then encourage tax avoidance actions in order to achieve tax savings (Hu et al., 2021[45]).

7) **Diversification:** an additional reason for M&As is diversification and research show that acquirers who diversify through M&A deals outperform their competition (Di Guardado et al., 2018[46]). Diversification provides three key benefits: direct risk reduction, cheaper financing costs, and improved liquidity. According to these facts, diversification can be considered as one of the primary drivers of innovative performance in the M&A transactions. This is valid also for the same degree of leverage, which has the consequent advantage that more diversified companies can increase their leverage and enjoy more tax savings. Thus, diversification results in enhanced tax benefits and lower bankruptcy costs.
8) **Accelerated earnings growth:** in addition to the reasons outlined above, M&As help to boost earnings growth. From a shareholder perspective, combining two companies may result in greater earnings per share for the merged company rather than for the pre-merger companies. This may even be true despite the fact that the merger provided no higher economic value.

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[44] The Internal Revenue Service is the U.S. government agency responsible for collecting taxes and enforcing federal tax laws.
[45] Hu, X., Li, Y., & Zhang, Y. (2021). *Managerial behavior and tax avoidance: Evidence from the threat of takeover. Journal of Corporate Finance, 67.*
[46] Di Guardado, M., Cruz, A., & Fernández, F. (2018). *Diversification through mergers and acquisitions: Evidence of superior performance. Strategic Management Journal, 39(8), 2204-2226.*

1.3.2 Behavioural reasons

After discussing various strategic M&A motives, now it's crucial to consider how these factors impact manager behaviour. Behavioural reasons generally revolve around the interests and overconfidence of managers. According to the literature, managers pursue M&As for intrinsic motives as well as strategic ones. Research indicates that when a large corporation makes a public acquisition or bids on another company, its stock price typically falls. This is considered to be the case, particularly for publicly traded target companies. The UBS-Credit Suisse (CS) merger is a very interesting case study for the phenomenon in which the acquiring company's stock price initially falls after the announcement date (March 19th, 2023).

Moreover, behavioural incentives may be motivated by a conflict of interest with shareholders or an overconfidence bias. Managers' interests can become a prominent consideration in takeover decisions. Managers often desire to head larger companies, and this could be due to the prestige and higher remuneration that comes with managing a larger organization.

Another term that arises frequently from management literature is overconfidence. In line with psychology, people often overestimate their abilities and prospects. Researchers have already discovered that it typically requires multiple failures for a person to shift his or her own perception. According to Yang et al. (2012[47]), overconfidence can be generated by subjective psychological factors like mood, feelings, and prejudice, leading to increased faith in one's judgment abilities. As a result, people overestimate their chances of success as well as the reliability of their personal knowledge and sources.

[47] Yang, H., Simonson, I., & Tai, S. (2012). *Overconfidence and decision-making: The role of subjective psychological factors. Journal of Behavioral Decision Making, 25(5), 452-460.*

In the literature, several discoveries are commonly published. Malemendier and Tate (2005[48]) found that overconfident managers are more prone than sensible managers to pursue value-destroying acquisitions. In contrast, Guo et al. (2018[49]) discovered that overconfidence has little or no effect on M&As.

The studies of Richard Roll are frequently mentioned as an example of manager overconfidence. In 1986, he was among the first to propose a theory about managers' overconfidence. Roll (1986) proposed the so-called Hubris hypothesis. In the initial overconfidence theory, he stated that manager overconfidence is the primary cause of failed M&A transactions. A failed M&A is characterized as the inability to create value for shareholders. This theory immediately gained acceptance and was adopted as a foundation by other academics (Roll, 1986[50]). As previously demonstrated, this overconfidence bias frequently leads to value-destroying purchases by CEOs, as their overestimation of their skills often results in an excessive bidding value being offered. Research suggests that managers' personal and behavioural interests can impact accounting decisions during M&A transactions. This causes challenges with control, value, and governance (Khlifi and Zouari, 2021[51]) Finally, there are numerous reasons why companies pursue mergers and acquisitions. As previously said, these can be separated into two categories: strategic and behavioural. This section discusses the causes of mergers and acquisitions to help interpret empirical results. If there is no short-term value creation in this thesis, the rationales presented here may help to explain why value was destroyed.

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[48] Malmendier, U., & Tate, G. (2005). *CEO overconfidence and corporate investment. Journal of Finance, 60(6), 2661-2700*.

[49] Guo, J., Lev, B., & Zhou, N. (2018). *The overconfidence effect of M&As: Evidence from managerial decision-making. Journal of Financial Economics, 128(3), 375-401*.

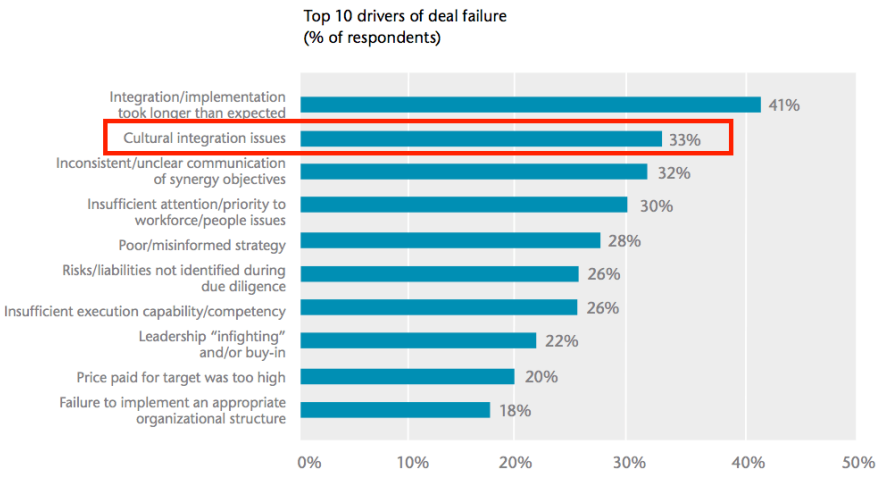
[50] Roll, R. (1986). *The Hubris Hypothesis of Corporate Takeovers*. Journal of Business, 59(2), 197-216.

[51] Khlifi, F., & Zouari, S. G. (2021). *Managerial interests, accounting decisions, and challenges in M&A transactions. Journal of Accounting and Governance, 24(3), 112-135*.

1.4 M&As challenges and motives of failure

Despite the increasing number of M&A transactions, many combinations result in negative synergies and cash flows. In 2017, approximately 70-90% of M&A agreements failed (Clayton M. Christensen, 2011[52]). Corporate finance literature implies the unsuccessfulness of M&A to the planning and strategy aspect, management and evaluation errors, integration issues, and cultural and human dimensions. The gap between the theoretical assessment and the practical situation led to difficult challenges and motives of failure.

Figure 3: Top 10 drivers behind a M&A failure



Integration challenges are the most typical cause of failure. Merging entities on paper is typically easier than combining business, culture, and staff. The likelihood of encountering difficulties decreases if there is a clear plan for this critical post-transaction period (Koi-Akrofi, 2016[53]). Poor cultural integration has also been mentioned as a contributing factor to delayed integration (the

[52] Christensen, C. M. (2011). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail. Harvard Business Review Press.*

[53] Koi-Akrofi, G. (2016). *Challenges of Mergers and Acquisitions: The Role of Integration in the Success of M&A Transactions. Journal of Business Strategy, 37(5), 44-54.*

leading reason of transaction failure), productivity loss, key talent loss, execution challenges, and low employee engagement.

As previously said, firms have never been very good at gaining full value from M&A, but evidence indicate that cultural integration is more difficult than ever. First and foremost, transactions are becoming more global. Managers must not only reconcile cultural differences within their companies, but also navigate the complexities of national cultures with which they may be unfamiliar. Second, the pace of business is faster than ever. The pressure is on to see financial returns quickly. This means that managers must begin working on culture almost soon, despite other pressures. When the ideal culture is not defined and reinforced, insecurities, conflict, politics, and cover-your-ass behaviour flourish. Needless to say, these attributes do not result in high-performing businesses. Third, pioneering corporate leaders who are under stress frequently suffer from organisational myopia. Under the stress of an M&A transaction, important executives often concentrate on their areas of greatest comfort. For instance, a driven and analytical leader may prioritize mission and strategy over values and leadership positions.

Other reasons of failure that can rise the probability of failure are linked to managers' decision-making and talents. Managers frequently overestimate their ability to extract synergies from the combined firm, despite being unfamiliar with the principles of the acquisition plan. Sometimes the directors' expectations include a lack of expertise and competence in dealing with such a demanding process. This hubris frequently results in a variety of evaluation problems:

- **Risk and liabilities not identified during due diligence** - due diligence is sometimes viewed as a formality rather than an opportunity to get insight into the target's financial, ownership, and structural status.

Mistakes in assessing risk and liability can be created by undervaluing the relevance of each kind of due diligence.

- **High payment price** - companies often accept high prices in order to seal deals swiftly. Furthermore, evaluation errors can lead to an overestimate of future synergies. When the target premium is significant, the opportunity for value creation shrinks. Because of the enormous amount of money spent, the overpayment makes it impossible to continue operating the business.
- **Lack of competencies** - outside influences can hinder deal success, and directors may not be able to overcome them. A lack of appropriate competencies can lead to a poor decision. In terms of time management, for example, execution skills are critical to the success of the deal. The closure and transaction conditions are influenced by both the timing of the target's acquisition and the spread of time during the target's negotiation phase.
- **Leadership "infighting"** - when two entities are merged, the role structure will change. Different decision-making processes between prior and new owners might lead to leadership conflicts and hinder strategy implementation (Timothy J. Galpin, 2014[54]).

Most deals fail because firms don't perceive them as a change strategy. According to Werner Rehm (2012[55]), management and shareholders often prioritize the financial benefits of mergers over their true purpose. If a transaction is focused just on short-term profit, it may fail to create long-term value (Price Waterhouse Cooper, 2019[56]). Planning and strategy shortcomings can lead to:

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[54] Galpin, T. J. (2014). *The Complete Guide to Mergers and Acquisitions: Process Tools to Support M&A Integration at Every Level. Jossey-Bass.*
[55] Rehm, W. (2012, January). *Why Mergers Fail. McKinsey & Company.*
[56] Price Waterhouse Cooper. (2019). *Creating Value Beyond the Deal. PwC.*

- **Inconsistent or poor communication of synergies goals** - creating value in a disorganized and weak communication entity is tough. Otherwise, a lack of clarity and adequate communication of synergy aims creates mistrust in the firm.
- **Unclear and misinformed strategy** - the most common mistake is to build a plan solely for the transaction procedure, without considering the related pre and post phases. Frequently, this mistake results in an incorrect selection of the target company, which may not be the best reasonable alternative for the acquiring company. Another result is market cannibalization. It occurs when two companies provide almost the same product or service. The new firm will face redundancy or competition and must repackage its offering to avoid a reduction in sales.

Chapter II: the downfall of Credit Suisse

In this chapter, the reader will be provided with an in-depth analysis of the causes and troubles that led Credit Suisse to its downfall. This is a prelude to the rescue plan brokered by the Swiss government and authorities to save the financial system.

2.1 The rise of a Prestigious giant

Credit Suisse's history stretches back to July 5, 1856, when influential politician, business leader, and pioneer Alfred Escher established the "Schweizerische Kreditanstalt". The new bank known as SKA was established with the intention of financing the expansion of the railroad network as well as increasing industrialization in Switzerland. During the early years, the bank faced significant losses due to the risky nature of private railway construction and other industrialization investments. Nonetheless, it expanded to become a well-regarded pillar of Switzerland's worldwide financial center. Credit Suisse began serving consumers and the middle class in the early 1900s by opening deposit counters, currency exchanges, and savings accounts. The first branch outside of Zürich established in Basel in 1905. The bank assisted enterprises impacted by World War I in restructuring and provided financing for rehabilitation activities. During the 1920s downturn, net profits and dividends were cut in half, and employees' salaries were reduced. Following World War II, Credit Suisse's business was primarily focused on international rehabilitation efforts. The Agreement on the Swiss Banks' Code of Conduct with Regard to the Exercise of Due Diligence was established in the 1970s, following the discovery of a Credit Suisse branch in Chiasso unlawfully funneling $900 million in Italian deposits to speculative investments.

After being acquired by Merrill Lynch in 1978, White, Weld & Company ended its collaboration with Credit Suisse. To replace the partnership with White, Credit Suisse formed Credit Suisse First Boston in Europe and acquired a 44% share in First Boston's US operations. In the late 1990s, Credit Suisse launched an aggressive acquisition strategy. The bank bought Bank Leu, Switzerland's oldest bank, in 1990. In 1993, Credit Suisse outbid UBS for a majority stake in Swiss Volksbank, Switzerland's fifth largest bank, for $1.1 billion. It also merged with Winterthur Group in 1997 for approximately $9 billion and purchased Warburg, Pincus & Co.'s asset management division in 1999 for $650 million. Donaldson, Lufkin & Jenrette was acquired for $11.5 billion in 2000. Credit Suisse restructured as the Credit Suisse Group in 1996, with four divisions: Credit Suisse Volksbank (later known as Credit Suisse Bank) for domestic banking, Credit Suisse Private Banking, Credit Suisse Asset Management, and Credit Suisse First Boston for corporate and investment banking. The reform was estimated to cost the corporation $800 million and result in 7,000 job losses but would save $560 million every year.

After the Great Recession (2008), Credit Suisse (CS) came out with modest losses and a strong capital position but afterwards began shrinking its investment business, executing layoffs and cutting costs. This in contrast with its Swiss rival and ultimate acquirer, Union Bank of Switzerland (UBS), which distinguished itself as the most exposed non-US bank to real estate funds and derivatives markets. In 2008, UBS stockholders suffered net losses of approximately CHF 20 billion, prompting the Swiss National Bank (SNB) to intervene to de-risk UBS’s balance sheet and the Swiss Confederation to inject capital.

Nowadays, former CS executives argue that the two banks' current fortunes may be attributed to their post-crisis actions. UBS was forced to restore its balance sheet, whereas CS was willing to take risks and delay dealing with

legal issues (Financial Times, 2023[57]). Others believed the roots of problems were planted many years ago, when CS merged with First Boston in 1978 to enter the realm of global investment banking.

2.2 Credit Suisse's ride towards UBS: the loss of confidence

In its century and a half of life, Credit Suisse has supported the industrialization of its country, helped place Switzerland at the forefront of international finance and even clashed with the titans of Wall Street's investment banking. However, over the past four years, a steady pace of scandals and poor results has demolished Credit Suisse's reputation not only as a major global player, but also as a worthy competitor to its local rival UBS. Indeed, on March 19th, 2023, the Swiss Financial Market Supervisory Authority (FINMA) and the Swiss National Bank (SNB) jointly announced a bailout-merger combining UBS and CS. The intervention involved the wipeout of CS Additional Tier 1 (AT1) bonds worth $17.2 billion. The crisis was caused by a lack of investor trust in Credit Suisse, one of Switzerland's largest banks.

We analyse the several events that saw their epilogue with the acquisition by UBS:

1. In February 2020, CS's CEO, Tidjane Thiam, abruptly resigned due to a **spying scandal**. The bank had engaged private investigators to follow its former head of wealth management, Iqbal Khan, who had joined UBS. Credit Suisse has frequently dismissed the episode as an isolated incident, but the regulator claims the bank planned and carried out seven separate espionage operations between 2016 and 2019.
2. In March 2021, CS received pressure to close four funds linked to the **bankruptcy of Greensill Capital**, a British financial company

[57] Financial Times. (2023). *Former Credit Suisse executives blame post-crisis strategy for current troubles. Financial Times.*

specializing in short-term corporate loans. The total exposure of the bank in Greensill Capital investments was about $10 bn. FINMA asserted that CS had seriously violated its supervisory requirements, resulting in four prosecutions against former CS managers.

3. Just three weeks after Greensill went into default, and Credit Suisse lost an additional $5.5 Bn following the failure of the US family office **Archegos Capital Management**. The hedge fund relied heavily on leveraged assets, especially technology equities, and CS partially financed its activities.
4. In October 2021, Credit Suisse was fined $475 million by US and British authorities for its role in a corruption **scam in Mozambique** involving loans to state-owned firms. The loans were intended to fund marine surveillance, fishing, and shipbuilding projects, but were partially hijacked by tangents. Mozambique also benefited from a Credit Suisse loan that was kept hidden from the International Monetary Fund. When the IMF came to know of this loan, it withdrew its support for Mozambique, leaving the country's economy in a state of crisis.
5. **Antonio Horta-Osorio**, former CEO of Lloyds Banking Group, was appointed new President of Credit Suisse in May 2021 to straighten the ship after the failures of Archegos and Greensill. However, in January 2022, Antonio Horta-Osorio resigned due to charges of breaking Switzerland's Covid restrictions and when he was president, he stated that the Credit Suisse crisis was worse than anything else he had experienced in managing several banks in his three-and-a-half decades of career.
6. In February 2022, a journalistic investigation titled "**The Suisse Secret**" has revealed that dozens of well-known figures, including heads of state, intelligence officials, drug lords and businessmen, known for their involvement in human rights violations, drug trafficking,

corruption, money-laundering and other serious crimes, have hidden funds in Credit Suisse. According to the Organized Crime and Corruption Reporting Project, leaked information on over 18,000 bank accounts dating back to the 1940s revealed that Credit Suisse had stored billions of dollars of filthy money for decades. This scandal damaged the bank's reputation even more.

7. In March 2022, a Bermuda judge decided that **CS Life Bermuda**, CS's local life insurance company, owed former Georgian prime minister Bidzina Ivanishvili damages of $553 million for mismanagement. The fraud committed by former CS banker Patrice Lescaudron, who exploited the trust of CS clients, also influenced the decision. Lescaudron was sentenced to five years in jail in 2018 and then committed suicide in 2020.
8. In June 2022, the Swiss Federal Criminal Court declared Credit Suisse and a former employee guilty of failing to prevent **money laundering by Bulgarian cocaine traffickers** from 2004 to 2008. The drug traffickers have laundered more than 146 million CHF through the bank's accounts resulting in a fine of $2.1 million.
9. In October 2022, the new pair in command, composed of Chairman Axel Lehmann and CEO Ulrich Koerner, indicated a return to Credit Suisse's Swiss roots as the best way to follow. They unveiled a **plan to cut 9,000 jobs and managed to raise $4 billion in fresh capital** through a fully underwritten rights issue and a private capital placement of $1.76 bn. As part of this fund-raising, the Saudi National Bank acquired a 9.9% stake, becoming the largest shareholder of Credit Suisse.
10. The 4th quarter results in February 2023 have highlighted that the **ambitious plan failed** to achieve its goals. Credit Suisse reported massive customers outflows (over 110 billion CHF), and the bank has

suffered its largest annual loss (7.29 bn CHF) since the global financial crisis. The bank's shares fell 15% once the results were releaveled.

These events have likely harmed CS's reputational capital, which is important in financial contracts (Beatty et al., 1998[58]). Not surprisingly, CS's market value declined by an estimated $30 billion, or 90%, between the beginning of 2020 and the bailout-merger. This fall in value is consistent with previous research, which shows that news concerning probable financial negligence has a large negative impact on share values (Amiram et al., 2018[59]).

2.2.1 March 2023: final blow

The event surrounding CS reached their peak in March 2023:

1. On March 8, 2023, **CS postponed its annual report** due to a call from the SEC[60] regarding adjustments to cash flow statements from 2019 and 2020, and related controls.
2. On March 14, 2023, when Credit Suisse finally published its annual report, admitted that it had "**substantial weaknesses**" in its financial controls and announced the end of bonuses to the board of directors. The news also came at a time when markets were already fragile due to the bankruptcy of the US regional banks Silicon Valley Bank and Signature.
3. On March 15, 2023, Bloomberg TV asked the **president of the Saudi National Bank** if he would offer further financial support to Credit Suisse. His answer was "absolutely no", triggering panic in the markets

[58] Beatty, R. P., Ke, B., & Petroni, K. R. (1998). *Earnings management to avoid earnings declines across publicly and privately held banks. The Accounting Review, 73(3), 383-404.*
[59] Amiram, D., Owens, E. L., & Rozenbaum, O. (2018). *Do information releases increase or decrease information asymmetry? New evidence from analyst forecast announcements. Journal of Accounting and Economics, 65(1), 36-54.*
[60] U.S Securities and Exchange Commission.

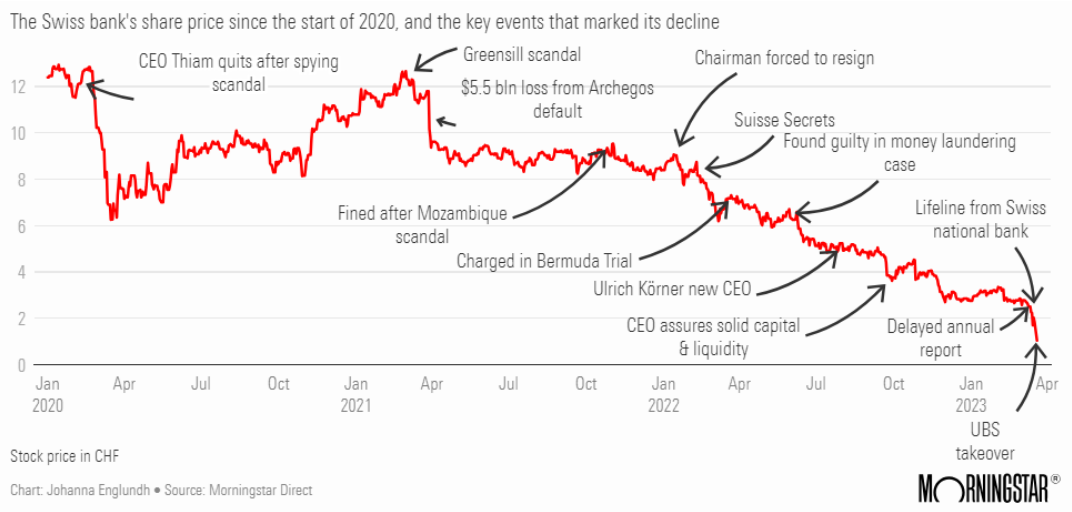
and causing the credit institution's shares to collapse by 24% at the end of the day.

4. On March 16, 2023, Credit Suisse shares boosted after the **Swiss National Bank granted new liquidity** to the bank in the amount of 50 billion CHF. This responded to concerns about short-term capital, but not to the question of how Credit Suisse would contain the exit of its customers. On that day, clearly saddened by the words that caused the value of his investment to collapse, Ammar Al Khudairy of the Saudi National Bank referred to the bank's "solid equity ratio" and made it clear that Credit Suisse "is all right."
5. On March 16, 2023, the Wall Street Journal stated that Credit Suisse closed the week with **daily outflows of about $10 billion**.
6. On the weekend of March 18 and 19, 2023, the **Swiss National Bank** has failed to restore confidence with its credit line and together with the Swiss financial regulator **FINMA brokered the acquisition of Credit Suisse by UBS** in order to support Swiss financial system. On March 18, the Financial Times reported that BlackRock considered a competitive bid for CS, but decided against it as SNB and FINMA preferred a Swiss solution.
7. On the evening of March 19, 2023, **UBS agreed to acquire Credit Suisse** for 3 bn CHF in shares and accepted to assume up to 5 bn CHF of losses. The holders of subordinate bonds AT1, worth 17 bn CHF, were wiped out. The shareholders receive the equivalent of 0.76 CHF per share, 59% less than they were worth at the previous closure and less than a tenth of their value at Tidjane Thiam's departure in February 2020.

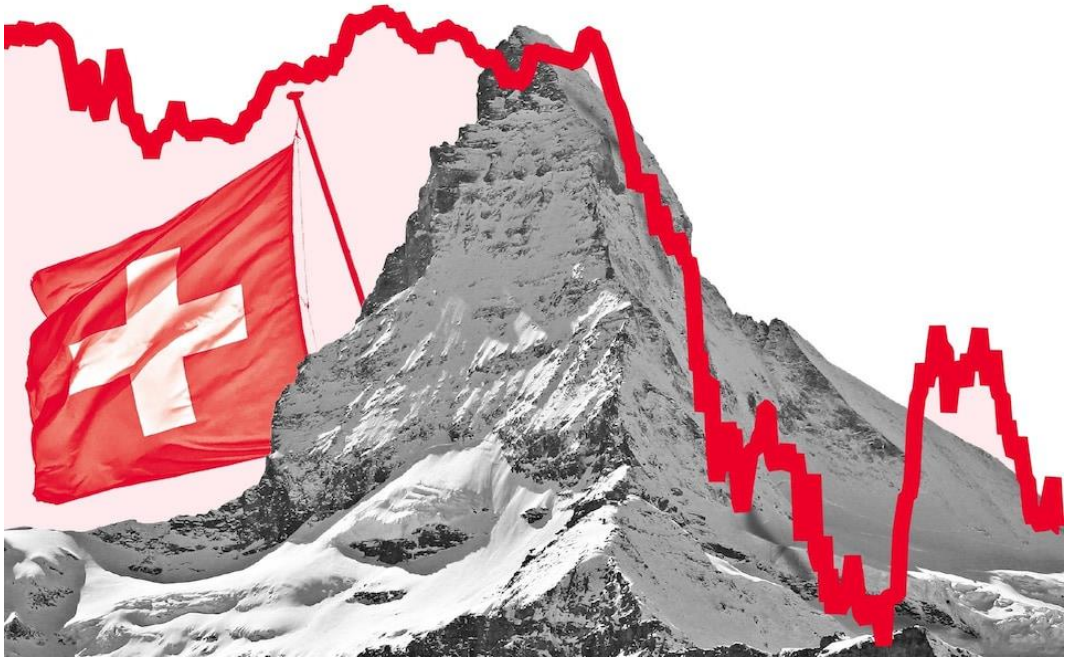
The 167-year history of Credit Suisse came to an end. UBS is the bank that survived the deal, and its shares closed their first trading session after the announcement with an upward of 1.3%.

In order to achieve the bailout-merger, the Federal Council implemented emergency procedures under articles 184 and 185 of the Federal Constitution. These actions included the development of a regulatory framework that would allow the national bank to give liquidity support in addition to conventional emergency liquidity assistance. The Federal Council also extended a default guarantee to the SNB. The Finance Delegation, representing the federal government and guided by the Federal Council, provided a 9 bn CHF guarantee to cover potential losses originating from specific assets bought by UBS as part of the transaction. UBS was responsible for the first 5 bn CHF of any realized losses resulting from the winding down of inherited Credit Suisse assets that were judged non-core or incompatible with its risk profile. If losses surpass this amount, the Federal Government has agreed to covering up to 9 bn CHF. This Swiss federal guarantee required UBS to handle the assets in such a way that losses are minimized (and realisation revenues are maximized), and the Federal Government had extensive information and audit powers to verify this. Moreover, CS and UBS got a total of 200 bn CHF in extra liquidity support loans from the Swiss National Bank, which included a 100 bn CHF loan with favoured creditor status in bankruptcy and a loan of up to 100 bn CHF backed by a federal default guarantee.

Figure 4: Timeline of events that eroded confidence in Credit Suisse



2.3 Too Big To Fail (TBTF)



The "Too Big To Fail" (TBTF) effect refers to the belief that certain financial institutions, particularly major banks, are so important to the economy that their failure might have serious systemic implications. As a result, the government and regulators may provide special treatment or support to these banks in order to protect them from bankruptcy. **Penas and Unal (2004[61]) show that receiving TBTF status results in abnormal returns for bondholders in merger situations.** UBS and CS's bailout merger created a new bank that falls under the TBTF classification. As a result, it is quite unlikely that CS bondholders will face any defaults in the foreseeable future. However, estimate the whole economic impact of the TBTF effect is not feasible but we can indirectly analyse it by tracking changes in the Swiss government's funding expenses. The Swiss government's decision to rescue CS may have

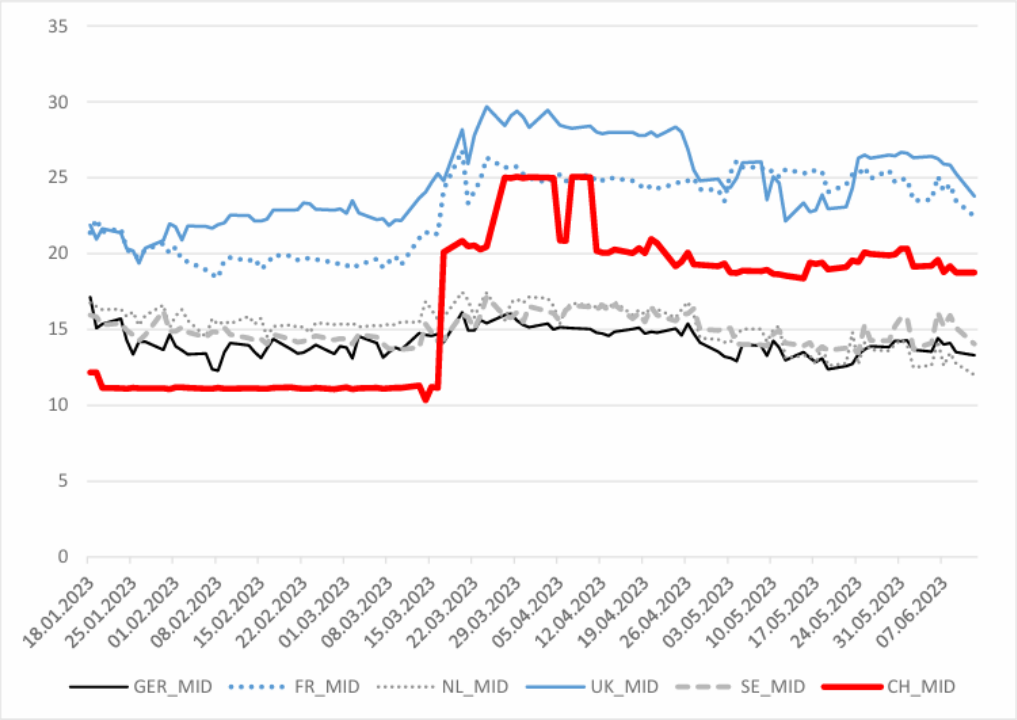
[61] Penas, M. F., & Unal, H. (2004). *Gains in bank mergers: Evidence from the bond markets. Journal of Financial Economics, 74(1), 149-179.*

had an impact on its sovereign credit risk. Acharya et al. (2014[62]) investigated the theoretical and empirical relationships between sovereign credit risk and bank bailouts. They show evidence that bank bailouts transferred risk from bank balance sheets to sovereigns, causing the growth in sovereign credit risk during and after the global financial crisis (GFC).

According to Acharya et al. (2014), we can use CDS spreads to determine if Switzerland's sovereign credit risk has increased as a result of the merger-bailout. **Figure 5** depicts Switzerland's CDS spreads for the event period, as well as those of numerous other European countries. Switzerland's CDS spreads moved in line with those of other European countries before the merger bailout. Germany, the Netherlands, and Sweden have relatively steady CDS spreads during the event window, whereas Switzerland's CDS spread (shown by the red solid line) increases significantly. The CDS spreads in the UK and France respond to the incident, although the adjustments are more gradual. Prior to the event, Switzerland's CDS spread was approximately 11 basis points, lower than Germany, the Netherlands, and Sweden, which ranged from 13 to 15 basis points. However, on the Friday before the event, Switzerland's CDS spread rises from 11.16 basis points to 20.08 basis points and remains there until the following Friday of the first trading week after the bailout merger. next that, it rises to 25.01 basis points the next Monday. Later, it rose to 25.01 basis points on the following Monday. Throughout the 60-day period following the event, Switzerland's CDS spread averaged 20.4 basis points.

[62] Acharya, V. V., Drechsler, I., & Schnabl, P. (2014). *A pyrrhic victory? Bank bailouts and sovereign credit risk. The Journal of Finance, 69(6), 2689-2739.*

Figure 5: Sovereign CDS Spreads before and after the CS bailout-merger



2.4 The marriage of convenience

2.4.1 Companies overview

Acquirer – UBS

- **Foundation:** 1998
- **Headquartered:** Zürich (CH)
- **CEO:** Sergio Ermotti
- **Numbers of employees:** 74022
- **Market Cap:** $65.7 bn
- **LTM Revenue:** $34.4 bn
- **LTM EBT:** $9.5 bn
- **LTM P/BV:** 1.1x

Target – Credit Suisse

- **Foundation:** 1856
- **Headquartered:** Zürich (CH)
- **CEO:** Ulrich Körner
- **Numbers of employees:** 50110
- **Market Cap:** $3.6 bn
- **LTM Revenue:** $16.0 bn
- **LTM EBT:** $1.7 bn
- **LTM P/BV:** 0.1x

UBS is a financial services company headquartered in Zürich, Switzerland, the only country where it operates in all four major business unit. UBS, founded in 1998 by the merging of Union Bank of Switzerland and Swiss Bank Corporation, is Europe's third largest bank with a market value of about $65

billion, making it one of the eight global "Bulge Bracket Banks". The organization has over 200 branches and 4,600 client advisors. Supported by contemporary digital banking services and customer support centers, UBS can reach about 80% of Swiss wealth, serve high net worth individuals and pension funds, more than 120,000 businesses, and approximately 80% of Swiss banks.

Credit Suisse was founded in 1856 to fund the construction of Switzerland's railway system. It also provided loans to help build Switzerland's electricity grid and the European train system. The company's principal services are dispersed over four business divisions: wealth management, investment banking, Swiss banking, and asset management. These worldwide and core divisions are supported by four robust operating regions: Switzerland, EMEA, APAC, and Americas. This worldwide approach strengthens the integrated model by leveraging global businesses and strong regional client accountability. It is also worth noting that Credit Suisse is a main dealer and Forex counterparty to the Federal Reserve in the United States.

2.4.2 Deal structure

Negotiations for the acquisition began on March 15th. Swiss authorities claimed that a solution had to be reached by March 20th to prevent global panic in the financial system. The acquisition was coordinated by the Swiss "trinity": the Federal Department of Finance, Swiss National Bank, and Swiss Financial Market Supervisory Authority (FINMA). The initial UBS offer on the morning of March 19th valued Credit Suisse at only 1 bn CHF (0.25 CHF per share). The low price enraged Middle Eastern investors (the three largest owners of Credit Suisse at the time were SNB part-owner Public Investment Fund, Olayan Group, and Qatar Investment Authority, which collectively owned a quarter of the company). On the same day, UBS made a higher offer of 0.50 CHF per share, valuing Credit Suisse at little over 2 bn CHF. Under pressure to complete

the transaction by the very short deadline, Swiss authorities threatened to dismiss Credit Suisse's board if it did not sign off on the deal. UBS increased its offer to 3 bn CHF while negotiating additional state support. This included a liquidity line of 100 bn CHF from the Swiss National Bank and a government guarantee for up to 9 bn CHF in potential transaction losses. The board of Credit Suisse accepted the offer before the Asian financial markets opened on Monday morning. In a press conference on March 19th, 2023, Swiss President Alain Berset, Minister of Finance Karin Keller-Sutter, and Chairman Jordan, as well as the heads of the two banks, announced the acquisition. The government stated that its risk exposure was limited and that the acquisition was important for the stability of the Swiss and global financial system. Keller-Sutter reiterated that "This is not a bailout." "This is a commercial solution."

The transaction was structured as an all-share merger, where Credit Suisse shareholders received one UBS share for every 22.48 Credit Suisse shares they own. The price still accounted for only 1% of Credit Suisse's record high value in 2007. As part of the transaction, FINMA ordered that the 16 bn CHF ($17.2 bn) of AT1 bonds, a very risky kind of bank debt, be written down to zero. The approach resulted in higher losses for bondholders than for Credit Suisse stockholders and was intended to appease overseas investors. It is worth noting that, on March 19th, 2023, the Swiss Federal Council used emergency powers to allow the merger to proceed without shareholder approval.

2.5 Why not a bank resolution?

If a bank has taken all conceivable steps to restore its health and is still in difficulty, the national authority might intervene and assume control of the bank in a way that protects consumers and financial markets. Because too many market participants depend on it, a systemic bank simply cannot be

thrown into administration. Instead, it must be wound down or otherwise restructured in an orderly manner. This is called out a resolution.

The national resolution authority creates resolution plans for each financial institution, which are then evaluated and modified on an ongoing basis. The purpose of a resolution plan is to establish important bank operations, identify and remove any barriers to a bank's resolvability, and prepare for resolution. The plan will outline a bank's preferred resolution strategy as well as the resolution mechanisms to be used if it fails.

The Swiss authorities facilitated the acquisition while recognizing the high risk of resolution (especially with public ownership). CS was the first GSIB[63] to face the threat of resolution; therefore, there was no precedent, despite the fact that resolution plans had been written and practiced. Although FINMA and other authorities have not revealed the particular dangers associated with resolution, the following examples have been mentioned:

- **There wasn't enough time to execute** - Authorities anticipated detecting the PONV two to four weeks in advance. This ensured that FINMA would have enough time to draft resolution paperwork and coordinate with foreign authorities. The fact that CS reached the PONV only a few days after the alarms went off posed significant execution risks. Clearly, these working assumptions must be updated in any new resolution plans.
- **Organizing the liquidity backstops caused market anxiety and wasted precious time** - Given the magnitude of the outflows in recent days, the SNB escalated from standard emergency lending (ELA[64], backed by regular collateral), to emergency lending with preferential

[63] Global Systemically Important Bank

[64] **Emergency Liquidity Assistance** is a method used by central banks to give short-term liquidity to financial firms that are struggling but still considered solvent.

rights in any bankruptcy proceeding (ELA+), and finally to a Public Liquidity Backstop (PLA[65], backed by a government guarantee that necessitated emergency legislation). The LLR[66] system should be overhauled to improve its reliability during times of rising hardship. This could involve collateral pre-positioning and a more seamless transition from collateralized central bank liquidity backed by government guarantees (G30, 2024[67]). It also proposes that banks consider their liquidity requirements, given how quickly runs might occur, especially with digitization (Jordan, 2023[68]).

- **The risks to the public purse were enormous if the resolution did not restore the bank's soundness and instead resulted in significant losses** - This is despite the fact that CS would have had up to CHF 73 billion in loss-absorbing capacity from a combination of AT1 and bail-in bonds, allowing for flexibility during resolution (Experts Group, 2023[69]). FINMA's preference for merger gone-concern capital raises the question of whether it is sufficiently high.

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[65] **Public Liquidity Assistance** is an emergency measure in which the government gives a public guarantee to help a bank maintain liquidity during a crisis. Unlike ELA, which is primarily controlled by the central bank and requires collateral, PLA is a direct state guarantee that frequently necessitates the implementation of emergency legislation.

[66] **Lender of Last Resort** is a role played by a central bank in providing liquidity to distressed financial institutions when all other sources of liquidity have been exhausted. The lender of last resort's principal goal is to prevent the failure of solvent but temporarily illiquid institutions, thus averting systemic crises and market panic. In the case of Switzerland, the Swiss National Bank serves as LLR.

[67] G30. (2024). *Recommendations for improving the lender of last resort system during crises. Group of Thirty Report.*

[68] Jordan, T. (2023). *The impact of digitization on bank liquidity and the speed of bank runs. Swiss National Bank Report.*

[69] Experts Group. (2023). *Analysis of Credit Suisse's loss-absorbing capacity and the implications for public finances. Experts Group Report.*

As a result, the changes implemented during the Great Recession to safely resolve financial institutions deemed "Too Big To Fail" have not been tested. Moreover, this calls into question whether a GSIB can be resolved in a structured way without sufficient public assistance.

Chapter III: the Empirical analysis

According to Fama (1991[70]), event studies play a crucial role in finance and have contributed significantly to our understanding of corporate finance.

In this chapter an event study will be conducted to test whether the short-term performance is affected by the announcement of the merger between UBS and Credit Suisse. Moreover, a Monte Carlo simulation in R is performed to model the probability of different outcomes of the UBS stock price movements after the deal.

3.1 Data and Research methodology

This section focuses on the research approach used for conducting the empirical analysis. The method and procedures used are outlined in depth to ensure an appropriate research quality.

3.1.1 Data selection

The data for the research are collected from different financial database such as Yahoo Finance or Investing. Due to a lack of high-frequency data (e.g. intraday), that offer the advantage to estimate the event's impact more precisely on asset prices compared to low-frequency data, the best choice is to use the daily stock closing prices of the two banks. This allows to minimize the influence of noise on the estimates, enabling me to accurately determine whether abnormal returns occurred and their statistical significance.

3.1.2 Event study methodology

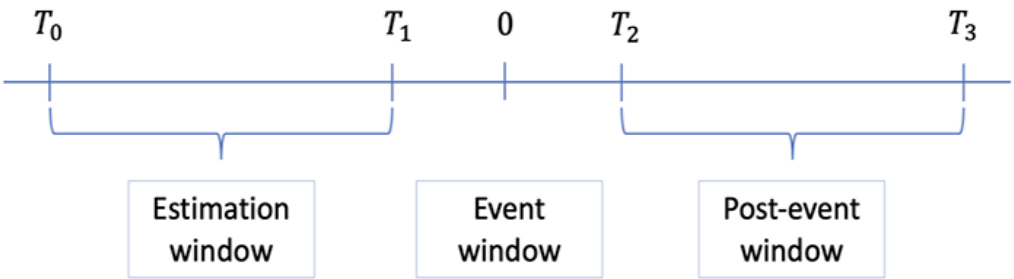
An event study analyses stock price movements in response to corporate events, such as M&As announcements. The goal of an event study is to determine whether abnormal stock returns exist as a result of

[70] Fama, E. F. (1991). *"Efficient Capital Markets: II." The Journal of Finance, 46(5), 1575–1617.*

corporate events. As a foundation for this methodology, market efficiency assumptions are made, along with the assumption that all publicly available information is reflected in stock prices and that stock prices change instantly when new information becomes available (Sorescu et al., 2017[71]).

According to MacKinlay (1997[72]), the event study method follows a basic guideline, although no specific structure is identified. The first step is to specify the scope of events to be evaluated, as well as the time period of interest. The second step is to identify the companies whose market value could be impacted. The next step is to establish the event window during which the event's influence is expected to be observable. In theory, the correct moment is the first public notice of the event, and the event window is often expanded around the announcement date (time 0) to include the periods preceding the event in the research.

Figure 6: Timeline of an Event study



In this study, the event is defined as the announcement of the UBS-CS transaction and the purpose is to assess the short-term value creation and the consistency with any of the well-known M&A theories.

[71] Sorescu, S., Warren, N. L., & Ertekin, L. (2017). *"Event Studies in Marketing." Journal of Marketing, 81(3), 1-21.*
[72] MacKinlay, A. C. (1997). *"Event Studies in Economics and Finance." Journal of Economic Literature, 35(1), 13-39.*

An event window is typically expressed as $(-x; +y)$, where x is the number of days prior to the announcement day and y is the number of days after. The announcement day is commonly expressed as "day 0" (Konchitchki & Oleary, 2011[73]). In agreement with Tuch and O'Sullivan (2007[74]), short event windows provide the best trustworthy evidence for M&A transactions because they are associated with fewer methodological problems. Selecting the appropriate event window is critical, as it can significantly alter the conclusions drawn regarding abnormal returns and their significance. Key considerations include capturing all relevant event effects while mitigating statistical complications arising from normal return calculations. The extended duration of the event window allows for a more comprehensive recording of its effects. Additionally, there is a risk of incorporating other unrelated events such as quarterly reports, dividends, interest rate changes, or legal proceedings. Hence, achieving a balance between capturing sufficient event information and excluding noise and statistical issues is crucial when selecting the event window. Typically, an event window of 81 days (including the event day) is employed, comprising 40 days before and after the announcement. In my analysis, I set the event window as [-40; +40] to ensure that all the effects are captured.

The time during which information is gathered to estimate the normal return is called the estimation window. Estimation windows are normally set between 200 and 250 days prior to the [−40; +40] event window. The event period is often excluded from the estimation period to minimize the influence on normal returns, and therefore my estimation window is set to [−140; −41]. This should be enough to determine the normal performance, and it is reasonable

[73] Konchitchki, Y., & O'Leary, M. (2011). *"The Role of Event Studies in the Financial Literature." Accounting Horizons, 25(3), 539-567.*

[74] Tuch, C. J., & O'Sullivan, N. (2007). *"The Impact of Mergers and Acquisitions on Firm Performance." European Journal of Finance, 13(5), 385-403.*

considering the extraordinariness of the event and the series of scandals faced by Credit Suisse.

After the identification of the event and the event window, appraisal the effect of the event first requires the measurement of the actual return to examine the abnormal return. For each stock, the actual return can be calculated by using the natural logarithm, indicating the daily return of the individual stock return (Adnan, et al., 2016[75]). Calculating the return with the natural logarithm of the price is argued to come with certain advantages, such as normal distribution assumption[76], additivity, and time consistency[77].

The formula used is the following:

$$R_t = \ln \frac{P_t}{P_{t-1}}$$

where:

R_t = the return on day t

ln = the natural logarithm

P_t = stock price on day t

P_{t-1} = stock price on day $t - 1$

After the evaluation of actual return, to assess the event's impact, the abnormal return must be measured. A security's price performance can only be described as "abnormal" in relation to a specific benchmark.

Therefore, I need to define a model that generates “normal” returns before I can measure the abnormal returns. There are several models for predicting

[75] Adnan, M., & Liu, Z. (2016). *"Event Study Methodology: A Comprehensive Guide." Journal of Financial Research, 39(2), 215-245.*

[76] When asset prices follow a geometric Brownian motion, their log returns are normally distributed. This normality assumption simplifies many statistical models and makes it easier to estimate risk and volatility.

[77] Logarithmic returns are consistent over different time intervals. For example, daily log returns can be easily aggregated to find monthly or yearly log returns, which makes them useful for comparing assets across different periods.

normal returns, where three commonly used are the **mean adjusted return method**, the **market model method**, and the **market adjusted return method**.

In the **mean adjusted return method**, a "clean" period is chosen, and the average daily return for the firm is estimated for this period. The clean period includes days on which no information related to the event is released, as I said before in my analysis is set in the interval [-140; -41]. The predicted return for a firm for each day in the event period, using the mean adjusted return method, is just the mean daily return for the clean period for the firm.

In the **market model method**, a clean period is chosen, and the market model is estimated by running a regression for the days in this period. The following formula shows the estimation of the normal return of the security i on day t according to this model:

$$\hat{R}_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it},$$

$$E(\varepsilon_{it}) = 0;\ var\ (\varepsilon_{it}) = \sigma_{\varepsilon i}^2,$$

where:

$\hat{R}_{it}$ = actual return of security i at time t

R_{mt} = return of the market at time t

α_i = alpha for security i

β_i = beta of security i

$\sigma_{\varepsilon i}^2$ = sample variance of the market model

ε_{it} = the zero mean disturbance term

According to MacKinlay (1997), the market model represents a potential improvement over the mean adjusted return model because takes explicit account of the risk associated with the market and mean returns. In my analysis, R_{mt} is the return on the Swiss Market Index (SMI), β_i measures the

sensitivity of firm i to the market, α_i measures the mean return over the period not explained by the market, and ε_{it} is a statistical error term.

In the **market adjusted return method**, the predicted return for a firm for a day in the event period is just the return on the market index for that day. The market adjusted return method can be thought of as an approximation to the market model with α_i=0 and β_i=1 for all firms.

After computing the normal returns, they are compared with the returns observed within the event window. Abnormal return (AR) is the difference between the return observed in the event window and the estimated normal return calculated in the estimation window. In the market model method, the AR_{it} is computed as:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$$

I ensure that the OLS regressions used in the event study and the accounting study fulfil the assumptions that the residuals are normally distributed, homoscedastic, and independent. The Jarque-Bera test is used to check the normal distribution of the residuals, the White test is employed to verify the homoscedasticity, and the presence of autocorrelation in the residuals is tested with the Durbin-Watson test.

In order to draw conclusions, the cumulative abnormal return (CAR) is a measure of an event's overall impact on a specific event window. It is calculated as the sum of individual abnormal returns in the event window:

$$CAR = \sum_{t=-40}^{+40} AR_t$$

According to Haleblian and Finkelstein (1999[78]), employing CAR as a performance metric offers advantages over other measures if certain assumptions are met. The basic assumption of CAR as a metric of M&A performance is based on market efficiency. Using CARs, both market performance and companies market risk (beta) must be included into the performance measure.

The aim of CARs testing is to establish whether the combined abnormal returns during a particular day or timeframe hold statistical significance. I can call them significant at a specific level (typically 10%, 5%, or 1%) if I can reject the null hypothesis that the business event has no abnormal returns. It's worth mentioning that I use a two-sided test in my analysis because abnormal returns can be either positive or negative. Thus, I merely need to ascertain if they deviate from zero, indicating that there is no effect.

I hence state my test as follows:

$$H_0: CARs_i = 0$$

$$H_A: CARs_i \neq 0$$

where i = 1,2,3 notes the different estimation models.

To verify the statistical significance, I need to compute the corresponding statistic for the cumulative average residuals (CARs), cumulating over 81 days [−40, +40].

[78] Haleblian, J., & Finkelstein, S. (1999). *"The Influence of Organizational Acquisition Experience on Acquisition Performance: A Behavioral Perspective." Administrative Science Quarterly, 44(1), 1-34.*

Thus, I use the following formula:

$$\frac{CAR}{\hat{S}(CAR)} = \frac{\sum_{t=-40}^{+40} AR_t}{\sum_{t=-40}^{+40} \hat{S}(AR)} = \frac{\sum_{t=-40}^{+40} AR_t}{\sqrt{81}\hat{S}(AR)}$$

Note that the estimated standard deviation for each day in the event interval is the same because I am using the same estimation period for a sample drawn from independent and identically distributed abnormal returns. The approach I use to estimate test statistics is the easiest way to demonstrate statistical significance of the results.

The last part of the event study methodology involves the calculation of abnormal gains or losses. Since the residual returns are also known as abnormal returns because they represent the return that was unexpected or different from the return that would have been expected if the event had not occurred. The absolute dollar gain or loss at time t(ΔW_t) due to the abnormal returns during the event period is defined by:

$$\Delta W_t = CAR_t \times MKTVAL_0$$

where $MKTVAL_0$ is the market value of the firm at a date previous to the event window interval, and CAR_t is the cumulative residuals to date t for the firm. The percent return times the market value of the firm is the total dollar gain or loss.

3.2 UBS-CS event study

I began by estimating daily abnormal stock log returns during the broad event window [-40; +40] which spans from 23rd January 2023 to 19th May 2023. This timeframe provided me with 81 observations of abnormal returns. To measure them, I employed all the three different methods (mean adjusted return

method=AR1, market model method=AR2, market adjusted return method=AR3) presented in the previous subsection, using data from the estimation window [-140; -41] which ranges from 1st September 2022 to 20th January 2023, comprising 100 observations. For stock log returns, I chose that the market model incorporates the Swiss Market Index (SMI) as market factor because both UBS and Credit Suisse are quoted on it, which is the principal Switzerland's blue-chip[79] stock market index. However, the choice of factor model is unlikely to have a substantial impact on the event study's results. This is owing to the significant market swings observed for UBS and CS compared to other comparable stocks. Once all the abnormal returns were calculated, I summed the up to obtain the CARs. Using the Cumulative Abnormal Returns, I created graphs to evaluate the different trends obtained with the 3 models during the event window. In the end, I tested the statistical significance of the abnormal return on the event day and the CARs during the event window using the t-test.

The results of my event study are presented in the following tables along with descriptive statistics of CARs and the graphical analysis for both UBS and Credit Suisse using the three aforementioned methods.

3.2.1 Descriptive statistics and Graphical analysis

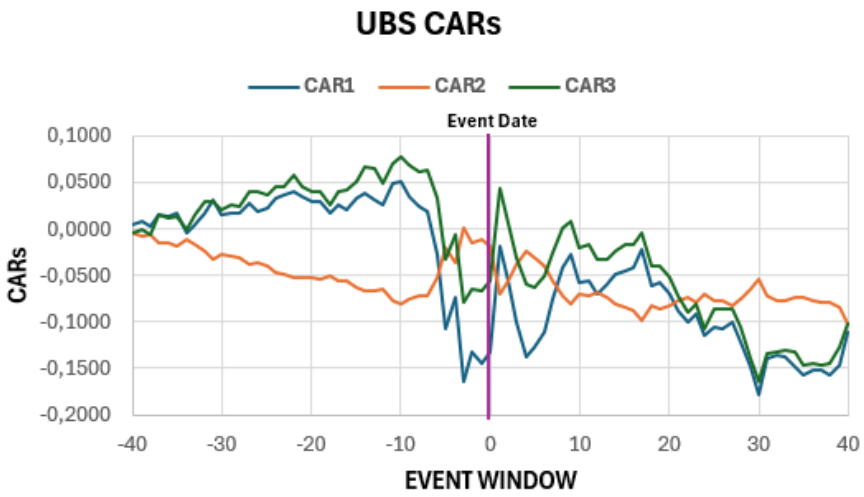
Table 1: Descriptive Statistics for UBS

Statistics	CAR1 [-40; +40]	CAR2 [-40; +40]	CAR3 [-40; +40]
Observations	81	81	81
Mean	-0.0475	-0.0554	-0.0227
Standard Deviation	0.0698	0.0257	0.0664
Maximum	0.0519	0.0013	0.0774
Minimum	-0.1783	-0.1023	-0.1642

Table 1 shows descriptive statistics for UBS using the three different models of Cumulative Abnormal Returns (CAR) over an event window spanning in the

[79] A blue chip is capital stock of a stock corporation with a national reputation for quality, reliability, and the ability to operate profitably in both good and bad times.

interval [-40; +40] days relative to the announcement date (time 0) on 20th March 2023. The preferred model is the market model, which uses a regression analysis based on the Swiss Market Index as a benchmark. The results suggest that investors, on average, experienced negative abnormal returns during the event window, with CAR1 and CAR3 exhibiting greater volatility than CAR2. The use of the Swiss Market Index as a benchmark implies that these results accurately reflect the specific impact of the investigated event on UBS's returns while accounting for overall market fluctuations in Switzerland.



The chart illustrates the Cumulative Abnormal Returns (CAR) for UBS during the event window across the three methods:

1. **CAR1** (blue)=Mean adjusted return method
2. **CAR2** (orange)=Market model method with SMI as benchmark
3. **CAR3** (green)=Market adjusted return method

Pre-event (-40 to 0): Until around 10 days before the event, all CAR lines show only minor oscillations, with no notable changes. However, CAR1 and CAR3 begin to decrease dramatically just before the event date, indicating that

investors may have expected unpleasant news. The lack of volatility in CAR2 during this period suggests that the market did not detect any significant abnormal returns prior to the event, and the stock's movement was more consistent with broader market patterns.

Event date (day 0): Around the announcement date, the three models react differently. CAR1 and CAR3 both incur significant declines shortly after the event took place, indicating a negative market reaction. Based on the market model, CAR2 showed fewer dramatic shifts, implying that abnormal returns were not as dramatically negative as the SMI.

Post-event (0 to +40): CAR1 and CAR3 exhibit higher volatility and continue to fall, particularly around +20 and +30 days, indicating extended negative sentiment following the announcement. CAR2, on the other hand, appears to be more stable, with a mild decline and no dramatic oscillations as found in the other models.

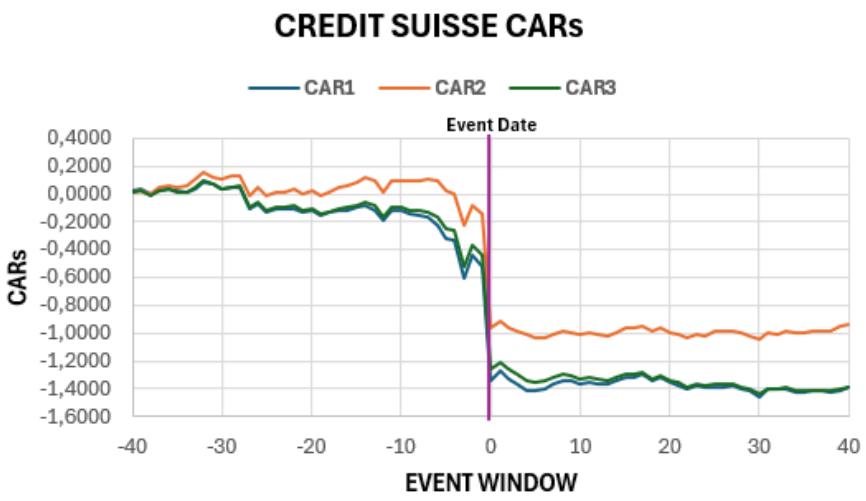
The announcement date appears to have generated a negative response for UBS, particularly in models that do not incorporate a precise market benchmark (CAR1 and CAR3). The market model (CAR2) has a more balanced reaction, most likely due to its adjustments based on the SMI index.

Table 2: Descriptive Statistics for Credit Suisse

Statistics	CAR1 [-40; +40]	CAR2 [-40; +40]	CAR3 [-40; +40]
Observations	81	81	81
Mean	-0.7537	-0.4822	-0.7289
Standard Deviation	0.6411	0.5197	0.6362
Maximum	0.0805	0.1559	0.0935
Minimum	-1.4542	-1.0444	-1.4402

Table 2 provides descriptive statistics for Credit Suisse's Cumulative Abnormal Returns (CAR) across the event window of [-40, +40] for the three models: CAR1, CAR2, and CAR3. The Market Model (CAR2) appears to have

mitigated the extremes observed in the other models, with lower volatility and less negative average returns, implying that Credit Suisse performed relatively well when accounting for market movements (SMI). CAR1 and CAR3 indicate more significant negative impacts, implying a greater negative reaction when broader market dynamics are not considered.



The chart depicts the Cumulative Abnormal Returns (CAR) for Credit Suisse during the event window across the three methods.

Pre-event (-40 to 0): during this period, all three CARs show modest fluctuations, with CAR2 significantly outperforming CAR1 and CAR3. Credit Suisse's stock performance was generally stable before day -20, with a minor but consistent downward trend nearing the event date. CAR2 remains slightly higher, indicating that the performance was better compared to the other models.

Event date (day 0): on day 0, all three CARs drop sharply and unexpectedly, indicating a substantial negative market reaction to the announcement. CAR1 and CAR3 (both uncorrected for market conditions) exhibit a greater

reduction, reaching values near -1.5, whilst CAR2 experiences a less severe drop to around -1.0. This suggests that the market model (CAR2) accounted for broader market changes, yielding a less dramatic negative abnormal return than the other two models.

Post-event (0 to +40): during the post-event phase, all three models stabilize but remain negative. CAR1 and CAR3 show greater volatility, while CAR2 has a more consistent and slightly less negative trend. None of the models return to their pre-event levels, showing that the event had a long-term adverse impact on Credit Suisse's stock performance. However, CAR2 continues to perform marginally better than the other two, implying that broader market dynamics softened the stock's loss when compared to the unadjusted models.

3.2.2 Statistical inference

In this sub-section, I used t-tests to assess whether the abnormal returns were statistically significant on both the event day and the whole event window. The t-test results are described in the tables below, which show the statistical significance of the findings across different models and time periods.

Table 3: ARs, Standard Deviations, and t-Statistics for UBS

Metric	AR1	AR2	AR3
Abnormal Return			
Event day	0.0118	-0.0070	0.0094
Event window (-40;+40)	-0.1102	-0.1023	-0.1022
Standard Deviation of Abnormal Return			
Event day	0.0178	0.0077	0.0122
Event window (-40;+40)	0.1605	0.0697	0.1097
t-Statistic			
Event day	0.6616	-0.9009	0.7687
Event window (-40;+40)	-0.6865	-1.4676	-0.9317

Note: *Significant at 10%; **Significant at 5%; ***Significant at 1%.
Critical Values: 10% = 1.645; 5% = 1.96; 1% = 2.576.

Table 3 shows the analysis of abnormal returns on the event day and cumulative abnormal returns (CARs) during the event window for UBS and

provides insufficient empirical evidence to establish that these returns are statistically different from zero. For both the event day and the extended event window, the t-statistics do not exceed the critical values at conventional significance levels of 10%, 5%, and 1%. This suggest that, while there are observable abnormal returns—both positive and negative—on the event day and in the 40-day window surrounding the event, these returns are most likely related to random market fluctuations rather than an effective reaction to the event itself. As a result, we cannot reliably state that the event had a statistically significant impact on UBS' stock performance.

Table 4: ARs, Standard Deviations, and t-Statistics for Credit Suisse

Metric	AR1	AR2	AR3
Abnormal Return			
Event day	-0.8194	-0.8191	-0.8219
Event window (-40;+40)	-1.3928	-0.9418	-1.3848
Standard Deviation of Abnormal Return			
Event day	0.0407	0.0355	0.0370
Event window (-40;+40)	0.3663	0.3198	0.3330
t-Statistic			
Event day	-20.1347***	-23.0543***	-22.2140***
Event window (-40;+40)	-3.8027***	-2.9453***	-4.1589***

Note: *Significant at 10%; **Significant at 5%; ***Significant at 1%.
Critical Values: 10% = 1.645; 5% = 1.96; 1% = 2.576.

Table 4 displays that the event day resulted in significantly negative abnormal returns for Credit Suisse across all models, with very strong statistical significance. The event window also exhibited negative abnormal returns, with the AR2 model showing a less negative outcome, indicating that market adjustments helped to attenuate the overall impact. Nonetheless, the results suggest prolonged negative performance over the event window.

3.2.3 Stockholder wealth effects

Table 5: ARs and Value Creation/Destruction for UBS

Shares Outstanding (in Millions)	3,205.234203		
Closing Price (CHF)	**-41 Days: 19.45**	**-1 Day: 17.11**	
Market Value (in Millions CHF)	62,341.81	54,841.56	
Abnormal Returns	**AR1**	**AR2**	**AR3**
Event Day	0.0118	-0.0070	0.0094
Event Window (-40; +40)	-0.1102	-0.1023	-0.1022
Value Creation/Destruction (in Millions CHF)			
Event Day	647.21	-382.59	513.74
Event Window (-40; +40)	-6,871.00	-6,376.46	-6,370.39

Table 5 highlights the stockholder wealth effects for UBS, specifically focusing on abnormal returns and the value creation/destruction in CHF. While the results indicate some fluctuations in UBS's stock performance during the event, the **lack of statistical significance in the abnormal returns** suggests that these changes may not be directly related to it. As a result, the substantial **value destruction** observed on the event day and over the event window could reflect broader market factors rather than the transaction itself, and any detected trends should be interpreted with caution.

Table 6: ARs and Value Creation/Destruction for Credit Suisse

Shares Outstanding (in Millions)	3.039,000000		
Closing Price (CHF)	**-41 Days: 3.08**	**-1 Day: 1.86**	
Market Value (in Millions CHF)	9,360.12	5,652.54	
Abnormal Returns	**AR1**	**AR2**	**AR3**
Event Day	-0.8194	-0.8191	0.8219
Event Window (-40; +40)	-1.3928	-0.9418	-1.3848
Value Creation/Destruction (in Millions CHF)			
Event Day	-4,631.83	-4,630.17	-4,645.59
Event Window (-40; +40)	-13,037.11	-8,815.53	-12,961.95

Table 6 shows that all three measures of abnormal returns (AR1, AR2, AR3) report **strongly significant negative values**, both on the event day and over the event window (-40; +40). This implies that the event caused a significant fall in Credit Suisse's stock performance. The consistent negative abnormal returns across all measures suggest that the market reacted very negatively to the event. The related **value destruction** is substantial, with billions of CHF

lost in market value, both immediately on the event day and cumulatively over the event window. This provides strong empirical evidence that the event led to **severe financial losses** for Credit Suisse.

Table 7: Average ARs and Overall Value Creation/Destruction

Average Market Value (in Millions CHF)	**-41 Days: 35,850.96**	**-1 Day: 30,247.05**	
Average Abnormal Returns	**AR1**	**AR2**	**AR3**
Event Day	-0.4038	-0.4131	-0.4062
Event Window (-40; +40)	-0.7515	-0.5221	-0.7435
Value Creation/Destruction (in Millions CHF)			
Event Day	-12,214.11	-12,493.65	-12,287.72
Event Window (-40; +40)	-26,942.91	-18,716.00	-26,655.02

Table 7 reveals that, on average, the event had a significant negative impact on both firms. The abnormal returns are consistently negative across all measures (AR1, AR2, AR3) on the event day and during the extended event window. This demonstrates a market-wide adverse reaction to the event, with no signs of recovery within the 80-day period. The value destruction data supports this hypothesis, with significant losses on both the event day and cumulatively over the event window. The magnitude of these losses, reaching over CHF -26 billion with AR1 and AR3, demonstrates the **event's severe financial impact on the two firms**. Given the strong negative abnormal returns and the related market value losses, the table suggests that the event had a profound and prolonged negative impact on the firms' stock prices and overall market valuation.

3.3 Monte Carlo simulation in R

Monte Carlo simulation, also known as the Monte Carlo method or multiple likelihood re-enactment, is a numerical approach used to predict the outcome of an uncertain event. During World War II, John von Neumann and Stanislaw Elam developed the Monte Carlo Method to improve dynamic performance under uncertain conditions. It was named after a famous casino town,

Monaco, because the element of chance is crucial to the showing strategy, similar to a round of roulette. In the real world, Monte Carlo simulations have been applied to evaluate the effect of uncertainty in human consciousness, stock costs, CEOs projections, and valuation. They also have advantages over prophetic models with shut wellsprings of information, for example the power to try and do sensitivity analysis or attribute correlations among sources of data. Managers can view how a particular contribution influences a desired outcome and identify the relationships between different information factors.

Monte Carlo simulation is preferred over other methods due to its ability to efficiently extrapolate data beyond known points. It generates thousands of data points at random that represent potential payouts for various outcomes. As a result, random modelling maximizes the accuracy and validity of the forecast.

The Monte Carlo method — solving most mathematical and statistical problems — is a more generic probabilistic technique for approximating expectations. Advantages of this framework relative to predictive models with fixed inputs are that it enables sensitivity analysis and determination of input correlation. The sensitivity analysis demonstrates the degree to which each input influences an overlaying result, and correlation informs the extent of relationships between any given input variables.

The mathematics behind Monte Carlo simulation is the Law of Large Numbers and the Central Limit Theorem. Additionally, one of the key purposes of Monte Carlo is computing the average across many samples to smooth variations — even if it converges slowly. The Law of Large Numbers is also very helpful for creating models of a process of selection that involves the sample degrees of freedom, in some random variables with many degrees of freedom the sample average converge to population average.

3.3.1 UBS stock price simulation

I used the statistical software R to perform a simulation of potential future price paths of UBS Group AG's (UBSG.SW) stock using a Monte Carlo method. The simulation starts from the date of the company's merger announcement on 19th March 2023, and models the stock's behaviour over the next 252 trading days (1 year). The code also include the actual price movement of UBS stock during this period to compare it with the simulated price paths.

Here, the passages I followed to write the code:

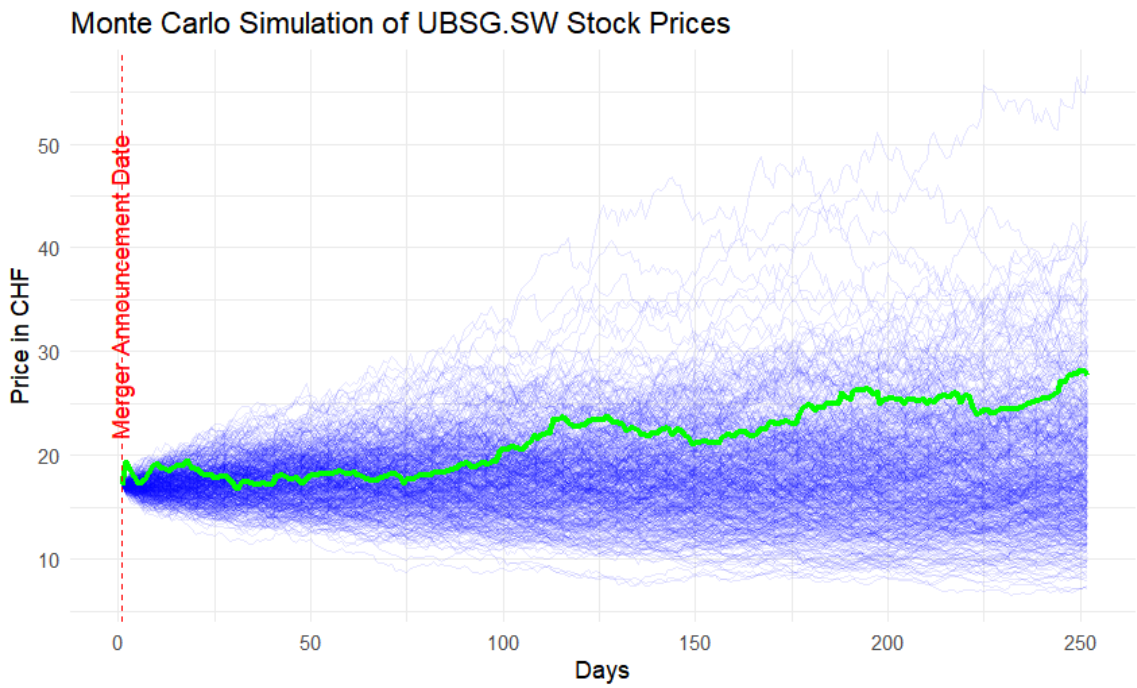
I started loading the *quantmod* package used to download stock data and *ggplot2* used to create visualizations of the simulation results. Then, I set the different parameters specifying the stock symbol for UBS on the Swiss exchange (UBSG.SW), the number of Monte Carlo simulation set to 500, the simulation period of 252 days (one trading year), and the date of merger announcement as a starting point for the simulations. After that, I downloaded UBSG.SW stock closing price using Yahoo Finance starting from 1st January 2020 to the merger announcement date on 19th March 2023. I used these prices to compute the daily returns. Moreover, to model future stock prices, I calculated the daily log returns of the UBS stock from the announcement date onward. Log returns are used as they have desirable statistical properties for modelling price movements. Subsequently, I computed the mean and standard deviation of log returns to serve as parameters for the simulation. I included in the code the function *simulate_price* to model future stock prices using the formula of a Geometric Brownian Motion (GBM). This considered the mean return, the volatility, and random shocks (using a normal distribution) to generate the future price paths. Using the *simulate_price* function, the script run 500 independent simulations of the UBS stock price for the year following the merger announcement. After completing the simulations, the script calculated the average final price across all simulated price paths. The results

of the simulations are formatted into a data frame for easy visualization with *ggplot2*.

The following plot displays the results of the code to show both the simulated paths and the actual price, providing insights into how the stock might behave under the given assumptions:

- the 500 simulated price paths are set in blue
- the actual UBS stock price is set in green
- a vertical red dashed line marking the merger announcement date to highlight the starting point for the simulation.

Figure 7: UBS stock price reaction and Monte Carlo simulation



The actual stock performance (green line) appears to follow a more consistent rising trend when compared to the greater range of projected outcomes. This could indicate post-merger market confidence, reflecting investor optimism or expected financial synergies.

It is also important to note that the mean and standard deviation applied in the simulation remain constant, a typical assumption in GBM models. However, this may not account the dynamics of the market or structural changes post-merger.

The Monte Carlo simulation, although depending on past returns, generates a broad range of potential future price pathways that reflect the stock market's intrinsic volatility and uncertainty. Random market factors can cause the stock's future price to fluctuate in a variety of directions.

Discussion

Although this analysis has not found sufficient empirical evidence to assert that UBS has experienced CARs≠0 during the event window, it is likely that the observed abnormal returns are due to random fluctuations rather than the direct effect of the extraordinary news of the merger with Credit Suisse. According to Eugene Fama (1970), the **Efficient Market Hypothesis** (EMH) explains this phenomenon, claiming that financial markets are "informationally efficient." In line with this hypothesis, all available information is immediately and completely reflected in stock prices, making it difficult to continuously achieve abnormal returns using public information. In this situation, any abnormal returns may simply be random noise rather than a reaction to the merger event. Moreover, Malkiel (2003[80]), in line with the EMH, argued that rational expectations theory provides a useful framework for understanding why stock prices follow a "random walk" in efficient markets (price changes are mainly unpredictable and expected returns are driven by stochastic variations rather than news or events). Consequently, the absence

[80] Malkiel, B. G. (2003). *"The Efficient Market Hypothesis and Its Critics." Journal of Economic Perspectives, 17(1), 59-82.*

of significant abnormal returns following the merger announcement might suggest that the market had already anticipated the information or that other factors reduced its impact.

On the other hand, the analysis found a very strong statistical significance for Credit Suisse, and I accepted the null hypothesis that the target experienced cumulative abnormal returns (CARs) during the event window, although these returns were negative. This is consistent with what researchers expect to see in M&A events, when the target firm usually has abnormal returns — though not always positive. In M&A transactions, acquirers generally pay a large premium to their bid targets, which results in the announcement of positive CARs (Jensen and Ruback, 1983[81]). Negative CARs may arise in situations where the target is under financial distress or the deal is seen unfavourably by the market such as with Credit Suisse, which was facing significant financial difficulties. Additionally, the **market anticipation theory**, as proposed by Mitchell and Mulherin (1996[82]), suggests that abnormal returns can result from the market's reaction to prior speculation or partial information leaks about the impending merger. In the case of Credit Suisse, the market may have already priced in some of the negative expectations related to the merger, leading to a significant, negative adjustment once the full details were confirmed. Thus, while UBS's returns might be explained by random fluctuations, the negative CARs for Credit Suisse likely reflect more direct market reactions to its specific situation and the terms of the merger.

[81] Jensen, M. C., & Ruback, R. S. (1983). *The market for corporate control: The scientific evidence. Journal of Financial Economics, 11(1-4), 5-50.*
[82] Mitchell, M. L., & Mulherin, J. H. (1996). *The impact of industry shocks on takeover and restructuring activity. Journal of Financial Economics, 41(2), 193-229.*

Limitations and Suggestions for future research

My event study offered valuable insights into the short-term market reaction of the extraordinary transaction between UBS and Credit Suisse, but there are some limitations that need to be addressed. A key limitation of the study is its focus on short-term value creation/destruction. Indeed, this time frame captures the immediate market reaction, but it fails to consider long-term value trends. Future research could consider extending the event window beyond the 81 days to capture longer-term effects. This would give a more complete picture of the market's reaction and whether value creation occurs after the initial period of value destruction. Another limitation is the choice of the benchmark in the market model (AR2). While my event study used the Swiss Market Index (SMI) as a benchmark, this may not fully capture the international risks and influences affecting large global banks as UBS and Credit Suisse. Future research could consider a multi-factor model that includes global banking indices or industry-specific benchmarks. This would help to better isolate the merger's impact from larger market trends and international financial conditions, which could influence investor behaviour. Moreover, my event study was exclusively concentrated on the market reactions and does not consider the post-merger integration challenges, which often plays a decisive role in the creation of value in the long term. As shown by the Monte Carlo simulation of the UBS stock price, while there was a negative trend in the first 80 days following the merger announcement, the medium-term outlook shows signs of recovery and potential value creation. Future research that incorporates an analysis of post-merger integration challenges, such as restructuring costs and operational synergies, would offer a more comprehensive understanding of the merger’s financial implications.

The study’s robustness would be even stronger by addressing these limitations and extending the analysis to the medium and long-term, accounting for global benchmarks, as well as post-merger integration challenges.

Conclusions

In conclusion, using the evidence provided by the event study, I demonstrated that the capital markets disapproved the bail-out merger and as a result, destroyed value for the two firms in the short run. The abnormal returns (AR1, AR2, AR3) on the event day and over the event window, were all consistently negative. This suggested that the market perceived the event as a highly adverse shock, with no signs of recovery in the short to medium term. Nevertheless, a notable distinction between the two firms emerged in terms of the statistical significance of these abnormal returns. For UBS, the abnormal returns were not statistically significant, suggesting that the market may have viewed UBS as being less exposed to the risks related to the event. In contrast, Credit Suisse experienced statistically significant abnormal returns, indicating that the market anticipated more severe financial consequences for the company.

This divergence is consistent with bank merger theories, especially when one of the banks is in distress. For instance, Furfine and Berger (2002[83]) provided evidence that when a stronger bank merges with or purchases a distressed institution, the market often reacts unfavourably towards the perceived weakest partner. This will be due to fears of risk absorption by the stronger bank and uncertainty over possible successful restructuring. In the case of Credit Suisse, this adverse market reaction could imply that the proposed merger is not perceived very positively, with high negative abnormal returns would point to fears over the bank's financial health and problems that it would face either in or after the merger. UBS, as the stronger party, appeared to suffer less from market pessimism, as evidenced by insignificant abnormal returns.

[83] Furfine, C. H., & Berger, A. N. (2002). *The impact of bank mergers and acquisitions on small business lending. Journal of Financial Economics, 50(2), 187-229.*

Furthermore, the magnitude of the wealth losses of the stockholders' shows the overall impact of the event. Both the firms faced significant losses in market values, and the market model exhibited cumulative losses of over CHF 18 billion. This significant market value loss raise important questions regarding the adequacy of the regulatory framework for managing large-scale bank mergers. SNB and FINMA imposed considerable limitations on UBS throughout the transaction, and UBS had to manage the integration of Credit Suisse's assets while reducing systemic risk. This included absorbing Credit Suisse's potential liabilities, ensuring continuity for clients, and keeping Switzerland's banking system stable. These proceedings emphasize the crucial importance of regulatory oversight in handling bank mergers, particularly when one is in financial distress. The involvement of the SNB and FINMA can therefore be related to a variety of theories on the regulation of financial institutions during distress-driven mergers. In such a situation, regulatory actions attempt to reduce systemic risk, stabilize the financial markets, and protect the whole economy. Although there was an adverse market reaction that destroyed massive asset value for the shareholders of Credit Suisse, the regulatory system prevented the spreading of a greater crisis throughout the entire Swiss banking sector and beyond. The financial crisis of 2007-2008 has brought about most of the key reforms in Switzerland, including increased capital requirements and tougher regulatory oversight under the guidance of FINMA. However, the merger between UBS and Credit Suisse suggests that more is required to further improve the current regulatory framework.

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