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RESEARCH ARTICLE

Takeover of Credit Suisse and Stock Market Outcomes: An Event Study of the Swiss Stock Exchange

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ABSTRACT

This paper uses the event study methodology to investigate the effect of the recent takeover of Credit Suisse by Union Bank of Switzerland (UBS) on Swiss market returns. This study aims to shed light on how the takeover following a delay in publishing the financial reports due to material loss affected stock market outcomes. Specifically, the study contributes to the literature by examining the impact on both the entire Swiss stock market and the banking sector. Analyzing the Swiss Performance Index (SPI) and its constituents for the period from June 2, 2022, to April 17, 2023, for two event dates, we find that Event 1 (the delay in financial reporting by Credit Suisse) has a significant negative effect on the cumulative abnormal returns (CARs), with average CARs ranging from negative 546 basis points to negative 183 basis points under mean-adjusted returns, and from negative 442 basis points to negative 127 basis points under the market model. In contrast, Event 2 (the announcement of the takeover by UBS) has a significant positive effect on the CARs for the first few days, but then becomes a significant negative effect, with average CARs ranging from negative 467 basis points to positive 141 basis points under mean-adjusted returns, and from negative 502 basis points to negative 93 basis points under the market model. The results provide insights for shareholders and policymakers into how the market responds to merger and acquisition (M&A) events.

INTRODUCTION

In March 2023, Union Bank of Switzerland (UBS), a large Swiss bank, acquired Credit Suisse, an international investment bank and financial services holding company, for USD3.25 billion. Swiss regulators approved the transaction without obtaining the consent of Credit Suisse's shareholders (Smith, 2023). Credit Suisse had been having problems for many years as a result of being involved in various scandals and legal problems. For example, the failure of the US investment company Archegos Capital Management and the insolvency of the British company Greensill Capital had resulted in billion-dollar losses for the bank (Illien & Hirt, 2023).

When the share price of Credit Suisse hit a historic low in March 2023, the bank was compelled to ask the Swiss National Bank (SNB) for an emergency credit line. The SNB's board of directors determined that selling Credit Suisse to UBS was the only option for saving the company. When Credit Suisse was acquired by UBS, it was considered a significant event in the Swiss financial

sector. The acquisition came as part of an effort to support the country's banking industry in the face of an escalating number of bank failures overseas, for example, the failures of First Republic Bank, Silicon Valley Bank, and Signature Bank (Bennett & Cabello, 2023). The following outlines the main events—referred to as "the beginning of a battle for survival" (Englundh, 2023; Menon, 2023)—that surrounded the acquisition of Credit Suisse by UBS:

- March 8, 2023: During the night, Credit Suisse received a telephone call from the US Securities and Exchange Commission (SEC) telling them to postpone the publication of their 2022 financial reports.
- March 9, 2023: Credit Suisse announced that the release of the financial reports would be delayed. This led their share price to drop by 6%.
- March 10, 2023: The Silicon Valley Bank failure was announced. It was considered the second-largest bank failure since the Lehman Brothers failure in 2008. This led the stock price of Credit Suisse to drop by a further 30%.
- March 14, 2023: The board of Credit Suisse announced that the bank had "material weaknesses" in the reporting in their 2022 financial statement, which meant they would incur a loss of USD7.3 billion.
- March 15, 2023: The Saudi National Bank, one of the largest shareholders in Credit Suisse, refused to inject additional funds to help the bank. This led the stock price to fall by a further 24%. During the night, Credit Suisse declared that they would borrow approximately USD45 billion from the SNB as a liquidity lifeline.
- March 19, 2023: In an arrangement with the Swiss government, UBS agreed to acquire Credit Suisse for USD3.25 billion. The SNB agreed to provide UBS with CHF100 billion (approximately USD113.3 billion) in liquidity support, and the Swiss government would provide a CHF9 billion (approximately USD10.439 billion) guarantee for any potential losses on the assets UBS was acquiring. It was expected that the entire transaction will be accomplished by the end of 2023.

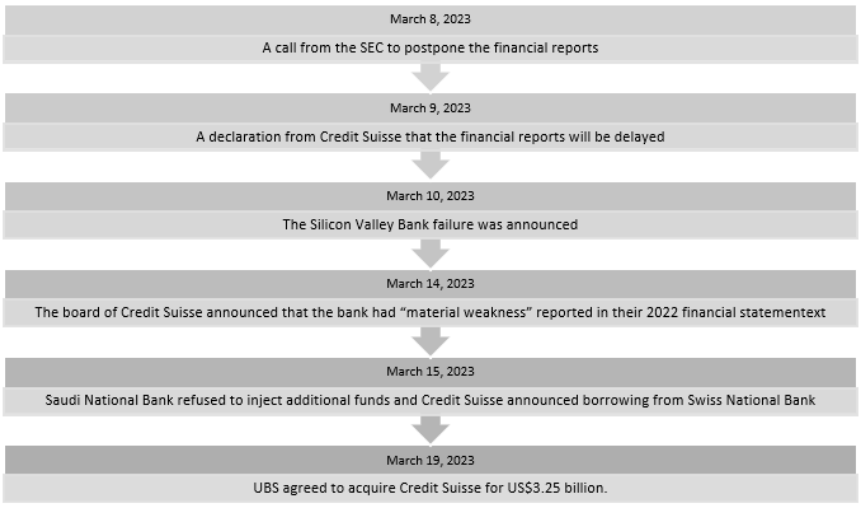

Figure 1: Events Leading Up to The Takeover

Figure 1 summarizes the events leading up to the takeover. In this paper, we employ the event study method to examine the effect of the acquisition of Credit Suisse by UBS on Swiss market returns. Our results demonstrate that Event 1 (i.e., the delay in financial reporting by Credit Suisse) had a significant negative effect on the cumulative abnormal returns (CARs). However, Event 2 (i.e., the announcement of the takeover by UBS) had a temporary significant positive effect on the CARs for a few days, which then became significantly negative. These findings are valuable and highlight the significance of the paper in that the results show that banks' delay in publishing financial reports due to material losses can affect not only the banking sector but also the entire

stock market. In addition, it can be seen that takeover, as a financial rescue procedure, can reverse the effect on stock market outcomes.

The aim of this study is to shed light on how the takeover that occurred following a delay in publishing the financial reports due to material losses affected stock market outcomes. The paper contributes to the literature by examining the impact on both the entire Swiss stock market and the banking sector. Several papers have focused on the effect on the stock market only; thus, this paper extends the literature and attempts to widen that focus by also investigating the effects on the banking sector. This study also aims to provide information to shareholders and policymakers on how the market responds to merger and acquisition (M&A) events. To make good investment decisions, shareholders require information that enables them to determine whether M&A actions create or destroy value. In addition, regulators need to be aware of the effect of these actions on market performance from local and global perspectives, and should devise innovative procedures to avoid the transmission of banking crises to other sectors and economies. The significance of this paper is that we are investigating the effect of a takeover following a delay in financial reporting on an entire stock market as well as the banking sector; that is, we are studying the effect of financial rescue procedures that employ a takeover as a solution to bank failure. Thus, our contribution in terms of the literature gap that we are endeavoring to address is our assessment of the effect of Credit Suisse's delay in publishing their financial reports and the subsequent takeover events not only on the Swiss stock market but also on the banking sector. Hence, the objectives of the paper can be summarized as follows. We start by assessing the effect of the delay in presenting the financial reports on stock market outcomes (Objective 1). We then extend that assessment and examine the effect of the takeover of Credit Suisse on stock market outcomes (Objective 2).

This study has some limitations. First, we did not investigate the factors that could affect the CARs, such as firm-specific and country-specific variables. Second, we restricted our study to mean-adjusted returns and the market model. Future research might consider examining the factors that affect CARs, and compute daily abnormal returns (ARs) and CARs using other methods, such as the capital asset pricing model (CAPM), Fama–MacBeth regression, and control portfolio. In addition, an event study based on the volatility of stock market returns and trading volumes could be investigated in future studies.

This paper is organized as follows: Section 2 presents the literature review, Section 3 discusses the data collection and method employed, Section 4 presents the results and analysis, Section 5 provides further tests, and Section 6 concludes the paper.

LITERATURE REVIEW

The theoretical framework proposed by Fama (1965, 1970) on the efficient market hypothesis (EMH) suggests that stock prices should react quickly and without any overreaction, and if a particular event occurs frequently, its significance should disappear in the financial market (Kolaric & Schiereck, 2016). Certain research has indicated that financial markets are effective and capable of fully absorbing these types of events, making their impact statistically insignificant (Johnston & Nedelescu, 2006).

In terms of M&A, investors may evaluate their expectations of M&A rewards following an M&A announcement in different ways, depending on the nature of the specifications of the deal involved in the takeover. Scholars have contended that M&As have a mixed short-term influence on firm stock returns (Agrawal et al., 1992). According to Berkovitch and Narayanan (1993), the synergy motive driving an M&A is integral to the successful outcome of such events, given that managers of the target firm and of the acquirer engage in M&A transactions only when the transaction will maximize shareholder wealth for both parties. However, Berkovitch and Narayanan (1993) suggest that takeovers can be driven by the self-interest of the managers of the acquiring company, and these managers may be motivated to engage in value-decreasing acquisitions.

The performance of the companies involved in M&A deals and the effect of such deals on their stakeholders are widely researched topics in the academic literature (e.g., Alexandridis et al., 2017; Cortes et al., 2015; De Young et al., 2009; Jensen & Ruback, 1983). Performance is typically assessed in terms of the market, specifically, how the announcement of M&A deals affects the securities of the firm. Announcements concerning companies involved in M&A deals often include new information. According to Carroll and Kearney (2015), this new information influences the returns and volatility of the firms involved in the M&A transaction.

The empirical evidence regarding the effect of M&A deals on stock returns is inconclusive. For example, according to Houston and Ryngaert (1994), M&A deals between banks will produce zero returns for the net deal (return of the target "plus" return of the acquirer), negative ARs for the acquirer bank, and positive ARs for the target bank. However, Goddard et al. (2012) find that in bank M&A deals, targets have positive ARs, but acquirers have zero ARs. Researchers have argued that the positive effect of M&A transactions on ARs is due to the enhancement of corporate governance procedures, a reduction in information asymmetry, and the firm's dominance in the market following the M&A deal (Akhigbe & Madura, 2001; Alexandridis et al., 2017; Hankir et al., 2011; Humphery-Jenner et al., 2017).

Research has also revealed that managers' motives are not always aligned with shareholders' interests (Fama et al., 1969; Jensen, 1986; Kosnik & Shapiro, 1997), and that the irrational or behavioral motivations of the managers are the reasons behind the negative effect of M&A deals on ARs (Cortes et al., 2015; Gugler et al., 2012; Shleifer & Vishny, 2003).

The announcement effect and its correlation with future performance gains has also been studied. For instance, Campa and Hernando (2005) present an analysis of financial sector M&As within the European Union for the period from 1998 to 2002. They detected positive ARs for target firm shareholders close to the date of the announcement and less positive ARs three months preceding, probably as a result of rumor or anticipation. Announcements essentially had zero effect on the returns to the shareholders of the acquiring companies. One year post-announcement, neither targets nor acquirers achieved significant ARs. However, by the two-year mark after accomplishment, there were significant enhancements in performance for the target company that typically had been underperforming in the sector before the acquisition. Significantly, the positive ARs realized at the time of the announcement are not associated with the subsequent enhancements to shareholder returns and operating efficiencies, which implies that markets do not accurately forecast potential gains when announcements are made.

Considering the European and North American banking sector for the period from 1990 to 2008, Hankir et al. (2011) study share returns for bidders, targets, and peers at the time of takeover announcements and when deals were secured or withdrawn. The outcome of their study shows that the market power hypothesis was the leading motive for banking M&As, being recognized in more than twice as many deals as synergy. Goddard et al. (2012) conduct an event study of 132 M&As that included banks in Latin America and Asia for the period from 1998 to 2009, revealing some remarkable findings. They discover that, on average, M&As increase target company shareholder value, while maintaining shareholder value at the bidding companies. When the acquisition involves geographical diversity and the target is underperforming, shareholder value is produced. They also find that cash transactions and M&As that are initiated by the government produce positive returns for acquirer shareholders.

The recent takeover of Credit Suisse by UBS is studied by Goyal and Soni (2023). They investigate its effect on Indian banking and financial services sector stocks and find that the event had a varied effect on the sector's stock prices. For example, public sector banks suffered greatly on some days, but there were also noteworthy decreases in the Indian banking sector and financial services sector as a whole. Indian private sector banks, on the other hand, showed little impact and were comparatively resilient. For all four categories (Nifty Private Bank Index, Nifty PSU Bank Index, Nifty Bank Index, and Nifty Financial Services Index from the National Stock Exchange), the

cumulative effect is discovered to be insignificant over various event windows. The study also reveals that specific variables had a significant impact on the CARs.

DATA AND METHODOLOGY

Data

We collect our data for the sample from Bloomberg, consisting of the constituents of Swiss Performance Index (SPI) for the period from to June 2, 2022 to April 17, 2023. The SPI consists of 215 stocks. We treat Thursday March 9, 2023 the day when Credit Suisse announced they would delay the release of their financial reports as Event 1 and Monday March 20, 2023, the day when UBS agreed to acquire Credit Suisse, as Event 2. We use the daily adjusted-closing price for the SPI and stocks.[1]

Methodology

We employ the event study approach, which is widely used in economics and finance to examine the effect of an event on stock market returns. The advantage of this approach stems from the notion that, in a rational market, an event's impact will be immediately reflected in stock prices. Therefore, security prices observed over a short period can be used to estimate an event's economic impact (Mackinlay, 1997). We calculate the daily returns as follows:

$$DR_n = \left(\frac{P_{n,d}}{P_{n,d-1}}\right) - 1 \tag{1}$$

where the daily rate of return is represented by DR_n, and $P_{n,d}$ and $P_{n,d-1}$ denote stock price *n* at time *d* and *d-1*, respectively. We use [−200, −11] as our estimation period and ([−1, 1], [−2, 2], [−3, 3], [−4, 4], [−5, 5], [−6, 6], [−7, 7]) as our event windows.[2] We use both mean-adjusted returns and the market model to calculate the daily ARs and the CARs for the observation period. The CAR is the summation of daily ARs for all the days in the estimation window.

Mean-adjusted Returns

The daily ARs using mean-adjusted returns are calculated as follows:

$$AR_{n,d} = DR_{n,d} - \overline{DR}_n \tag{2}$$

where

$$\overline{DR}_n = \frac{1}{189}\sum_{d=-200}^{-11} DR_{n,d} \tag{3}$$

[1] We use Monday March 20, 2023 as Event 2 because although the announcement of the takeover came on Sunday March 19, the market was closed by the time the announcement was made. Therefore, we use the next business day as the event date.

[2] The −200 days preceding the event is chosen to approximate the total number of trading days in an annual calendar. It denotes a time frame prior to the event day that is sufficiently long to enable a precise parameter estimate of the chosen return-generating process and is in accordance with prior studies (Bhagat & Romano, 2001). The selection of the seven event windows ([−1, 1], [−2, 2], [−3, 3], [−4, 4], [−5, 5], [−6, 6], [−7, 7]) in this study stems from the fact that adding additional event windows only marginally improved the analysis. In addition, these critical event windows are consistent with earlier research (e.g., Bash & Al-Awadhi, 2023).

Market Model

In addition, the equation for calculating daily ARs using the market model, as in Dodd and Warner (1983), and Brown and Warner (1985), is as follows:

$$AR_{n,d} = DR_{n,d} - \left(\alpha_n + \beta_n DR_{m,d}\right) \quad (4)$$

where the daily ARs for stock n at time d is represented by $AR_{n,d}$, the daily rate of returns for stock n at time d is denoted by $DR_{n,d}$, and the average daily rate of returns for stock n during the observation period is indicated by $\overline{DR}_n$. α_n and β_n are regression coefficients and $DR_{m,d}$ stands for the SPI daily return. The Wilcoxon–Mann–Whitney signed-rank median is used as a nonparametric test, and the Satterthwaite–Welch t-test is used as a parametric test for the statistical significance of the CARs.

Results and Analysis

Figures 2 to 5 illustrate the ARs and CARs using mean-adjusted returns and the market model during Event 1 and Event 2. Figures 2 and 3 present the ARs and CARs for Event 1 using mean-adjusted returns and the market model. Both figures reveal that the CARs drop sharply on the day of the event. Figures 4 and 5 display the ARs and CARs for Event 2 using mean-adjusted returns and the market model. Both figures show that the CARs increase for several days, then experience a significant sudden drop, with an overall downward trend over time.

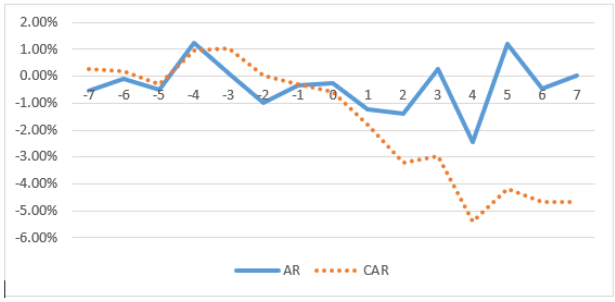

Figure 2: Mean-Adjusted Return for ARs and CARs - Event 1 (March 9, 2023)

Figure 3: Market Model for ARs and CARs - Event 1 (March 9, 2023)

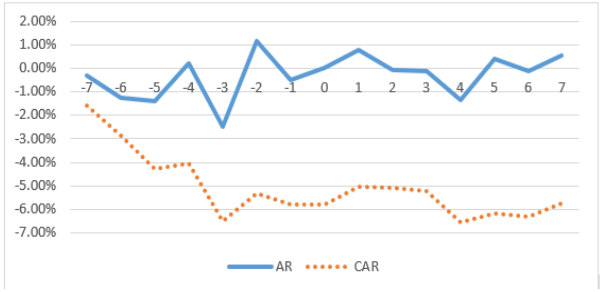

Figure 4: Mean-Adjusted Return for ARs and CARs - Event 2 (March 20, 2023)

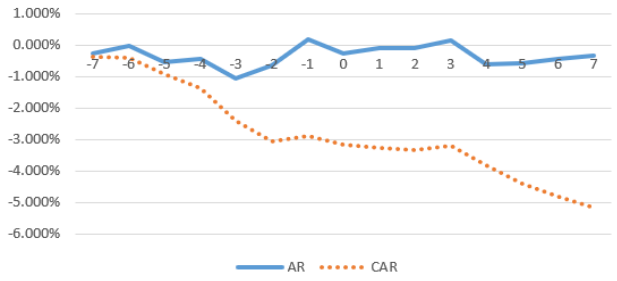

Figure 5: Market Model for ARs and CARs – Event 2 (March 20, 2023)

Tables 1 to 4 present the descriptive statistics of the ARs and CARs using mean-adjusted returns and the market model during Event 1 and Event 2. Tables 1 and 2 present the mean, median, kurtosis, and skewness of the CARs using mean-adjusted returns and the market model for Event 1. Tables 3 and 4 display the mean, median, kurtosis, and skewness of the CARs using mean-adjusted returns and the market model for Event 2.

Table 1: Descriptive Statistics for ARs and CARs Using Mean-Adjusted Returns Around Event 1 (March 9, 2023)

	Mean-Adjusted Returns $AR_{n,d}$					**Mean-Adjusted Returns $CAR_{n,d}$**			
	Mean	Median	Skewness	Kurtosis		Mean	Median	Skewness	Kurtosis
−7	-0.0055	-0.0028	-1.5019	9.2276		0.0028	0.0066	-3.6720	32.2772
−6	-0.0008	-0.0018	0.9377	6.0207		0.0020	0.0059	-2.0686	13.1747
−5	-0.0050	0.0004	-3.6007	23.6977		-0.0030	0.0036	-2.4455	11.4078
−4	0.0124	0.0047	10.1300	126.2968		0.0094	0.0067	-0.1759	15.4466
−3	0.0009	0.0008	0.3155	7.4845		0.0103	0.0097	-0.1840	11.8319
−2	-0.0100	-0.0059	-4.9454	40.1397		0.0003	0.0045	-1.8202	9.5884
−1	-0.0034	-0.0019	-0.5718	26.2824		-0.0031	0.0039	-0.8815	10.7277
0	-0.0027	-0.0018	1.9680	27.6798		-0.0058	0.0011	-1.3582	7.4679
+1	-0.0123	-0.0115	0.3291	8.2452		-0.0181	-0.0112	-1.1434	6.7957
+2	-0.0139	-0.0113	0.6418	7.6187		-0.0320	-0.0236	-1.0954	5.2826
+3	0.0025	0.0049	-2.3174	10.6238		-0.0295	-0.0125	-1.9429	6.8151
+4	-0.0244	-0.0214	0.0830	2.0295		-0.0539	-0.0380	-1.4782	5.2145
+5	0.0120	0.0115	-1.6720	16.2416		-0.0420	-0.0231	-1.7165	7.9397
+6	-0.0047	-0.0045	0.0692	3.4966		-0.0467	-0.0292	-1.3438	5.2360
+7	0.0002	0.0016	-0.1081	3.4632		-0.0465	-0.0287	-1.4083	5.0098

Table 2: Descriptive Statistics for ARs and CARs Using Market Model Around Event 1 (March 9, 2023)

	Market Model $AR_{n,d}$					**Market Model $CAR_{n,d}$**			
	Mean	Median	Skewness	Kurtosis		Mean	Median	Skewness	Kurtosis
−7	0.0024	0.0036	-2.0661	11.3151		0.0144	0.0164	-3.3352	26.1382
−6	0.0013	0.0001	0.9162	5.8129		0.0157	0.0183	-1.9621	10.6904
−5	-0.0121	-0.0063	-3.8698	27.2022		0.0036	0.0093	-2.3560	10.6000
−4	0.0101	0.0024	10.1730	127.5102		0.0137	0.0114	-0.2203	14.6085
−3	0.0046	0.0035	0.3049	7.2399		0.0183	0.0196	-0.1775	10.3465
−2	-0.0042	0.0000	-5.2031	42.5741		0.0141	0.0165	-1.7081	8.1586
−1	-0.0012	-0.0002	-0.7308	26.0569		0.0129	0.0165	-1.1352	11.4230
0	-0.0025	-0.0016	1.9611	27.8449		0.0104	0.0138	-1.5661	8.5831
+1	0.0000	0.0007	0.2983	11.3690		0.0104	0.0134	-1.7456	10.8543
+2	-0.0051	-0.0022	0.4766	7.0241		0.0052	0.0100	-1.9287	11.4936
+3	-0.0043	-0.0005	-2.6114	12.4016		0.0009	0.0107	-2.3063	10.5029
+4	-0.0102	-0.0065	-0.0824	2.1928		-0.0093	0.0018	-2.1290	10.5409
+5	-0.0067	-0.0074	-1.0226	12.9613		-0.0160	-0.0018	-2.0034	9.7354
+6	0.0018	0.0018	0.0327	4.0624		-0.0142	0.0018	-1.5457	6.5233
+7	-0.0025	-0.0003	-0.0815	3.5719		-0.0167	-0.0004	-1.6271	6.3003

Table 3: Descriptive Statistics for ARs and CARs Using Mean-Adjusted Returns Around Event 2 (March 20, 2023)

	Mean-Adjusted Returns $AR_{n,d}$					**Mean-Adjusted Returns $CAR_{n,d}$**			
	Mean	Median	Skewness	Kurtosis		Mean	Median	Skewness	Kurtosis
−7	-0.0029	-0.0021	1.9699	27.7889		-0.0160	-0.0119	-0.8580	11.8023
−6	-0.0125	-0.0115	0.3049	8.1044		-0.0285	-0.0271	-0.1622	7.8447
−5	-0.0141	-0.0113	0.6058	7.5172		-0.0426	-0.0402	-0.4185	6.8089
−4	0.0023	0.0048	-2.3431	10.7079		-0.0402	-0.0312	-1.7498	8.6618
−3	-0.0246	-0.0215	0.0693	2.0098		-0.0649	-0.0569	-1.2715	7.7529
−2	0.0118	0.0113	-1.6777	16.3281		-0.0531	-0.0394	-1.1392	7.9719
−1	-0.0049	-0.0046	0.0541	3.5364		-0.0580	-0.0421	-1.0035	6.0720
0	0.0000193	0.0015	-0.1234	3.4440		-0.0580	-0.0427	-0.8479	3.9816
+1	0.0079	0.0059	0.7796	5.8966		-0.0501	-0.0340	-0.5389	6.3605
+2	-0.0006	0.0003	-1.3501	13.1620		-0.0507	-0.0353	-0.5244	7.9314
+3	-0.0014	0.0000	-1.9970	23.7048		-0.0521	-0.0366	-0.8463	7.9303
+4	-0.0135	-0.0127	0.6282	6.8934		-0.0656	-0.0543	-0.7118	7.6301
+5	0.0040	0.0042	-1.0633	12.6559		-0.0616	-0.0503	-1.3404	8.4037
+6	-0.0013	0.0002	-0.2887	8.3949		-0.0629	-0.0525	-1.1531	6.5768
+7	0.0054	0.0063	-1.1629	8.4879		-0.0575	-0.0438	-1.7267	9.4986

Table 4: Descriptive Statistics for ARs and CARs Using Market Model Around Event 2 (March 20, 2023)

	Market Model $AR_{n,d}$					**Market Model $CAR_{n,d}$**			
	Mean	Median	Skewness	Kurtosis		Mean	Median	Skewness	Kurtosis
−7	-0.0026	-0.0020	1.9576	27.8964		-0.0037	-0.0010	-1.0752	10.7395
−6	-0.0002	0.0004	0.2835	11.4514		-0.0040	0.0008	-0.7877	7.9059
−5	-0.0053	-0.0024	0.4030	6.8158		-0.0093	-0.0034	-1.0811	7.4736
−4	-0.0043	-0.0004	-2.6248	12.4658		-0.0136	-0.0033	-2.0047	8.3268
−3	-0.0105	-0.0067	-0.0889	2.2923		-0.0240	-0.0166	-1.7060	7.7148
−2	-0.0066	-0.0074	-1.0432	13.3889		-0.0306	-0.0197	-1.3553	7.8536
−1	0.0017	0.0017	0.0075	4.1184		-0.0289	-0.0163	-1.1081	5.7465
0	-0.0026	-0.0003	-0.0976	3.5337		-0.0315	-0.0124	-1.0022	3.9724
+1	-0.0011	-0.0021	0.9652	6.3066		-0.0325	-0.0171	-0.6523	6.1612
+2	-0.0009	0.0002	-1.3585	13.2118		-0.0334	-0.0185	-0.6437	7.7808
+3	0.0016	0.0025	-1.9487	23.2470		-0.0318	-0.0157	-0.9573	7.7461
+4	-0.0062	-0.0058	0.6719	6.8309		-0.0380	-0.0245	-0.8497	7.4788
+5	-0.0058	-0.0049	-0.6221	10.2770		-0.0438	-0.0302	-1.4511	8.6715
+6	-0.0043	-0.0022	-0.2526	8.0721		-0.0481	-0.0360	-1.2483	6.8757
+7	-0.0034	-0.0010	-0.8953	8.1652		-0.0516	-0.0338	-1.7731	9.7535

Tables 5 to 8 present the mean and median equality tests for the CARs using mean-adjusted returns and the market model during Event 1 and Event 2. Table 5 shows the mean and median equality tests for the CARs using mean-adjusted returns for Event 1. This table reveals that the market is significantly negatively affected by the event for all the event windows. Table 6 illustrates the mean and median equality tests for the CARs using the market model for Event 1. This table also reveals that the market is significantly negatively affected by the event for all the event windows except event window [−1, 1], which is insignificantly negative. The delayed release of Credit Suisse's earnings report delivered a severe blow to the country's troubled banking industry. Concerns regarding the soundness of the Swiss banking system were sparked by the negative news surrounding the Credit Suisse issue and the US banking problem. It seems that the delay in publishing the Credit Suisse financial reports represents a significant issue for Credit Suisse. We believe that fear and anxiety dominated the Swiss market at that time.

Table 5: Mean and Median Equality Tests for CARs – Mean-Adjusted Return - Event 1 (March 9, 2023)

Mean-Adjusted Returns				
Event Window	Mean	t-test	Median	W/M
[-1, 1]	-0.0183	-6.590176***	-0.0180	-8.710097***
[-2, 2]	-0.0421	-11.65801***	-0.0366	-10.67949***
[-3, 3]	-0.0387	-8.811826***	-0.0284	-9.141246***
[-4, 4]	-0.0507	-9.444434***	-0.0417	-9.851374***
[-5, 5]	-0.0438	-7.220078***	-0.0291	-8.062821***
[-6, 6]	-0.0493	-7.695698***	-0.0352	-8.318644***
[-7, 7]	-0.0546	-8.117750***	-0.0369	-8.697967***

The Wilcoxon–Mann–Whitney signed-rank median is used as non-parametric test and Satterthwaite–Welch t-test is used as parametric test for the statistical significance of CARs. Asterisks ***,** and * represent p-value less than 0.001, 0.05 and 0.01 level of significance, respectively.

Table 6: Mean and Median Equality Tests for CARs – Market Model - Event 1 (March 9, 2023)

Market Model				
Event Window	Mean	t-test	Median	W/M
[-1, 1]	-0.0037	-1.273810	-0.0017	-1.265881
[-2, 2]	-0.0130	-3.596635***	-0.0046	-3.445886***
[-3, 3]	-0.0127	-2.856926***	-0.0032	-1.908745**
[-4, 4]	-0.0128	-2.369416**	-0.0214	-2.754503***
[-5, 5]	-0.0315	-5.200312***	-0.0264	-5.729543***
[-6, 6]	-0.0442	-4.443212***	-0.0442	-4.808803***
[-7, 7]	-0.0286	-4.178080***	-0.0116	-4.160425***

The Wilcoxon–Mann–Whitney signed-rank median is used as non-parametric test and Satterthwaite–Welch t-test is used as parametric test for the statistical significance of CARs. Asterisks ***,** and * represent p-value less than 0.001, 0.05 and 0.01 level of significance, respectively.

Table 7: Mean and Median Equality Tests for CARs – Mean-Adjusted Return – Event 2 (March 20, 2023)

Mean-Adjusted Returns				
Event Window	Mean	t-test	Median	W/M
[-1, 1]	0.0030	1.351778	0.0035	1.968290*
[-2, 2]	0.0141	4.412927***	0.0152	5.893843***
[-3, 3]	-0.0118	-2.967592***	-0.0053	-2.937549***
[-4, 4]	-0.0229	-5.004574***	-0.0149	-4.794468***
[-5, 5]	-0.0330	-6.358493***	-0.0198	-6.393359***
[-6, 6]	-0.0467	-8.936517***	-0.0333	-8.404653***
[-7, 7]	-0.04423	-6.942535***	-0.03006	-7.457448***

The Wilcoxon–Mann–Whitney signed-rank median is used as non-parametric test and Satterthwaite–Welch t-test is used as parametric test for the statistical significance of CARs. Asterisks ***,** and * represent p-value less than 0.001, 0.05 and 0.01 level of significance, respectively.

Table 8: Mean and Median Equality Tests for CARs – Market Model – Event 2 (March 20, 2023)

Market Model				
Event Window	Mean	t-test	Median	W/M
[-1, 1]	-0.0019	-0.876897	-0.0006	-0.749825
[-2, 2]	-0.0093	-2.839985***	-0.0065	-3.226452***
[-3, 3]	-0.0181	-4.535429***	-0.0111	-5.028237***
[-4, 4]	-0.0286	-6.211083***	-0.0214	-6.155179***
[-5, 5]	-0.0396	-7.575110***	-0.0264	-7.509274***
[-6, 6]	-0.0442	-8.490829***	-0.0290	-8.059513***
[-7, 7]	-0.0502	-7.831222***	-0.0355	-8.310925***

The Wilcoxon–Mann–Whitney signed-rank median is used as non-parametric test and Satterthwaite–Welch t-test is used as parametric test for the statistical significance of CARs. Asterisks ***,** and * represent p-value less than 0.001, 0.05 and 0.01 level of significance, respectively.

Table 7 presents the mean and median equality tests for the CARs using mean-adjusted returns for Event 2. The mean equality tests reveal a significant negative effect on the market for all the event windows except event window [−1, 1], which is insignificantly positive, and event window [−2, 2], which is significantly positively affected by Event 2. The median equality tests reveal that the effect of Event 2 on the market for event windows [−1, 1] and [−2, 2] is significant and positive. However, the effect of Event 2 becomes significantly negative for all other event windows. This result indicates that the market perceived the M&A deal positively because the president of Credit Suisse and the Swiss Financial Market Supervisory Authority (FINMA) announced that it was the best and most effective solution for the bank's stability (Davies et al., 2023; MarketsMedia, 2023). In addition, on March 21, 2023, Swiss authorities announced that they would halt bonuses for Credit Suisse staff (Miller, 2023). However, the subsequent and continuing negative market reaction clearly demonstrates that investors in the market remained concerned about the situation and did not feel satisfied with the proposed financial rescue plans. We believe that investors had concerns that the bank failures could trigger a contagion effect, similar to the one that occurred in 2008. For example, Dungey and Gajurel (2015) find strong evidence of contagion in the banking industry, and determine that this contagion can play a key role in fostering banking crises in areas that are geographically distant from the source of the crisis. Following the Credit Suisse collapse, Nekhili et al. (2023) show how major banks are strongly affected by credit risk, which greatly raises the level of systematic risk.

Table 8 presents the mean and median equality tests for the CARs using the market model for Event 2. The results reveal that this event had a significant negative effect on the market for all the event windows except event window [−1, 1], which is insignificantly negative. The median equality tests also display a significant negative reaction for all the event windows except event window [−1, 1], which is insignificantly negative.

Our results suggest that investor sentiment was negative and that investors were concerned about a decline in prices that could lead to another banking crisis. These results are in accordance with those found in prior studies (e.g., Bash & Alsaifi, 2019; Bash et al., 2021; Bash & Al-Awadhi, 2023), indicating that markets could deviate from the EMH and generate ARs.

In a related paper, Tetlock (2007) find that stock prices decline in response to a high level of media pessimism. Moreover, Cubillas et al. (2021) discover that banking stability is reduced during a financial crisis. It is also worth mentioning that there is a deterrent sentiment among Swiss financial analysts as a result of the recent banking crisis.[3]

[3] Credit Suisse (March 29, 2023) Financial Stability concerns weighing on analyst sentiment. Financial Market Survey Switzerland. https://www.credit-suisse.com/media/assets/private-banking/docs/ch/unternehmen/unternehmen-unternehmer/finanzmarkt-umfrage-schweiz-03-2023-en.pdf

Further Tests

As a further test, we extend our analysis by examining the CARs of the banking sector stocks in the Swiss stock exchange using the market model for both events. The results, revealed in Table 9, show that the mean and median equality tests for the CARs for Event 1 (the delay in financial reporting by Credit Suisse) for the banking sector stocks are similar to the results obtained for the market, shown in Table 6, in that they are significantly negatively affected by the event. As displayed in Table 10, the results of the mean and median equality test for the CARs for Event 2 for the banking sector stocks suggest that the M&A deal led to a positive reaction among banking stocks for a few days only (event windows [−1, 1] and [−2, 2]) following Event 2 (the announcement of the takeover), which was perceived by the market as a good deal.

Table 9: Mean and Median Equality Tests for CARs – Market Model - Event 1 (March 9, 2023) – Banking Sector

Market Model				
Event Window	Mean	t-test	Median	W/M
[-1, 1]	-0.0137	-0.7136	-0.0195	-2.5089**
[-2, 2]	-0.0447	-2.0103*	-0.0435	-2.6983***
[-3, 3]	-0.0252	-1.8519*	-0.0210	-2.3669**
[-4, 4]	-0.0492	-2.4906**	-0.0598	-2.6036***
[-5, 5]	-0.0391	-1.6165	-0.0532	-2.4142**
[-6, 6]	-0.0473	-1.7965*	-0.0495	-2.4616**
[-7, 7]	-0.0257	-1.0084	-0.0325	-1.3728

The Wilcoxon–Mann–Whitney signed-rank median is used as non-parametric test and Satterthwaite–Welch t-test is used as parametric test for the statistical significance of CARs. Asterisks ***, ** and * represent p-value less than 0.001, 0.05 and 0.01 level of significance, respectively.

Table 10: Mean and Median Equality Tests for CARs – Market Model – Event 2 (March 20, 2023) – Banking Sector

Market Model				
Event Window	Mean	t-test	Median	W/M
[-1, 1]	0.0422	3.5241***	0.0409	2.7456***
[-2, 2]	0.0600	3.5185***	0.0590	2.8876***
[-3, 3]	0.0292	1.2472	0.0104	0.9941
[-4, 4]	0.0180	0.8851	0.0165	0.8047
[-5, 5]	-0.0060	-0.3386	-0.0083	-0.0947
[-6, 6]	-0.0262	-1.4505	-0.0169	-1.5148
[-7, 7]	-0.0146	-0.5373	-0.0373	-1.2308

The Wilcoxon–Mann–Whitney signed-rank median is used as non-parametric test and Satterthwaite–Welch t-test is used as parametric test for the statistical significance of CARs. Asterisks ***,** and * represent p-value less than 0.001, 0.05 and 0.01 level of significance, respectively.

CONCLUSION

The takeover of Credit Suisse by UBS was a major economic event that drew the attention of most economists and financial analysts around the world. This paper investigated the effect of the delay in publishing the Credit Suisse financial reports on stock market outcomes (objective 1). We then extended that assessment and examined the effect of the takeover of Credit Suisse on stock market outcomes (Objective 2).

Analyzing the SPI and its constituents for the period from June 2, 2022, to April 17, 2023 for two event dates (Event 1 and Event 2), we found that Event 1 (the delay in financial reporting by Credit Suisse) significantly negatively affected the CARs. In contrast, Event 2 (the announcement of the takeover by UBS) had a significant positive effect on the CARs for the first few days, which then became a significant negative effect. These findings are noteworthy because they show that uncertainty around economic policy is expected to surge when a bank is on the verge of failure, and this can affect the entire economy (Althaqeb et al., 2022). Although this paper has some limitations that could be addressed and accounted for in future papers (as covered in the introduction), the findings are significant and highlight its importance in the literature. The results are valuable and assist in bridging the gap in the literature, which has focused mainly on the effects such events have on the banking sector. These significant findings provide insights to help decision-makers in both the private and the public sectors, investors, and policymakers understand how the market responds to these two types of events. Policymakers need to devise innovative procedures to avoid the transmission of banking crises to other sectors and economies from local and global perspectives. For example, they could assign more responsibility and delegate, in such cases, to the central banks in terms of supervision and risk management, which may lower the negative effects of a takeover.

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The authors confirm that the manuscript is an honest, accurate, and transparent account of the study that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

DATA AVAILABILITY STATEMENT

The authors may provide data upon special request.

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The authors declare that they have no competing interests.

AUTHORS CONTRIBUTION

All the work has been distributed equally among the authors. All of the authors provided their best expertise in reading, writing, modeling and reviewing the paper. All of the authors agreed on the final version of the paper.

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