Negotiating over Banking Secrecy: The Case of Switzerland and the European Union

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Executive Summary

Over the period 2002 to 2003, Switzerland and the European Union (EU) were engaged in negotiations regarding banking secrecy. The EU's stated goal was for Switzerland to abolish banking secrecy. Switzerland refused and offered to impose a withholding tax on interest income earned in Switzerland by EU residents instead. The two parties eventually agreed on the latter solution.

In order to assess the impact of these negotiations on the profitability of Swiss banks, we analyze the response of the share price of four Swiss banks to 34 news announcements about banking secrecy that were made over the period December 1998 to June 2003 – between the decision by the EU to start exploratory discussions with Switzerland on the taxation of savings interest and the signature of the agreement between the two parties. The four banks considered in the study are UBS, Credit Suisse Group (CSG), Julius Baer (Baer), and Vontobel. Only these four banks have shares that can be considered liquid. For each bank, we investigate the share price response to individual announcements as well as the cumulative (end-to-end) effect of all announcements. Our analysis has four main findings, one expected and three unexpected.

Our first finding, which was expected, is that banking secrecy has a value to Swiss private banks. This value is not negligible: *At a minimum*, banking secrecy accounts for 8.3% of the value of the equity of Julius Baer, and 12.6% of that of Vontobel.

The second finding is that banking secrecy appears to have very little to no value to the Swiss universal banks, UBS and CSG. This second finding, although unexpected, is consistent with recent statements by UBS to the effect that it no longer considers banking secrecy important for its wealth management business, having successfully developed its private banking operations outside Switzerland.

Our third finding, unexpected as well, is that in spite of the EU's threat of imposing sanctions against Switzerland, there appears to have been little fear that such sanctions would actually be imposed. In contrast, there apparently was a real fear that UK sanctions on the London-based investment banking operations of UBS and CSG would be imposed.

Our final and perhaps most surprising finding, based on the cumulative impact of all 34 announcements, is that the negotiations had no overall impact on the share prices of the four banks. This means that the withholding tax that was finally agreed upon and introduced on July 1, 2005, is not expected materially to affect the profitability of Swiss banks.

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Abstract

Over the period 2002 to 2003, Switzerland and the European Union (EU) were engaged in negotiations regarding banking secrecy. The EU's stated goal was for Switzerland to abolish banking secrecy. Switzerland refused and offered to impose a withholding tax on interest income instead. The two parties eventually agreed on the latter solution. We examine the effect of these negotiations on the share prices of four Swiss banks: UBS, Credit Suisse Group (CSG), Julius Baer (Baer), and Vontobel. Overall, investors believe that bank profitability will not be impacted by the imposition of the withholding tax. The event-by-event response of the share prices differs across banks. Whereas the two universal banks (UBS and CSG) primarily react to the threat of sanctions on their EU-based operations, the private banks (Baer and Vontobel) react strongly to events suggesting that banking secrecy might be abolished.

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Banking secrecy was introduced in Switzerland in the 1930s with the stated aim of protecting the privacy of bank clients. Violations are punished by fines of up to 50,000 Swiss Francs and 6 months imprisonment.[1] Violators are prosecuted even if no criminal lawsuit has been filed by a plaintiff.

Since the passing of anti-money laundering legislation in the early 1990s, banking secrecy can no longer be relied upon to shelter funds that originate from what would be considered a crime or a felony under Swiss law. Banks suspicious of having received such funds have the obligation to inform the authorities, and a criminal investigation is launched. However, since much of what qualifies as tax evasion in other countries is not considered a crime or a felony under Swiss law, banks are not required to inform the authorities of the receipt of funds suspected to originate from tax evasion. This has made Switzerland quite attractive for such funds and appears to be a source of rents for Swiss banks.[2]

In recent years, Switzerland has come under considerable pressure from other countries to relax its banking secrecy. In particular, starting in 1998, the European Union (EU) put pressure on Switzerland to agree to exchanging information regarding bank accounts held by EU residents in Switzerland, i.e., abolish banking secrecy. During negotiations that took place between June 2002 and June 2003, Switzerland was successful in preserving banking secrecy, but agreed to introduce a withholding tax of up to 35% on interest income earned by EU residents.[3] Three fourths of the proceeds of this tax will be paid to EU countries.

In this paper, we use an event study methodology to measure the impact of the negotiations on the share prices of four Swiss banks: UBS, Credit Suisse Group (CSG), Bank

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[1] At the time of writing, one Swiss Franc is worth about $0.77.

[2] According to Besson (2004, p.64), Swiss banks can afford to charge higher-than-average fees by virtue of their high-end image, their reputation for financial strength, and, last but not least, banking secrecy. Besides fees, banking secrecy affects deposits rates. English and Shahin (1994) find that, following the passing in the late 1980s of two laws that effectively removed banking secrecy for cases of insider trading and money laundering, Swiss banks raised deposit rates by 53 and 105 basis points, respectively.

[3] The definition of interest income for purposes of the agreement is quite broad. In addition to any explicit interest payment, it includes accrued or capitalized interest obtained on selling fixed income assets, distributions by mutual funds of income originating from interest payments, and gains on the sale of shares in mutual funds with sizable fixed income investments.

Julius Baer (Baer), and Bank Vontobel. At any point in time, the market value of a bank can be viewed as the value of the bank in the absence of banking secrecy, plus the value of banking secrecy to the bank weighted by the perceived probability that banking secrecy will be preserved. A bank's share price reacts to a given announcement to the extent that any of these three components of bank value are affected by the announcement. Somewhat surprisingly, we find no overall effect of the negotiations on the value of Swiss bank shares. There are two possible interpretations to this finding. The first interpretation is that banking secrecy has no value to Swiss banks. The second is that investors believe that the value of banking secrecy will not be impacted by the imposition of the withholding tax. In order to distinguish between these two interpretations, we conduct an event-by-event analysis of 34 events that occurred over the period December 1998 to June 2003, between the decision by the EU to start exploratory discussions with Switzerland and the signature of the agreement between the two parties.

The event-by-event analysis appears to support the first interpretation for the two universal banks, UBS and CSG. The only event that is significant for *both* banks is the publication in the *Financial Times* of a letter by EU Commissioner Frits Bolkestein, in which Mr. Bolkestein writes "I cannot stand Switzerland cheating on tax." No other event is significant for these two banks concurrently.[4] We view this finding as indicating investors' greater concern with possible sanctions on the two universal banks' extensive London-based investment banking operations than with banking secrecy.

In contrast, the event-by-event analysis appears to support the second interpretation for the two private banks, Baer and Vontobel. The only two events that are significant for both banks are the initial failure by the EU Council of Ministers to approve the treaty agreed to the previous day by Switzerland and the EU Commission, and the final approval of the agreement three months later. The private banks' shares fall sharply with the first event, and rise by an almost identical percentage with the second. We view this finding as supporting the view that banking secrecy is important to Swiss private banks, but that the benefits of banking secrecy were not put in jeopardy by the final agreement between Switzerland and the EU. Remarkably, investors appear to have foreseen this outcome, for none of the 32 events that precede the failure to sign the treaty is significant for the two

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[4]We do not attempt to provide an explanation for those events that are significant for a single bank only. Our rationale is the following. When examining the share price response of 4 banks to 34 events, we should expect approximately 7 events to be significant at the 5% level even if there is in fact no significant response of the share prices to the events ($7 \approx 4 \times 34 \times 0.05$). We proceed on the assumption that an event that is significant for a single bank only is a Type I error.

private banks concurrently. This rather sanguine attitude was dealt a blow by the failure to approve the treaty, which caused an abnormal return of -8.7% for Baer and -13.5% for Vontobel over a three-day period, but losses were to a large extent recovered by the abnormal returns on and around the day the treaty was finally signed: $+7.4\%$ for Baer and $+14.5\%$ for Vontobel for a three-day window.

To the best of our knowledge, ours is the first paper that uses event study methodology to assess the importance of banking secrecy. Event studies have a long history in economics, finance, and the law. Schwert (1981) discusses the use of event studies to measure the effects of regulation. He surveys a wide variety of applications, covering the regulation of such diverse industries as electricity, commercial and investment banking, and pharmaceuticals. Schipper and Thompson (1983) examine the impact of merger-related regulations adopted in the late 1960s; Ryngaert and Netter (1988) that of the 1986 Ohio Antitakeover Law. Bittlingmayer and Hazlett (2000) examine the effects of federal antitrust enforcement actions against Microsoft. Our paper is in the line of such research. A number of papers extend the estimation from that of abnormal returns to obtain a currency value for the effects of the events considered. Cutler and Summers (1988) and Engelmann and Cornell (1988) examine the effects of litigation. Jarrell and Peltzman (1985) and Mitchell and Maloney (1989) examine the effects of product recalls and air crashes, respectively. Dial and Murphy (1995) and Dittmann, Maug, and Schneider (2004) follow General Dynamics and Preussag, respectively, through extensive restructuring and refocusing. We follow these papers in using abnormal returns to obtain a measure of the value of banking secrecy to Swiss banks.

The paper proceeds as follows. Section I summarizes the negotiations on banking secrecy between Switzerland and the EU and lists the events considered in the study. Section II describes the stock price data we use. Section III investigates the reaction of bank stock prices to the individual announcements regarding banking secrecy. The results reveal that, if considered in isolation, only a few announcements had a sizeable impact on the market value of Swiss bank shares. Section IV investigates whether several events taken together impacted banks' market valuation. Section V concludes.

I Negotiations on Banking Secrecy Between Switzerland and the European Union

Pressure by the EU on Switzerland to relax its banking secrecy laws increased strongly after December 1, 1998. On that day, EU Finance Ministers agreed on a common framework for the taxation of savings interest, consisting in a combination of withholding tax and information exchange between the tax authorities of EU countries. Recognizing that these measures might cause a sizeable outflow of funds away from EU countries, the ministers instructed the European Commission and the so-called "Troika" to start exploratory discussions with third countries, especially Switzerland, to induce them to take similar measures.[5] An exploratory meeting between the European Union and Swiss authorities took place on March 2, 1999. On June 9, 2000, EU Commissioner Bolkestein, in charge of the issue for the EU, met Swiss Finance Minister Kaspar Villiger in Bern to discuss the taxation of savings interest.

Pressure increased once again after June 20, 2000. On that day, at an EU Council held at Feira (Portugal), EU Finance Ministers agreed to exchange information on savings income with other EU countries, i.e., to report interest income earned by a citizen residing in another member country to the tax authorities of the citizen's country of residence. Moreover, they decided to pressure the U.S. and key third countries (such as Switzerland) to agree to information exchange as well. This happened because Luxembourg and Austria, two EU countries with strong banking secrecy laws, had made such agreement with third countries a condition for themselves agreeing to exchange information. A few days later, the Swiss government announced that information exchange was not a feasible solution.

On March 16, 2001, Switzerland and the EU agreed to initiate discussions with the aim of starting negotiations. While the EU was interested in negotiating over banking secrecy, Switzerland wished to discuss a number of other issues, including security and migration, education, and pensions. On June 25, 2001, the EU agreed to start negotiations with Switzerland on banking secrecy and 9 other issues.

During the first and second rounds of negotiations on banking secrecy, which took place on June 18 and September 3, 2002, Switzerland agreed to introduce a withholding tax, but ruled out information exchange with EU countries. On September 7, EU Commissioner

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[5]At any given time, the Troika consists of the current, past, and future presidents of the Council of EU Economics and Finance Ministers (henceforth referred to as Council of Ministers).

Bolkestein threatened Switzerland with sanctions if it did not agree to exchange information. Possible sanctions included restrictions on capital movements between Switzerland and EU countries and a halt to the negotiations on the 9 other issues. After EU countries were unable to agree on sanctions on October 8, 2002, the EU and Switzerland agreed for the first time on the principle of a withholding tax on October 31.

On January 21, 2003, the Council of Ministers agreed in principle with the proposed solution of a withholding tax. On March 6, an agreement between Switzerland and the European Commission on all outstanding issues was found. The agreement specified the introduction by Switzerland of a withholding tax, initially at the rate of 15%, to be increased to 20% and ultimately to 35%. However, on the following day, the Council of Ministers was unable to reach an agreement on whether to approve the treaty with Switzerland or not and postponed its decision on the issue to the next Council. Following the approval by the Council on June 3, 2003, the agreement was signed.

This study investigates the reaction of the prices of Swiss bank shares to announcements involving banking secrecy in the period ranging from November 1, 1998 to June 30, 2004 (a total of 1422 trading days).[6] Table I lists the 34 events in the period. The list was created from the information posted on the Swiss Parliament's web site; from the news released by the Swiss Telegraphic Agency; and from the announcements made by the *Administration Fédérale des Finances*, the federal body that was in charge of the negotiations with the EU. Events happening during weekends were recorded as occurring on the next trading day. Such events are marked with a hash sign in Table I. For example, the results of an opinion poll revealing that a majority of Swiss voters would be willing to relax or abolish banking secrecy were released on Sunday, April 28, 2002. That event was therefore recorded as occurring on Monday, April 29 (event 16 in Table I).

In addition, for each event occurring on a trading day, we analyzed the time at which the information was released. Whenever the information about an event was released after 4:30 p.m., market prices may not have fully adjusted by the 5 p.m. market close, and the event was therefore recorded as taking place the following day.[7] These events are marked with an asterisk in Table I. For example, news about the outcome of the meeting between EU Commissioner Bolkestein and Swiss Finance Minister Villiger was released at 5:26 p.m. on May 22, 2001, and the event was therefore recorded as occurring on May

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[6] We use November 1 as our starting date because this follows the effective conclusion of the dormant accounts litigation between Swiss banks and the World Jewish Congress.

[7] It turns out that none of the events in Table I occur between 4:30 and 5 p.m. Hence, all the results would not be affected if any other time between 4:30 and 5 p.m. were used as the threshold.

23. Similarly, news about the second round of negotiations was released at 7:48 p.m. on September 3, 2002, and the event was therefore recorded as happening on September 4.

We do not attempt to classify the events in Table I as positive or negative from the point of view of preserving banking secrecy. This is because both interpretations are possible for most events. Consider for example event 21 on September 9, 2002, when EU Commissioner Bolkestein threatened Switzerland with sanctions if it did not agree on a compromise on savings interest. At first glance, this event appears to be unambiguously negative. However, an alternative interpretation is as an act of desperation by a commissioner otherwise unable to prevail in negotiation. This is because such sanctions were likely to be opposed by Austria and Luxembourg, two countries that effectively held veto power over the decision to impose EU-wide sanctions. Conversely, consider event 18 on June 17, 2002, when a bill requiring that banking secrecy be written in the Swiss Constitution was introduced in parliament. Although this event appears to be positive, it may also reflect the fear on the part of the member who introduced the bill that the Swiss government could not be relied upon to safeguard banking secrecy.

II   Data and Summary Statistics

Stock price data was obtained from Datastream. Of the 18 Swiss bank stocks traded on the Swiss stock exchange during the entire period from November 1, 1998 to June 30, 2004, only 4 are liquid: UBS, Credit Suisse Group (CSG), Julius Baer (Baer) and Vontobel.[8] UBS and CSG are universal banks active in commercial lending, brokerage, investment banking and wealth management, whereas Baer and Vontobel are private banks with a strong focus on wealth management. Numerous other banks of various sizes exist in Switzerland. However, they either have retained the partnership form (such as the private banks Pictet and Lombard Odier Darier Hentsch) or their stock is not listed on the stock market (such as Union Bancaire Privée).

Summary statistics for the four bank stocks considered are presented in Table II. Average annual returns range from about -9% for Vontobel, reflecting the failure of its e-banking project, to almost 6% for UBS (we use continuously compounded returns throughout the study). The annual return volatility of all four stocks exceeds 30%. As

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[8]The fourteen other stocks are those of Bank Coop, Bank Linth, Bank Sarasin, Bank Valiant, the New Aargau Bank, the Mortgage Bank of Lenzburg and the banks of the Cantons of Basel, Geneva, Graubünden, Jura, Lucerne, Valais, Vaud and Zug. Daily turnover in these shares is a small fraction of the turnover in the four selected stocks.

of June 30, 2004 (the end of our sample period), the market capitalization of UBS was about double that of CSG. Baer and Vontobel both had market capitalizations that were smaller than those of the universal banks by an order of magnitude.

In order to investigate the impact of the negotiations on the valuation of bank stocks, we compute the daily abnormal returns for each of the four bank stocks, as well as for the unweighted average return across the four stocks. This average reflects the abnormal return earned by an investor holding an equally weighted, daily rebalanced portfolio of the four bank stocks. Considering an equally weighted portfolio avoids having the two universal banks, UBS and CSG, dominate the portfolio.

We compute abnormal returns as OLS-adjusted returns, i.e., as the residuals from a market model regression of the form[9]

$$R_{i,t} = \beta_{i,0} + \beta_{i,1} R_{M,t-1} + \beta_{i,2} R_{M,t} + \beta_{i,3} R_{M,t+1} + \epsilon_{i,t} \tag{1}$$

where $R_{i,t}$ denotes the return on bank i, $R_{M,t}$ the return on the market index, and t the day considered. Dimson (1979) found that including lead and lag terms for the market index in the regression equation effectively controls for the presence of nonsynchronous trading, and these terms are therefore included in equation (1).

When estimating equation (1), we use the FTSE Eurotop 100 index in Swiss Francs – an index of the 100 most highly capitalized blue chip companies in Europe – as the market index for two reasons. First, the bank stocks considered in our study constitute a sizeable fraction of the Swiss Market Index (SMI). Second, given the importance of the financial sector in Switzerland, the outcome of the banking secrecy negotiations could impact the Swiss economy at large and therefore affect the returns of non-bank stocks included in the SMI. Using an European-wide index addresses these concerns.[10] Table III reports the regression coefficient estimates and their t-statistics. The coefficients on the contemporaneous market return range from 0.58 for Vontobel to about 1.28 for CSG and are highly significant for all four banks, with t-statistics between 15.24 for Vontobel and 43.47 for UBS. The coefficients on the lagged market return are significant for UBS and for the two small banks (and sizeable for the latter, with values exceeding 0.2), while the coefficients on the leading market return are not.

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[9]Brown and Warner (1985) show that mean-adjusted returns, market-adjusted returns (computed as the return on the stock minus the return on the stock market index) and OLS-adjusted returns yield similar results. Since the events considered affect the four banks concurrently in our case, the movements in the market must be adjusted for explicitly, thus the use of OLS-adjusted returns.

[10]In order to assess the robustness of our results, we also performed our empirical analysis using the FTSE European Bank Index in Swiss Francs. The results (not reported) are very similar.

Table IV reports the average, median, and standard deviation of daily abnormal returns in percent for all days, event days, and non-event days. Days are classified as event or non-event days using either 1-day windows or 3-day windows around the banking secrecy announcements. In the classification based on 1-day windows, all days on which an announcement occurs are considered event days; all others are non-event days. This yields 34 event days and 1388 non-event days (i.e., 34 event day abnormal returns and 1385 non-event day abnormal returns).[11] In the classification based on 3-day windows, all days falling inside a 3-day window around an announcement are considered event days; all others are non-event days. Because some events occur less than three trading days apart (event pairs 15 and 16, 18 and 19, 22 and 23, and 32 and 33), a total of 7 trading days fall into two overlapping 3-day windows. Accordingly, the total number of event days using the 3-day window classification is 95, 7 fewer than the 102 event days one would have if all event pairs were at least 3 trading days apart.

The results in Table IV reveal that the standard deviation of abnormal returns is higher for event days than for non-event days. This is the case for all four banks as well as for their average returns, both for the 1-day window classification and for the 3-day window classification. For the 1-day windows, the variance ratio F-statistics show that the difference in volatility between event and non-event days is significant at the 5% level for three banks (CSG, Baer and Vontobel) and for the average return (statistically significant test statistics are boldfaced throughout the table). For the 3-day windows, the difference in volatility is significant for two banks (CSG and Vontobel) as well as for the average return. Thus, the data indicates that bank stocks tended to be more volatile on and around banking secrecy announcement days than at other times, suggesting that these announcements did have an impact on the valuation of bank stocks.

Interestingly, the mean equality tests reported in Table IV reveal that average daily returns on event days are not statistically different from those on non-event days; neither are median daily returns. It is worth noting that this does not imply that the value of banking secrecy is negligible. Indeed, differences in average returns between event and non-event days do not measure the value of banking secrecy itself. Rather, they reflect the *cumulative* impact that the negotiations had on the valuation of bank stocks. In fact, the value of banking secrecy could be very large even if average returns did not differ at all between event and non-event days. This would be the case, for instance, if the probability that banking secrecy would survive fluctuated during the negotiations, but

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[11]One day is lost in transforming prices into returns, and two returns are lost in leading and lagging the return on the market in equation (1).

was comparable at the beginning and at the end of the negotiations. In this case, the return volatility on event days would be larger than that on non-event days, but there would be no significant difference between average returns on event and non-event days. In order to assess the value of banking secrecy, a more detailed analysis than a simple comparison of average returns is required.

III Impact of Individual Negotiation Announcements on the Valuation of Bank Stocks

In this section, we go beyond averages and separately investigate the impact of the individual negotiation announcements on banks' stock prices. Section A presents our methodology. Section B measures the abnormal returns associated with the individual banking secrecy announcements. Section C interprets our results.

A Methodology

In order to investigate the impact of the individual announcements on banks' stock prices, we estimate the regression

$$R_{i,t} = \beta_{i,0} + \beta_{i,1}R_{M,t-1} + \beta_{i,2}R_{M,t} + \beta_{i,3}R_{M,t+1} + \sum_{k=1}^{K} \delta_{i,k}D_{k,t} + \epsilon_{i,t} \tag{2}$$

where $D_{k,t}$ denotes a dummy variable that takes the value 1 on the k-th event day and 0 otherwise, and $\delta_{i,k}$ its estimated coefficient. Since we use one dummy per day, $K = 34$ for 1-day windows and $K = 95$ for 3-day windows. Accordingly, the 1-day abnormal return for a given event is the coefficient of the corresponding dummy variable, and the 3-day abnormal return is the sum of the coefficients of the three corresponding dummy variables.[12] In order to account for the contemporaneous correlation of the residuals, equation (2) is estimated using Seemingly Unrelated Regression.

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[12]The 3-day windows of event pairs that occur less than 3 trading days apart (event pairs 15 and 16, 18 and 19, 22 and 23, and 32 and 33) overlap. In order to avoid double-counting, the "3-day" abnormal returns for these events are computed as follows:

- When two events occur on trading days immediately following each other, the abnormal return for the first window is computed as the sum of the coefficients of the dummy variables corresponding to the day before the first event and the day of the event. The abnormal return for the second window is computed as the sum of the coefficients of the dummy variables corresponding to the day of the second event and the following day. Hence, both "3-day" windows contain 2 days in this

Abnormal returns obtained in this fashion could be distorted by the presence of confounding events occurring on or around banking secrecy announcements. In order to address this problem, potential confounding events for the four banks were identified from two sources. First, we searched the database of *Le Temps*, a Swiss newspaper with strong financial coverage, for all articles in which the name of any of the four banks considered in the study was included in the title. Second, we analyzed the press releases made by the four banks, available on their web sites. We retained all announcements that involved (1) M&A transactions (both acquisitions and divestitures), (2) changes in top management, (3) major restructurings (such as layoffs), (4) legal disputes or actions taken by regulators, or (5) earnings announcements. Over our sample period, there were 50 such announcements for UBS, 60 for CSG, 15 for Baer and 14 for Vontobel. We then identified the events that could potentially affect our results as those events whose 3-day window overlap with the 3-day window around a banking secrecy announcement (i.e. taking place two or fewer trading days before or after a banking secrecy announcement). There are 2 such announcements for UBS, 9 for CSG, 3 for Baer and 3 for Vontobel. Table V reports the date and description of these confounding events, as well as the banking secrecy announcements whose 3-day windows overlap with the 3-day window around the confounding event.

A potential approach to account for confounding events is to estimate their impact on stock returns and adjust the estimated abnormal returns attributed to the banking secrecy announcements accordingly. Due to the relatively small number of events in our sample and their large degree of heterogeneity, however, this approach would yield very noisy estimates. Instead, we use the simpler, but more robust approach of leaving out the days directly affected by confounding events and giving a lower weight to days lying between a confounding event and a banking secrecy announcement. Specifically, when computing abnormal returns for each banking secrecy announcement, confounding events

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case.

- When two events are separated by one non-event trading day, the abnormal return for the first window is computed as the sum of the coefficients of the dummy variables corresponding to the day before the first event and the day of the event, and half the coefficient of the dummy variable corresponding to the day following the event. The abnormal return for the second window is computed as the sum of half the coefficient of the dummy variable corresponding to the day preceding the second event, the coefficient of the dummy for the event day, and that for the day after the event. Hence, both "3-day" windows contain 2 1/2 days in this case.

The significance tests account for the lower number of trading days in the case of these overlapping 3-day windows.

are taken into account as follows:

- Whenever a confounding event for a given bank occurs on the same day as a banking secrecy announcement, no abnormal return for the banking secrecy announcement affected is computed, neither for the 1-day window nor for the 3-day window. Such announcements are marked with an asterisk in the column "Events Affected" in Table V.

- Whenever a confounding event and a banking secrecy announcement occur on trading days immediately following each other, the 1-day abnormal return is obtained normally using the corresponding dummy variable coefficient. The abnormal return for the "3-day" window is computed by leaving out the day of the confounding event. Hence, as in the case of two banking secrecy announcements immediately following each other, the "3-day" event window contains 2 days. Such events are marked with a hash sign in Table V.

- Whenever a confounding event and a banking secrecy announcement are separated by one non-event day, the 1-day abnormal return is obtained normally. The abnormal return for the "3-day" window is computed by giving a weight of one half to the day lying between the two events. Again, as in the case of two banking secrecy announcements separated by one non-event trading day, the "3-day" event window contains 2 1/2 days. Such events are also marked with a hash sign in Table V.

B   Abnormal Returns on Announcement Dates

Table VI reports the 1-day and 3-day abnormal return on each of the four bank stocks, as well as the average abnormal return across banks for each of the 34 banking secrecy announcements. Cells corresponding to events for which no abnormal return is computed for a particular bank due to a confounding event are marked with an asterisk, and "3-day" abnormal return estimates that are based on two or two and one-half dummy variable coefficients only because of a confounding event are marked with a hash sign. At the 5% level statistically significant abnormal returns are boldfaced. For individual banks, the significance of 1-day abnormal returns is assessed using the t-statistic of the corresponding dummy variable coefficient. For 3-day abnormal returns, it is based on the t-statistic for the test that the sum of the coefficients of the dummy variables included in the event window is zero.

The average abnormal return on each day is computed as the average of the dummy variable coefficients for the banks not affected by a confounding event on that day. Its significance is assessed by performing a t-test that the average of the coefficients of the dummy variables included in the average is zero. This ensures that missing values do not distort our significance tests. For example, for event 4, no abnormal return is available for Vontobel because of a confounding event. Hence, the average 1-day abnormal return for event 4 is computed based on the dummy variable coefficients for UBS, CSG and Baer, and its significance assessed by testing whether the average of the three corresponding dummy coefficients is zero. Similarly, for the 3-day window, the average abnormal return is based on nine dummy variables – three per day – and its significance is assessed by testing whether the sum of the three daily average returns is zero.

The results in Table VI reveal that abnormal returns are statistically significant for a few events only. Overall, considering 1-day windows, there are three statistically significant abnormal returns for UBS, four for CSG, and five each for Baer, Vontobel, and the average abnormal return. For 3-day windows, there are two significant abnormal returns for UBS, three each for CSG and Baer, seven for Vontobel, and five for the average abnormal return. Moreover, abnormal returns on and around a given event date are only seldom statistically significant for more than a single bank and for both the 1- and 3-day windows.

The ninth event, the agreement between Switzerland and the EU to initiate discussions with the aim of starting negotiations, is associated with a significant 1-day abnormal return of 4.55% for Baer, but *minus* 4.28% for Vontobel. Abnormal returns are not significant for the other banks, nor are they significant over the 3-day window. For event 10, a meeting between Switzerland and the EU to discuss the taxation of savings interest, UBS exhibits a significant 1-day abnormal return of 2.74%, while Vontobel displays significant 1-day and 3-day abnormal returns of 5.68% and 8.34%, respectively. Event 18 – the introduction of a bill in parliament requiring that banking secrecy be written in the Swiss Constitution – is associated with a single significant abnormal return, a 3-day return of −6.13% for Vontobel. For event 19 – the first round of negotiations between Switzerland and the EU – CSG and Baer have significant 1-day abnormal returns of −3.48% and −4.20%, respectively. For event 20 – the second round of negotiations – Vontobel has a significant 3-day abnormal return of −15.76%.[13]

Event 22 – EU Commissioner Bolkestein writing in the *Financial Times* "I cannot

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[13]A recommendation downgrade constitutes the most likely cause of this strong negative return. The downgrade was issued on September 4, 2002, by the Zurich Cantonal Bank.

stand Switzerland cheating on tax" – is associated with large and significant abnormal returns for both UBS and CSG. These returns are −5.63% over the 1-day window and −11.20% over the 3-day window for UBS, and −3.51% and −10.37% for CSG.[14] However, event 22 has almost no impact on the small private banks. A possible explanation for this result is that, in contrast to the small banks, UBS and CSG would have been strongly affected by sanctions from the EU because of their strong presence in most European financial centers. We return to event 22 in Section C. Event 23 – EU countries being unable to agree on sanctions against Switzerland – is associated with positive abnormal returns for Baer (5.37% over the 1-day window and 6.05% over the 3-day window). There are also significant abnormal returns for individual banks around events 24, 25, 26, 27 and 28, but here again, no clear pattern is apparent. Event 31 – the Council of Ministers agreeing in principle with the proposed introduction by Switzerland of a withholding tax – is associated with a significant 1-day abnormal return of −2.77% for UBS, while event 32 – Switzerland and the European Commission finding an agreement on all outstanding issues – is associated with a significant positive 3-day abnormal return of 3.85% for UBS.

Events 33 and 34 recall event 22 in being significant for more than a single bank, for both the 1- and 3-day windows. All three events constitute important exceptions to the general pattern that abnormal returns on or around a given event date are not significant for several banks and for both windows. Event 33 – the Council of Ministers' being unable to decide whether to approve the proposed agreement with Switzerland or not – is associated with negative abnormal returns for all four banks. Abnormal returns lie between −1.64% for UBS and −9.38% for Vontobel on the day of the announcement, and are significant for three of the four banks. For 3-day windows, abnormal returns range from −1.28% to −13.52%, and are significant for two banks, Baer and Vontobel. The most likely cause of these strong negative returns is that a rejection of the proposed agreement by EU Finance Ministers would probably have triggered additional negotiation rounds and prompted EU negotiators to take a much tougher stance. Accordingly, abnormal returns for all banks are positive when the proposed agreement is finally approved on June 4 (event 34), with values between 0.47% for CSG and 7.56% for Vontobel for 1-day windows and between 0.15% for UBS and 14.49% for Vontobel for 3-day windows. These abnormal returns are significant for Baer and Vontobel, both on the day of the announcement and for the corresponding 3-day window.

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[14]The returns for CSG may be affected by CSG's announcement on October 8, 2002 of its decision to lay off 1700 employees. In accordance with the discussion in Section A, this confounding event is accounted for by using 2 days for the "3-day" window.

The last two rows in Table VI show the total abnormal returns over all events, as well as their t-statistics. Total abnormal returns over all 1-day windows range from -15.34% for CSG to 0.43% for Baer, and are not significant for any of the banks, nor for the average return. For 3-day windows, abnormal returns range from -5.92% for CSG to 19.08% for Baer, and are again not significant for any bank. Thus, the picture that emerges from Table VI is that the negotiations between the European Union and Switzerland on banking secrecy were not associated with a statistically significant decline in the market value of Swiss bank shares.

Figure 1 shows the cumulative abnormal returns (CARs) of the four bank stocks for each of the 34 announcement days. The upper panel shows these abnormal returns for 1-day windows, the lower panel for 3-day windows. In each picture, the solid line depicts the cumulative abnormal return considering all announcements, the dashed line the one considering announcements with statistically significant abnormal returns only. Hence, for the solid line, horizontal segments correspond to events for which no abnormal return is computed because of a confounding event, while for the dashed line, they correspond to events with either no or insignificant abnormal returns. The pictures reveal sizeable CARs in some cases (for example, -15.34% for CSG using 1-day windows). However, as will be recalled from Table VI and because a fair amount of variation can be expected even under the null when 34 events are considered, all CARs are statistically insignificant.

Figure 1 also reveals a similarity in the pattern of CARs for UBS and CSG on the one hand and for Baer and Vontobel on the other. This similarity is apparent for both bank pairs for the 1-day windows, and for the pair UBS and CSG for the 3-day windows.

Table VII reports the abnormal return correlation across banks on event and on non-event days, as well as the difference between the two.[15] The correlations are positive for all bank pairs, both for 1-day windows and for 3-day windows. The top panel reveals that correlations on event days are quite large and statistically significant for three bank pairs. In addition to the pairs UBS/CSG (with values of 0.5657 for 1-day windows and 0.4991 for 3-day windows) and Baer/Vontobel (with values of 0.3852 and 0.2897), for which a sizable correlation was already apparent in Figure 1, there is a strong abnormal return correlation for the pair CSG/Baer (with values of 0.4626 and 0.3993).

Abnormal return correlations on non-event days, reported in the middle panel of Table VII, are significant for all bank pairs thanks to the larger number of observations. As was

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[15] For each bank pair, the correlation on event days is computed on the basis of days where neither of the two banks considered is affected by a confounding event.

the case for event days, the correlations are largest for the pairs UBS/CSG, CSG/Baer and Baer/Vontobel. The lower panel of Table VII reports the difference between the abnormal return correlation on event days and that on non-event days. For 1-day windows, all correlations are sizably larger on event days than on non-event days with one exception – the pair UBS/Baer – with most increases amounting to about 20 percentage points. For 3-day windows, the abnormal return correlation is sizably larger on event days with two exceptions – the pairs UBS/Baer and CSG/Vontobel – with most increases amounting to about 10 percentage points. However, the Jennrich (1970) test does not reject the null hypothesis of no change in correlation between event and non-event days. Thus, although the point estimates are generally higher, the banking secrecy negotiations were not associated with a statistically significant increase in the abnormal return correlation across banks.

Figure 2 shows the cumulative average abnormal returns of the four bank stocks. The overall impact of the negotiations on returns is small both for 1-day windows and 3-day windows, even if only events with significant abnormal returns are considered.

C   Interpretation

We now turn to the interpretation of our results. Perhaps the first conclusion to be drawn from these results is this: banking secrecy has a value, at least to the private banks, namely Baer and Vontobel. This is a clear implication of the decline in value that accompanies event 33, the inability of the Council of Ministers to reach an agreement on whether to approve the treaty with Switzerland, and the rebound in value around event 34, the approval and signing of the agreement. Thus, confronted with the possibility that the EU may not be satisfied with the withholding tax proposed by Switzerland, at least not in the form specified in the agreement, and that it may insist on the complete removal of banking secrecy for EU residents, Baer and Vontobel suffered a marked decline in their share prices. Relieved that such would not be the case after all, they saw their share prices recover almost all the loss in value.

If banking secrecy is important, a number of questions arise. Why did UBS not suffer from event 33, and why did it not benefit from event 34, at least not to a statistically and economically significant extent? Why were the results for CSG intermediate between those for the private banks and those for UBS? Why did the 32 events that precede events 33 and 34 have no clear effect on the four banks, with the exception of event 22

on UBS and CSG?[16] And why did event 22, EU Commissioner Bolkestein's writing in the Financial Times that he "cannot stand Switzerland cheating on tax" affect UBS and CSG but not Baer and Vontobel?

The absence of reaction on the part of UBS to events 33 and 34 is consistent with recent statements by UBS that it no longer considers banking secrecy important to the profitability of its private banking operations. UBS claims to have developed its foreign private banking operations to such an extent that it no longer needs to rely on its Swiss operations, those that can prevail themselves of banking secrecy, to attract and to keep foreign clients.[17] Our results are consistent with this claim. CSG may be an intermediate case, not nearly as dependent on domestic operations and banking secrecy as the private banks, yet not as independent of banking secrecy as UBS appears to be.[18]

Not only have UBS and CSG developed their foreign private banking operations, they have also developed their foreign investment banking operations. A sizeable fraction of the European operations are in London. We believe this explains the negative reaction of UBS and CSG to event 22, Commissioner Bolkestein's letter in the Financial Times. EU sanctions on Switzerland, threatened by Commissioner Bolkestein in event 21, probably were viewed as not feasible. This was confirmed by event 23, EU countries unable to agree on sanctions, and acknowledged by Commissioner Bolkestein himself in an interview with Swiss newspapers (event 24).[19] A possible explanation for the failure to agree on sanctions may have been Luxembourg and Austria's opposition to such sanctions.[20] In contrast to EU sanctions on Switzerland, UK sanctions on the London-based investment banking operations of UBS and CSG may have been viewed as being in the realm of the feasible: UK Chancellor Gordon Brown was perceived as being one of the most determined

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[16] By a "clear" effect, we mean one that is significant for more than a single bank and for both windows.

[17] In the summer of 2002, UBS reported that following Italy's tax amnesty at the beginning of that year, almost half of the assets repatriated by Italian clients had been directed to UBS's domestic Italian business.

[18] In 2004, 36.4% of UBS's operating income was generated outside Switzerland. The corresponding figures for CSG, Baer, and Vontobel are 37.7%, 23.6%, and 12.4%, respectively. Note that these figures include income from investment banking as well as retail banking operations, because disaggregated figures for private banking alone are not publicly available.

[19] It is also confirmed by the weak to non-existent reactions of UBS and CSG to event 33, the inability of the Council of Ministers to reach an agreement on whether to approve the treaty with Switzerland. Surely, had EU sanctions on Switzerland been considered a real possibility, investors would have feared that the EU would resort to such sanctions for the purpose of obtaining a more satisfactory treaty.

[20] On October 7, 2002, Luxembourg Prime Minister Jean-Claude Junker called for the EU to cease treating Switzerland as "the Iraq of the Alps."

opponents of Swiss banking secrecy. Such sanctions, which may have been suggested by the publication of Commissioner Bolkestein's letter in the Financial Times, would have affected UBS and CSG but would have been unlikely to affect Baer and Vontobel, who have little to no presence in London.[21]

Finally, we turn to events 1 to 32, exclusive of event 22 which we have just discussed. Why did none of these events affect the four banks considered, and the two private banks in particular, consistently across banks and windows and in a statistically significant sense? In our view, what our results suggest is that, until event 33 at least, investors were remarkably sanguine about the implications of the negotiations and their perceived outcome for the profitability of the Swiss-based private banking operations of the Swiss banks. Perhaps they felt they could rely on the convergence of interests between Switzerland on the one hand and EU members Austria and Luxembourg on the other to ensure that banking secrecy, present in these two countries as well as in Switzerland, would be preserved. Perhaps they were confident that Swiss negotiators would not budge from their offer of introducing a withholding tax. Regardless, it is interesting to note that our results indicate that even a withholding tax was not viewed as compromising the profitability of private banking operations. There are a number of possible explanations for this result. Some revolve around what has been claimed to be the relative ease of circumventing the withholding tax, for example by setting up a trust or by reallocating the Swiss portion of a portfolio from bonds to stocks, with offsetting changes in the non-Swiss portion. Other explanations would confirm the repeated claim made by defenders of banking secrecy to the effect that its primary purpose is to protect depositors' "private sphere". According to these explanations, funds are deposited in Switzerland not so much to avoid taxes as in order to maintain depositors' privacy.

IV Valuing Banking Secrecy

The analysis in Section III reveals that the overall (end-to-end) impact of the banking secrecy negotiations on the market value of Swiss bank shares is not significant. As men-

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[21]Interestingly, event 22 seems to have left other European banks unaffected. Indeed, when we repeat the analysis of Section B for the FTSE index of European banks in place of the four Swiss banks, the abnormal return is insignificant, both for the 1-day window and for the 3-day window. For the 3-day window, the small, statistically insignificant, negative abnormal return of 1.5% roughly corresponds to the product of the weight of UBS and CSG in the European bank index and the abnormal returns of these two banks around event 22.

tioned in Section II, however, this impact does not measure the value of banking secrecy: the value of banking secrecy could be very large even if the average abnormal return across all event days were zero. This would be the case, for instance, if the probability that banking secrecy would survive fluctuated during the negotiations, but was comparable at the beginning and at the end of the negotiations.

To see this, let V denote the value of a given bank in the absence of banking secrecy and V^s be the value of banking secrecy to the bank. For simplicity, assume that V and V^s are constant through time. Let p_t denote the probability that banking secrecy will not be abolished, as perceived by investors at time t. The probability p_t can be expected to change in line with the course of the negotiations. The value of the bank on the market at time t, V_t^b, is therefore given by

$$V_t^b = V + p_t V^s \tag{3}$$

Obviously, if p_t were the same at the beginning and at the end of the negotiations, V_t^b would be the same as well, and hence average abnormal returns would be zero – even though V^s might be very large.[22]

Events 33 and 34 provide a nice illustration of this effect for the private banks. For Baer, 3-day abnormal returns are -8.7% for event 33 and $+7.4\%$ for event 34. For Vontobel, the values are -13.5% and $+14.5\%$, respectively. Although the sum of both abnormal returns is clearly insignificant, these results imply that banking secrecy must be worth at least about $1 - \exp(-0.087) = 8.3\%$ of Baer's profits and about $1 - \exp(-0.135) = 12.6\%$ of Vontobel's. Note that these estimates are lower bounds for two reasons. First, the change in p_t in any event window will always be less than 1 – a shift of 1 would require investors to be certain that banking secrecy would be maintained before the event, and certain that it will be abolished afterwards, or the reverse. Such large shifts are not consistent with the nature of the events reported in Table I. Second, these estimates are based on a

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[22] As noted above, besides banking secrecy as such, the negotiations involved many other value-relevant issues, such as the introduction of a withholding tax and the possibility of sanctions. Modeling these other issues separately, by including in equation (3) additional terms for the introduction of the withholding tax and possible sanctions, is made difficult by the interaction among the different issues. For example, the probability of introducing a withholding tax (as an alternative to the abolition of secrecy) can be expected to affect not only the probability that secrecy will be maintained, p_t, but also the value of secrecy conditional on it being maintained, V^s. Similarly, the possibility of sanctions affects both the probability that secrecy will be maintained, p_t, and the value of Swiss banks in the absence of secrecy, V. Equation (3) is a simplification, which takes both the value in the absence of secrecy and the value of secrecy as given and reduces all changes in a bank's market value to changes in the probability that secrecy is maintained.

single event; consecutive events in which p_t shifts in the same direction could yield larger estimates of the value of banking secrecy.

In this section, we investigate whether considering *several* consecutive events allows obtaining a larger lower bound for the value of banking secrecy. The intuition is straightforward. The event day with the highest cumulative abnormal return (CAR) in the sample is the day where investors were most optimistic about the outcome of the negotiations. Similarly, the event day with the lowest CAR is the day where investors were most pessimistic. Hence, we can estimate a lower bound for the value of banking secrecy as the difference between the highest and the lowest CAR in the sample.

In order to assess the significance of this estimate, we compute the 5% critical values by bootstrapping. We run the following procedure 100,000 times. From the set of abnormal returns on non-event days, we randomly draw as many abnormal returns as there are event days (after removing confounding events). For each such draw, we then compute the difference between the highest and the lowest CAR. The 5% critical value is the 95th percentile of the differences obtained in this fashion.

Table VIII reports the point estimates of the value of banking secrecy as well as the 5% critical values. For 1-day windows, the point estimates range from 10.92% for UBS to 22.40% for CSG. For 3-day windows, they range from 13.70% for UBS to 32.02% for Vontobel. However, none of the values in Table VIII are significant.

The insignificance of these results could be caused by the fact that our significance test does not account for the number of days between the maximum and the minimum CAR. Consider for example Vontobel. As can be inferred from Figure 1, the value of 15.35% reported in Table VIII is the difference between the CAR for event 27 and that for event 33. An abnormal return of 15.35% taking place over 34 days may not be significant, but a movement of this magnitude taking place over 6 days could be.

In order to account for the number of days between the highest and the lowest CAR in our significance test, we refine our analysis as follows. For each bank, we compute the difference between the highest and the lowest CAR under the constraint that there are no more than N days between the two (i.e., on the basis of N abnormal returns). This can be implemented easily by computing the difference between the highest and the lowest CAR in all possible windows of size $N + 1$ in the sample, and taking the largest of these differences as our value estimate. Since the CAR for the first event day is equal to the first abnormal return, it is necessary to include a fictitious day 0 with a CAR of 0 in the set of event days used to construct these windows. If one did not do so, the procedure

would in effect be ignoring the first abnormal return.

For example, assuming 34 event days, in order to obtain the difference between the maximum and the minimum CAR under the constraint that there are no more than 5 days between the two, the procedure involves computing the difference between the highest and the lowest CAR in the window ranging from day 0 to day 5, then the one for the window ranging from day 1 to day 6, and so on, until the one for the window ranging from day 29 to day 34. This would yield 30 CAR differences. The estimate of the value of banking secrecy based on at most five abnormal returns would be the largest of these 30 values.

Two special cases are helpful to illustrate the nature of the results obtained using this procedure. For $N = 1$ (i.e., using windows of 2 days), the procedure yields the absolute value of the largest 1-day abnormal return in the sample. For a value of N equal to the number of event days, it yields the estimate of the value of banking secrecy reported in Table VIII.

Critical values for these estimates are obtained by bootstrapping using the same procedure. For each of the 100,000 runs, we draw as many historical returns as there are event days, again removing confounding events. For each value of N between 1 and the number of event days, we then compute the largest difference between the maximum and the minimum CAR across all possible windows of size $N + 1$. The 5% critical value for a given value of N is then simply the 95th percentile of these largest differences for windows of size $N + 1$.

Estimates of the value of banking secrecy and the critical values for each value of N (shown on the horizontal axis) are reported in Figure 3. The solid line shows the estimates of the value of banking secrecy under the constraint that the number of event days between the maximum and the minimum CAR does not exceed N, the dashed line the corresponding 5% critical values. Observe that both curves exhibit different patterns. The estimates of the value of banking secrecy (solid lines) are uneven and reach a maximum at a value of N corresponding to the number of days between the highest and the lowest CAR reported in Figure 1. In contrast, the critical value curves are smoothly increasing and concave throughout the figure; the positive slope reflects the fact that the difference between the highest and the lowest CAR will tend to be larger, the higher the maximum number of event days allowed between the two, while the concavity reflects the decreasing returns to considering additional event days. For example, for UBS over 1-day windows, the difference between the highest and the lowest CAR reaches its maximum at $N = 16$ days, reflecting the fact that the highest CAR in Figure 1 occurs on event 16 and the

lowest on event 33, with one confounding event in-between, event 25.

Overall, the results in Figure 3 reveal that the value of banking secrecy that can be inferred by looking at several consecutive events is not significant, except at the very short end, which corresponds to event 22 for UBS and CSG, event 33 for Baer, and events 33 (for the 1-day window) or 34 (for the 3-day window) for Vontobel. These will be recalled to be the events of interest from Section C. Thus, considering consecutive event days does not allow obtaining statistically significant estimates of the value of banking secrecy exceeding the ones discussed at the beginning of this section. It is important to remember, however, that these values remain lower bounds.

V Conclusion

We have analyzed the effects of the negotiations between Switzerland and the EU regarding banking secrecy on the share prices of four Swiss banks. Our analysis has four main findings, one expected and three unexpected. We discuss these in turn.

Our first finding is that banking secrecy has a value to Swiss private banks. This value is not negligible: *At a minimum*, banking secrecy accounts for 8.3% of the value of the equity of Julius Baer, and 12.6% of that of Vontobel. In absolute terms, this amounts to 294 million Swiss Francs ($226m) for Julius Baer and 188 million Swiss Francs ($145m) for Vontobel, at the end of our sample period on June 30, 2004.

While the finding that banking secrecy has a value to private banks was expected, our other findings were not. In particular, we did not expect banking secrecy to have little to no value to the Swiss universal banks, UBS and CSG. Wealth management provides a very sizeable fraction of the profits of these banks. This second finding, although unexpected, is consistent with recent statements by UBS to the effect that it no longer considers banking secrecy important for its wealth management business, having successfully developed its on-shore (i.e., outside Switzerland) private banking operations.

Our third finding is that there appears to have been little fear of EU sanctions on Switzerland. Such an attitude may have been justified. It is nonetheless surprising and perhaps not a little rash. In contrast, there apparently was a real fear that UK sanctions on the London-based investment banking operations of UBS and CSG would be imposed.

Our final and perhaps most surprising finding is that the negotiations had no overall impact on the share prices of the four banks. This means that the withholding tax that

was finally agreed upon is not expected materially to affect the profits of the four banks. We are not entirely certain why that should be the case. There are various possible explanations, ranging from the cynical (it may be easy to circumvent the tax by setting up a trust or by rebalancing one's portfolio) to the somewhat more edifying (defenders of Swiss banking secrecy claim that its purpose is first and foremost the protection of depositors' "private sphere"). Presumably, the amounts withheld under the tax, which became effective on July 1, 2005, will help determine which explanation is likely to be valid.

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Event	Date	Description
1	12/01/1998	EU Finance Ministers ask the European Commission and the Troika to start exploratory discussions with Switzerland on the taxation of savings interest.
2	03/02/1999	Exploratory meeting between the European Commission, the Troika and the Swiss Finance Minister to discuss the taxation of savings interest.
3	06/09/2000	EU Commissioner Bolkestein and Swiss Finance Minister Villiger meet in Bern to discuss the taxation of savings interest.
4	06/20/2000	EU Finance Ministers agree to work towards common rules to tax savings income. In the meantime, they agree to exchange information on savings income with other EU countries. They decide to enter into discussions with the U.S. and key third countries (such as Switzerland) to promote the adoption of equivalent measures in those countries.
5	06/28/2000	The Swiss government announces that information exchange is not a feasible solution.
6	09/13/2000	The Swiss government again declares to Parliament that it will not exchange information.
7	11/27/2000	EU Finance Ministers agree on a minimum withholding tax rate of 15% for 3 years and then 20% until information exchange is implemented by a member country.
8*#	03/12/2001	The Swiss government again declares to Parliament that it is not willing to exchange information and abolish banking secrecy.
9	03/16/2001	Switzerland and the EU agree to initiate discussions with the aim of starting negotiations.
10	04/11/2001	Meeting between Switzerland and the EU to discuss the taxation of savings interest.
11*	05/23/2001	Meeting between EU Commissioner Bolkestein and Swiss Finance Minister Villiger in Bern. Switzerland agrees in principle to introduce a withholding tax on savings interest, but rules out information exchange.
12*	06/26/2001	The EU agrees to start negotiations with Switzerland on banking secrecy and 9 other issues.
13*	09/20/2001	UK Chancellor Brown challenges Switzerland to relax its banking secrecy in order to ensure there was no hiding place for terrorist money.
14*	12/13/2001	UK Chancellor Brown declares that Switzerland should join the fight against tax evasion.
15	04/25/2002	A Swiss minister declares that banking secrecy is not negotiable but is evolving.
16#	04/29/2002	An opinion poll reveals that a majority of Swiss voters (65%) would be willing to relax or abolish banking secrecy.
17	05/24/2002	Another opinion poll reveals that a majority of Swiss voters (58%) wants to keep banking secrecy as is.

Table I: **News Announcements about Banking Secrecy.** News announcements about banking secrecy over the period from December 1998 to June 2003. The list was created from the information posted on the Swiss Parliament's web site; from the news released by the Swiss Telegraphic Agency; and from the announcements made by the *Administration Fédérale des Finances*. Events marked with a hash sign are those happening on week-ends and recorded as occurring on the next trading day. Events marked with an asterisk are those for which information was released after 4:30 p.m. and recorded as taking place the following day.

Event	Date	Description
18	06/17/2002	A bill is introduced in Parliament requiring that banking secrecy be written in the Swiss Constitution.
19	06/18/2002	First round of negotiations between Switzerland and the EU. Switzerland agrees to introduce a withholding tax, but rules out information exchange. The EU requests information exchange.
20*	09/04/2002	Second round of negotiations between Switzerland and the EU. Switzerland agrees to introduce a withholding tax, but again rules out information exchange. The EU again requests information exchange.
21[#]	09/09/2002	EU Commissioner Bolkestein threatens Switzerland with sanctions if it does not agree to a compromise on savings interest.
22	10/07/2002	EU Commissioner Bolkestein writes in the Financial Times "I cannot stand Switzerland cheating on tax."
23	10/08/2002	EU countries are unable to agree on sanctions against Switzerland. Switzerland once again offers to introduce a withholding tax.
24	10/24/2002	EU Commissioner Bolkestein tells Swiss newspapers that sanctions are not really feasible.
25*	11/01/2002	The EU and Switzerland agree for the first time on the principle of a withholding tax. There is still disagreement on the applicable rate.
26*	11/06/2002	EU Commissioner Bolkestein tells EU Finance ministers that Switzerland agrees to a withholding rate of 35%, provided that the same rate is used by EU countries electing to use a withholding tax instead of information exchange. UK Chancellor Brown requests information exchange.
27*	11/19/2002	The finance committee of the Swiss Parliament recommends writing banking secrecy in the Constitution.
28	11/29/2002	The Swiss government declares in Parliament that the agreement with the EU will be applicable to residents of EU countries only and will not be extended to other countries.
29	12/12/2002	The Council of Ministers decides to postpone the decision on the taxation of savings interest to January 21, 2003.
30	12/19/2002	The Swiss Finance Minister explains that banking secrecy is not negotiable, even if the EU threatens with sanctions.
31*	01/22/2003	The Council of Ministers agrees in principle with the proposed solution, according to which Switzerland would keep its banking secrecy, but introduce a withholding tax.
32*	03/07/2003	Switzerland and the European Commission find an agreement on all outstanding issues. This agreement must be approved by the Council of Ministers.
33*[#]	03/10/2003	The Council of Ministers is unable to reach an agreement on whether to approve the treaty with Switzerland or not. The decision is postponed to the next Council.
34*	06/04/2003	The Council of Ministers approves the proposed agreement with Switzerland. The agreement is signed.

Bank	UBS	CSG	Baer	Vontobel
Average Return (% p.a.)	5.92	−2.17	−3.10	−9.41
Return Standard Deviation (% p.a.)	31.64	42.18	38.84	38.23
Market Capitalization, 06/30/2004, CHF billion[a]	98.001	49.238	3.538	1.494

[a] Source: Quarterly Financial Reports of the four banks.

Table II: **Summary Statistics.** Summary statistics for the four bank stocks over the period from November 1, 1998 to June 30, 2004.

Bank	UBS	CSG	Baer	Vontobel	Average
Constant	0.0004	0.0001	0.0000	-0.0003	0.0001
	(1.1922)	(0.2806)	(0.0378)	(-0.4566)	(0.2401)
$R_{M,t-1}$	0.0658	0.0429	0.2420	0.2029	0.1384
	(2.9245)	(1.3870)	(7.1359)	(5.3228)	(6.8524)
$R_{M,t}$	0.9783	1.2755	0.9237	0.5807	0.9396
	(43.4686)	(41.2384)	(27.2494)	(15.2393)	(46.5317)
$R_{M,t+1}$	0.0306	-0.0246	0.0033	0.0159	0.0063
	(1.3576)	(-0.7942)	(0.0978)	(0.4171)	(0.3120)
R^2	0.5722	0.5457	0.3578	0.1545	0.6088
σ_ϵ	0.0131	0.0180	0.0198	0.0222	0.0118

Table III: **Regression Results for the Four Bank Stocks and the Average Return.** Results of market model regressions of the form $R_{i,t} = \beta_{i,0} + \beta_{i,1}R_{M,t-1} + \beta_{i,2}R_{M,t} + \beta_{i,3}R_{M,t+1} + \epsilon_{i,t}$ for the four bank stocks as well as for the unweighted average return across the four stocks, reflecting the return on an equally weighted, daily rebalanced portfolio of the four stocks. Lead and lag terms of the market index return R_M are included in order to control for the presence of nonsynchronous trading. The upper part of the table shows the coefficient estimates and, in parentheses, their t-statistics. The bottom part shows the coefficient of determination R^2 and the standard error of the regression residuals, σ_ϵ.

	1-day					3-day				
	UBS	CSG	Baer	Vontobel	Average	UBS	CSG	Baer	Vontobel	Average
All days										
Mean (%)	0	0	0	0	0	0	0	0	0	0
Median (%)	0.0269	0.0306	-0.0337	-0.0240	0.0156	0.0269	0.0306	-0.0337	-0.0240	0.0156
Std. dev. (%)	0.0131	0.0180	0.0198	0.0222	0.0118	0.0131	0.0180	0.0198	0.0222	0.0118
Event days										
Mean (%)	-0.1588	-0.3193	0.1429	0.0161	-0.0798	0.0229	0.1140	0.2435	-0.1896	0.0477
Median (%)	-0.0543	0.0367	-0.3500	0.1463	-0.2985	0.0893	0.1467	0.0081	-0.2072	0.0203
Std. dev. (%)	1.5154	2.3939	2.5992	3.1640	1.7481	1.4306	2.1056	2.1281	3.5928	1.5559
Non-event days										
Mean (%)	0.0039	0.0078	-0.0035	-0.0004	0.0020	-0.0016	-0.0082	-0.0175	0.0136	-0.0034
Median (%)	0.0277	0.0306	-0.0324	-0.0241	0.0189	0.0242	0.0283	-0.0365	-0.0180	0.0141
Std. dev. (%)	1.3064	1.7856	1.9584	2.1938	1.1598	1.3030	1.7791	1.9634	2.0891	1.1452
Test for equal means										
t-statistic	-0.6203	-0.7915	0.3262	0.0302	-0.2712	0.1622	0.5515	1.1603	-0.5447	0.3141
P-Value	0.5351	0.4288	0.7443	0.9759	0.7863	0.8712	0.5814	0.2461	0.5861	0.7535
Test for equal medians										
Kruskal-Wallis χ^2-statistic	0.1421	0.1236	0.1294	0.0583	0.4874	0.2837	1.1588	0.9133	0.1075	0.3123
P-Value	0.7062	0.7251	0.7191	0.8092	0.4851	0.5943	0.2817	0.3392	0.7430	0.5763
Test for equal std. dev.										
Variance ratio F-statistic	1.3457	**1.7973**	**1.7616**	**2.0800**	**2.2716**	1.2055	**1.4007**	1.1748	**2.9575**	**1.8460**
P-value	0.0922	0.0038	0.0051	0.0003	0.0001	0.0943	0.0085	0.1281	0.0000	0.0000

Table IV: Means, Medians, and Standard Deviations of Abnormal Returns on Event and Non-Event Days. Abnormal returns are computed as OLS-adjusted returns from market model regressions of the form $R_{i,t} = \beta_{i,0} + \beta_{i,1}R_{M,t-1} + \beta_{i,2}R_{M,t} + \beta_{i,3}R_{M,t+1} + \epsilon_{i,t}$ estimated for the four bank stocks as well as for the unweighted average return across the four stocks and reported in Table III. Days are classified as event or non-event days using both 1-day and 3-day windows around the banking secrecy announcements. At the 5% level statistically significant test statistics are boldfaced.

Bank	Date	Events Affected	Description
UBS	04/24/2002	15#	UBS announces that it will hire 250 additional wealth managers in Germany.
	11/01/2002	25*	UBS sells its private clinics chain to a British group.
CSG	03/13/2001	8#	CSG announces record net income of CHF 7.2 billion for 2000.
	05/21/2001	11#	CSG managers forecast lower net income for the second quarter.
	06/20/2002	19#	CSG provides CHF 1.7 billion of additional equity to Winterthur, its insurance subsidiary.
	09/05/2002	20#, 21#	Credit Suisse First Boston (CSFB) is asked by the U.S. Congress to provide documents detailing how high-tech companies were taken public.
	10/08/2002	22#, 23*	CSFB lays off 1700 employees.
	10/25/2002	24#	CSG announces a wage freeze for 2003.
	10/28/2002	24#	Together with Citigroup and JP Morgan, CSFB is sued by Enron shareholders for allegedly helping the company hide liabilities.
	10/31/2002	25#	Ten investment banks, including CSFB, appear close to settling charges regarding biased ratings on stocks.
	01/21/2003	31#	CSG announces a record loss of CHF 3.4 billion for 2002.
Baer	06/17/2002	18*, 19#	Baer rules out any merger deal with other banks.
	10/30/2002	25#	Baer is sued by clients.
	03/12/2003	33#	Baer lays off employees and announces that assets under management are still falling.
Vontobel	06/20/2000	4*	Vontobel's private equity arm reports record profits of CHF 130 million for 1999.
	03/15/2001	9#	Top management is fired after the bank incurs an additional CHF 100 million loss in its e-banking project.
	12/13/2002	29#	Vontobel announces the departure of its CFO, the closing of its Frankfurt office, and pulling out of the U.S. brokerage business.

Table V: **Confounding Events for the Four Banks.** Confounding events are identified from the database of the newspaper *Le Temps* and banks' web sites. The events retained are announcements whose 3-day windows overlap with the 3-day window around a banking secrecy announcement and involving (1) M&A transactions (both acquisitions and divestitures), (2) changes in top management, (3) major restructurings (such as layoffs), (4) legal disputes or actions taken by regulators, or (5) earnings announcements. For each confounding event, the column "Events Affected" reports the banking secrecy announcements whose 3-day windows overlap with the 3-day window around the confounding event. Banking secrecy announcements occurring on the same day as a confounding event are marked with an asterisk, announcements occurring one or two trading days before or after a confounding event with a hash sign.

Event	1-day					3-day				
	UBS	CSG	Baer	Vontobel	Average	UBS	CSG	Baer	Vontobel	Average
1	−1.89	−0.29	1.97	−2.52	−0.68	−1.83	−0.83	3.55	3.90	1.20
2	−0.92	−1.29	−3.09	0.99	−1.08	1.14	1.78	−1.09	3.50	1.33
3	0.55	−0.14	−0.46	0.07	0.01	3.57	1.20	−1.68	0.17	0.82
4	−0.11	−1.47	0.24	*	−0.44	−1.11	−0.34	2.81	*	0.45
5	1.85	0.92	1.42	0.22	1.10	1.97	3.65	1.36	0.66	1.91
6	−0.16	2.38	0.37	1.14	0.93	−0.76	0.07	3.52	0.39	0.80
7	1.34	0.86	−0.46	−2.47	−0.18	1.90	0.97	−1.25	−6.14	−1.13
8	−1.19	0.39	−0.94	−0.97	−0.68	−0.71	0.42#	0.25	−5.66	−1.81
9	−1.37	2.15	**4.55**	**−4.28**	0.26	−3.50	1.95	5.93	0.75#	0.96
10	**2.74**	1.89	−0.58	**5.68**	**2.43**	4.16	0.90	−3.66	**8.34**	2.43
11	1.73	1.17	−0.81	−0.44	0.41	2.61	1.64#	1.05	1.32	1.81
12	−0.93	−0.91	0.14	−3.62	−1.33	−0.93	−4.08	0.36	−0.16	−1.20
13	0.49	−0.54	0.93	2.19	0.77	1.38	−2.32	3.25	−3.00	−0.17
14	0.70	0.15	−1.39	−1.29	−0.46	1.57	3.44	−0.87	−5.30	−0.29
15	−1.05	−2.10	−1.13	0.33	−0.99	−1.92#	−2.77	−2.08	−1.26	−2.09
16	1.50	2.50	2.96	1.88	2.21	−0.22	1.32	1.42	0.29	0.71
17	−0.65	−0.47	0.01	1.73	0.16	−0.05	−1.48	−0.28	1.18	−0.16
18	−0.41	−2.27	*	−2.47	−1.72	1.56	−1.23	*	**−6.13**	−1.93
19	−1.32	**−3.48**	**−4.20**	1.15	−1.96	−0.56	−3.90#	−1.90#	−0.48	−1.60
20	−0.37	−2.54	2.39	−3.77	−1.07	−0.82	−1.66#	3.45	**−15.76**	**−4.76**
21	0.17	1.74	−1.38	−1.63	−0.28	−0.50	2.17#	−1.17	6.77	1.93
22	**−5.63**	**−3.51**	−0.47	0.88	−2.18	**−11.20**	**−10.37#**	0.06	−0.43	**−5.49**
23	−0.45	*	**5.37**	3.72	**2.88**	3.01	*	**6.05**	3.82	**4.30**
24	0.86	2.57	2.96	**4.44**	**2.71**	2.56	−1.36#	−1.00	**8.53**	1.98
25	*	1.07	2.11	1.58	1.58	*	5.25#	5.36#	−0.85	1.56
26	−0.84	**−8.20**	−0.84	1.85	−2.01	−1.78	−4.59	−2.39	1.92	−1.71
27	0.38	−1.13	−0.31	−0.21	−0.32	−0.29	2.94	−1.25	**8.00**	2.35
28	0.66	2.41	−0.41	2.54	1.30	−0.35	**6.27**	5.27	2.70	3.47
29	0.25	0.82	1.21	−4.17	−0.47	1.71	1.81	−2.09	−5.25#	−0.75
30	0.88	0.90	−3.49	1.06	0.16	0.44	−1.01	−4.28	0.21	−1.16
31	**−2.77**	−3.04	−0.74	−1.14	−1.92	−3.32	−0.57#	1.61	−2.60	−1.25
32	−0.05	−1.78	−1.64	−1.72	−1.30	**3.85**	−2.20	0.05	−3.23	−0.38
33	−1.64	**−4.58**	**−7.87**	**−9.38**	**−5.87**	−1.28	−4.66	**−8.69#**	−13.52	**−7.08**
34	0.70	0.47	**4.00**	**7.56**	**3.19**	0.15	1.69	**7.41**	**14.49**	**5.93**
Total	−6.93	−15.34	0.43	−1.07	−5.15	0.49	−5.92	19.08	−2.84	0.99
t-ratio	−0.90	−1.47	0.04	−0.08	−0.74	0.04	−0.34	0.97	−0.14	0.08

Table VI: **Abnormal Returns Around the Individual News Announcements About Banking Secrecy.** For 1-day windows, abnormal returns are given by the coefficient of dummy variables that take the value 1 on the day of the event and 0 otherwise. For 3-day windows, it is computed as the sum of the coefficients of three dummy variables. Events for which no abnormal return is computed for a given bank because of a confounding event occurring on the same day as a banking secrecy announcement are marked with an asterisk, and events for which the abnormal return is based on fewer than 3 trading days because of a confounding event with a hash sign. At the 5% level statistically significant abnormal returns are boldfaced.
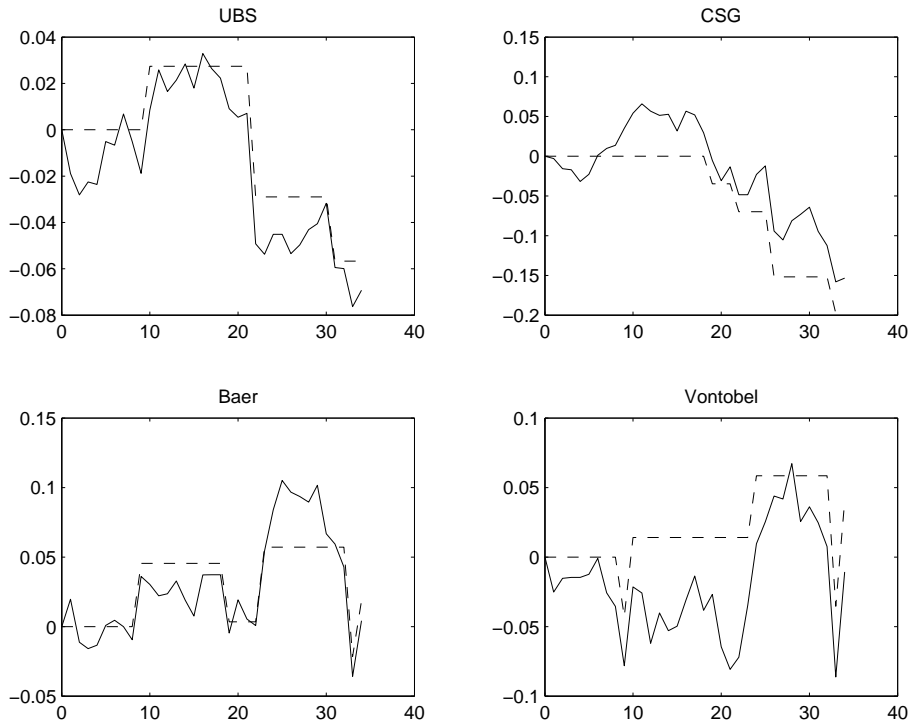
	1-day				3-day			
	UBS	CSG	Baer	Vontobel	UBS	CSG	Baer	Vontobel
Event Days								
UBS	**1**	**0.5657**	0.1580	0.3087	**1**	**0.4991**	0.1544	0.1757
CSG	**0.5657**	**1**	**0.4626**	0.2677	**0.4991**	**1**	**0.3993**	0.1811
Baer	0.1580	**0.4626**	**1**	**0.3852**	0.1544	**0.3993**	**1**	**0.2897**
Vontobel	0.3087	0.2677	**0.3852**	**1**	0.1757	0.1811	**0.2897**	**1**
Non-Event Days								
UBS	**1**	**0.3812**	**0.1716**	**0.0977**	**1**	**0.3846**	**0.1722**	**0.0897**
CSG	**0.3812**	**1**	**0.2678**	**0.1412**	**0.3846**	**1**	**0.2670**	**0.1516**
Baer	**0.1716**	**0.2678**	**1**	**0.2086**	**0.1722**	**0.2670**	**1**	**0.2166**
Vontobel	**0.0977**	**0.1412**	**0.2086**	**1**	**0.0897**	**0.1516**	**0.2166**	**1**
Difference								
UBS	0	0.1845	−0.0136	0.2110	0	0.1144	−0.0177	0.0859
CSG	0.1845	0	0.1948	0.1265	0.1144	0	0.1323	0.0296
Baer	−0.0136	0.1948	0	0.1767	−0.0177	0.1323	0	0.0731
Vontobel	0.2110	0.1265	0.1767	0	0.0859	0.0296	0.0731	0

Table VII: **Correlation Between Banks' Abnormal Returns on Event and Non-Event Days, and Difference Between the Two.** For each bank pair, the correlation on event days is computed on the basis of days where neither of the two banks considered is affected by a confounding event. At the 5% level statistically significant values are boldfaced. The significance of each correlation is assessed using the standard t-test, that of the difference in correlation between event and non-event days using the Jennrich (1970) test.

	1-day				3-day			
	UBS	CSG	Baer	Vontobel	UBS	CSG	Baer	Vontobel
CAR Difference	10.92	22.40	14.09	15.35	13.70	22.24	25.07	32.02
5% Critical Value	17.46	23.82	26.05	29.31	29.69	38.93	44.43	46.92

Table VIII: **Estimates of the Value of Banking Secrecy and 5% Critical Values**. The point estimates are based on the difference between the maximum and the minimum cumulative abnormal returns (CARs) reported in Figure 1 across all event days. The 5% critical values are computed by bootstrapping, i.e., as the 95th percentile of the difference between the highest and lowest CARs obtained from random draws from the set of abnormal returns on non-event days.
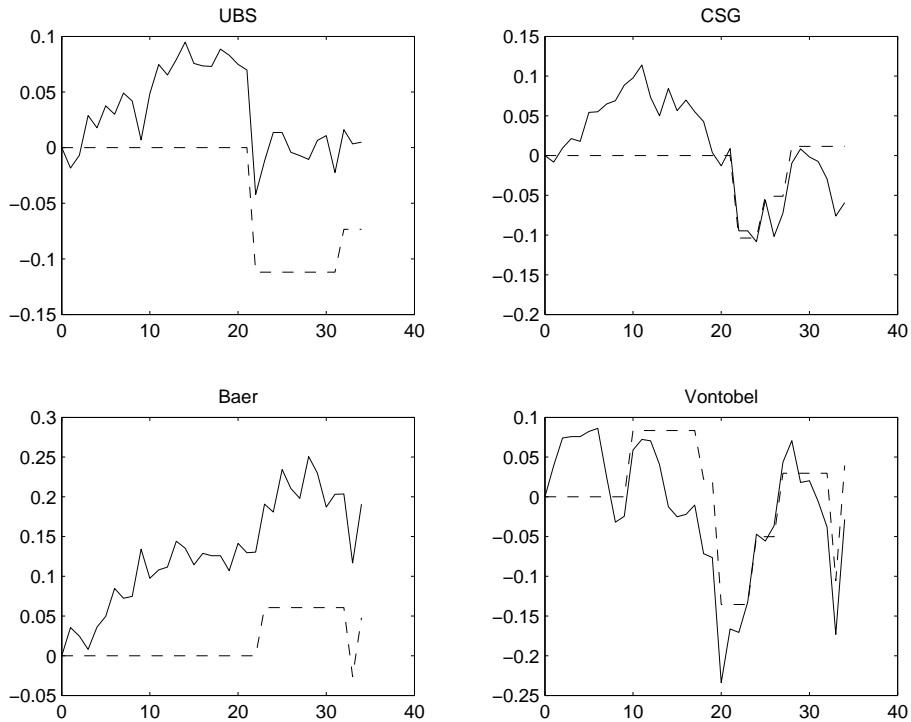
Figure 1: **Cumulative Abnormal Returns of the Four Bank Stocks.** Cumulative abnormal returns of the four bank stocks for each announcement using 1-day windows (top panel) and 3-day windows (bottom panel). Solid lines depict the CARs considering all announcements, dashed lines CARs considering announcements with statistically significant abnormal returns only.
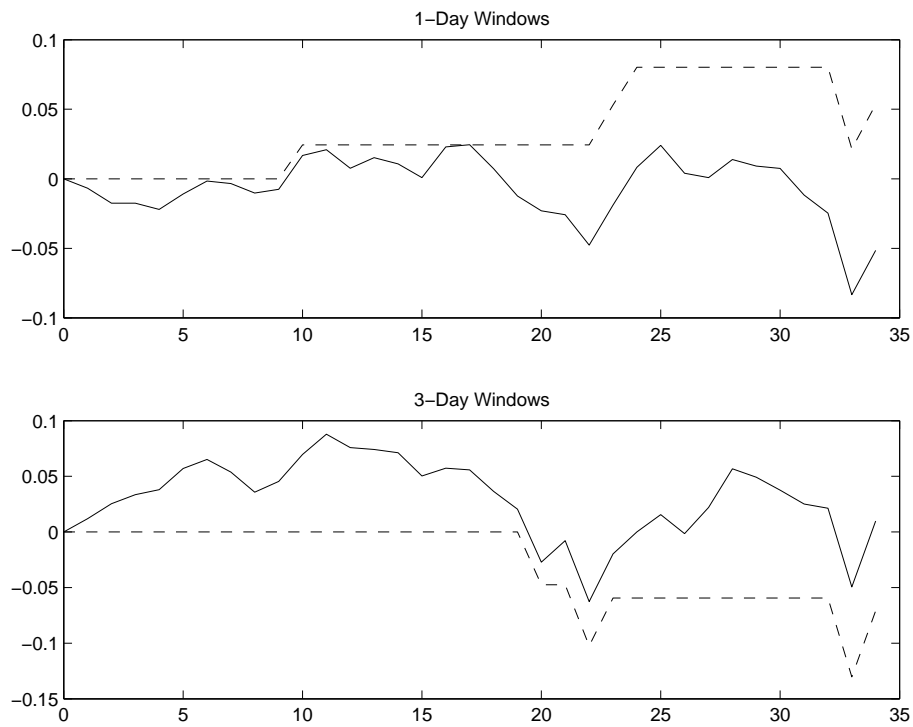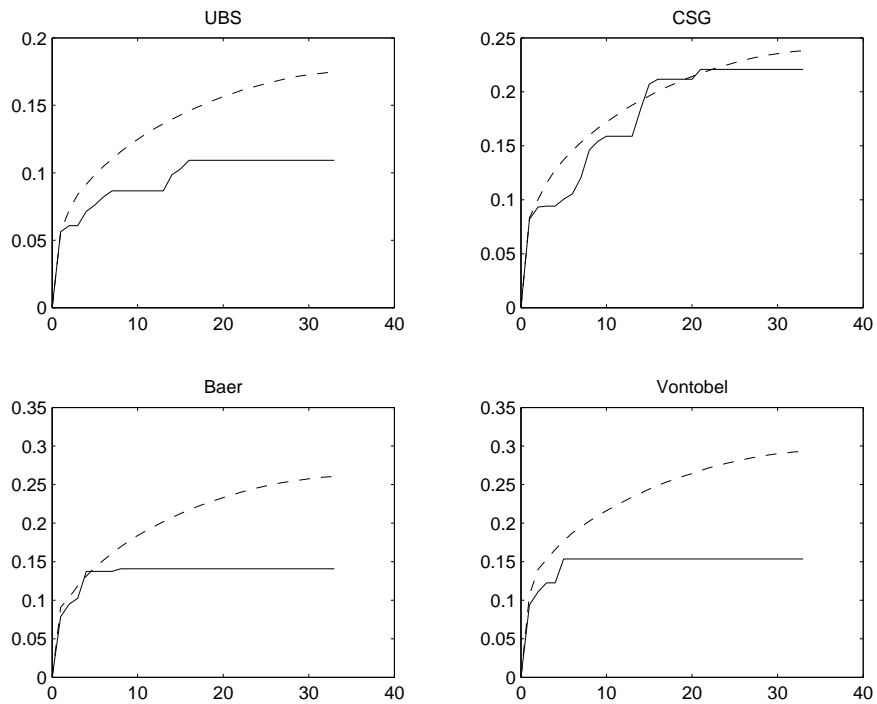
Figure 2: **Cumulative Average Abnormal Returns.** Cumulative average abnormal returns of the four bank stocks for each announcement using 1-day windows (top panel) and 3-day windows (bottom panel). Solid lines depict the CARs considering all announcements, dashed lines CARs considering announcements with statistically significant abnormal returns only.
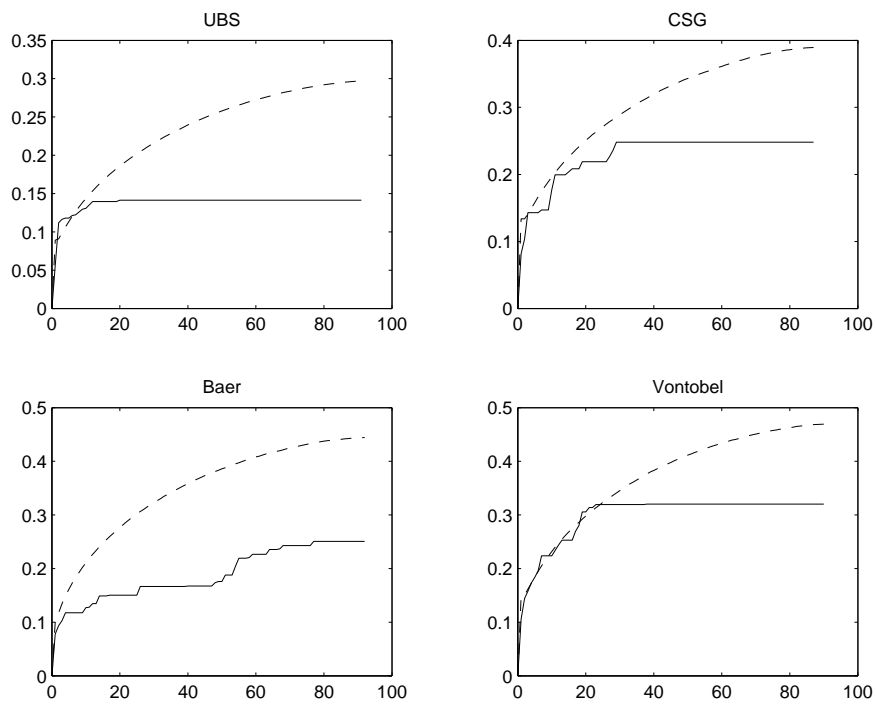
(a) 1-day windows

(b) 3-day windows

Figure 3: **Estimates of the Value of Banking Secrecy and 5% Critical Values.** Estimates of the value of banking secrecy based on the difference between the maximum and minimum cumulative abnormal returns under the constraint that there are no more than N days (reported on the horizontal axis) between the two (solid line), and the bootstrap 5% critical values (dashed line). The top panel reports the results for 1-day windows, the bottom panel those for 3-day windows.

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