Can Regional Banks Strengthen Their Financial Functions by Joining with New Industries? Evidence from Bank Collaborations with Securities Firms in Japan[1]

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Abstract

In the past, the separation of banks and securities firms was strictly enforced by regulation and policy. Since these regulations were relaxed starting in 1993, regional banks in Japan have been strengthening their financial functions by collaborating with new industries such as securities firms. This research examines bank-securities firm collaborations over the period from 2000 to 2019. It identifies the effects of regional bank-security firm collaboration announcements in an event study framework. This is the first empirical paper to investigate the merits of regional bank collaborations with securities firms in Japan. The results suggest that there is weak evidence that collaboration with Tokai Tokyo Securities might create value whereas there is little evidence that collaboration with securities firms in general create value as measured by an efficient stock market. Our broader conclusion is that collaboration between regional banks and securities firms does not make regional banks more valuable nor more viable. Also, the results suggests that regional banks would be wise to pursue other forms of reorganization and reform in addition to, or as an alternative to, securities firm collaborations.

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1. Introduction

For Japan's regional economies to develop sustainably while making good use of people, goods, and money, it is essential for regional financial institutions to cooperate with companies in their region. Until recently, regional financial institutions have cooperated with government-affiliated financial institutions, such as the Japan Post Bank, and local governments. The Financial Service Agency stated in its "2021 Financial Administration Policy" that it would encourage financial institutions to improve the management of regional companies, revitalize their businesses, and support their business transformation, with the aim of realizing a vibrant post-corona economy. From this perspective, the Financial Service Agency is encouraging regional financial institutions to match human resources for regional companies and support businesses in order to revitalize all regional economies. Under these circumstances, it is important to ask: Can regional financial institutions strengthen their financial functions by collaborating with new industries such as securities companies?

Bank-securities cooperation means that banks and securities firms collaborate with each other in operations and services beyond the traditional boundaries of the industry. In the past, the separation of banks and securities companies was a strict division of business enforced by regulation and policy. However, starting in 1993, these regulations were relaxed. For example, the following are now possible: 1) mutual entry by the subsidiary method; 2) the lifting of the ban on sales of government bonds and corporate bonds at bank counters; 3) the lifting of the ban on the ownership of banks and securities subsidiaries by the holding company method: 4) the lifting of the ban on investment trust sales by banks; 5) the lifting of ban on brokerage services for securities companies that buy and sell stocks by banks; 6) the relaxation of firewall restrictions between banks and securities companies for the free exchange of personnel and information at affiliated subsidiaries; and, 7) the lifting of the ban on the concurrent duties of officers. Therefore, regional banks are now at the stage where they are not simply adding new securities businesses, but are genuinely restructuring their core businesses.

The paper is organized as follows. Section 2 summarizes and reviews the relevant literature. Section 3 discusses the causes of regional bank collaborations with securities companies in terms of types and motives. We use the term, "collaboration" in a very general way in this research. It refers to mergers and

acquisitions (M&A), as well as marketing alliances, both those with equity and without equity investment. Section 4 describes the methodology and hypotheses. Section 5 describes the collaboration data. Section 6 explains the empirical results. Section 7 considers some checks to assure that the results are meaningful. Section 8 offers our interpretation of the results and the final section is a conclusion.

2. Literature Review

Until recently, banks were restricted from acquiring securities firms. Thus, while much research is focused on bank acquisitions and other financial institutions, there is very little research on the performance of banks following their acquisitions of securities firms. To the best of our knowledge, no empirical studies have investigated the issue of regional bank collaborations with securities firms in Japan. Several studies have discussed banks collaborating with securities firms in the United States or at the international level. Most of these studies suggest that banks collaborating with securities firms experience weaker performance than banks merging with other banks.

Aigbe and Madura (2004) examined bank acquisitions of 28 security firms and 28 banks during the period 1986–2000 in the United States. Their main findings are as follows: Banks that acquire securities firms experience insignificant announcement effects. Bank acquirers of security firms do not experience a reduction in risk. Banks that acquire security firms experience weaker performance following the acquisitions than banks that acquire other banks. Next, Boyd, Graham, and Hewitt (1993) investigated the risk effect of bank holding companies (BHCs) entry into the securities, real estate, and insurance industries with data comprising 30 life insurance companies, 16 property/casualty insurance firms, 20 insurance agent/brokers, 27 securities firms, 69 real estate development firms, 67 other real estate companies, and 141 BHCs during the period 1971–1987 in the USA. They found that mergers of BHCs with life insurance or property/casualty insurance firms may have reduced risk, but that mergers of BHCs with securities firms or real estate firms likely increased risk. Moreover, Casu, Dontis-Charitos, Staikouras, and Williams (2016) investigated the risk effects of bank acquisitions of insurance companies and securities firms in 272 international M&A deals during the period 1991–2012. They found as follows: Bank combinations with securities firms yield higher risks than combinations with insurance companies. Bank size is an

important and consistent determinant of risk whereas diversification is not. And, Harjoto, Yi, and Chotigeat (2012) investigated merger events in which banks decide to acquire non-banks rather than acquiring other banks in a sample of 1,009 acquisitions during the period 1992–2005 in the USA (These include 291 non-bank acquisitions and 718 bank acquisitions). They found overall that non-bank acquisitions reduce acquiring banks' subsequent profit, market value and stock returns. And they concluded that the banks' choice to acquire non-banks is driven by internal factors based on their strategic choices to enhance revenue from different lines of business and by external factors such as from regulatory capital requirements and deregulation that relaxed rules on their traditional banking activities.

On the other hand, Ramirez (2002) found that banks' securities affiliates add value. He examined whether financial markets attached a premium to the market value of banks with security affiliates or bond departments in a sample of 251 commercial banks during the period 1926–1928 in the USA. He found that banks' security affiliates added 4 to 7 percent to the market value of commercial banks in 1926 and 1927.

3. The Causes of Bank Collaborations

3–1. The Causes of Bank Collaborations with Securities Business

Financial institutions in Japan, especially regional banks, have been facing extremely difficult conditions. They have been in a situation where it is difficult to make profits in their traditional deposit and lending businesses[2], and they need more fundamental measures to improve their operating profits. Even worse, the negative interest rate policy introduced by the Bank of Japan in January 2016 continues to put pressure on financial institutions' core business profits (Kobayashi and Bremer (2022) p. 1, p. 6). Then, if there is anything other than the deposit

2 Due to the Bank of Japan's zero interest rate policy from 1999 and its negative interest rate policy from 2016, banks were unable to raise lending rates. Competition to lower lending interest rates among financial institutions was intense. In particular, mortgage interest rates, which are a significant source of income for regional banks, have been forced lower to match rates offered by megabanks and online banks. However recently, control on long-term interest rates has relaxed as the Bank of Japan's YCC (Yield Curve Control) tolerance of interest rate changes has widened, and bank profits have begun a recovery.

and lending business, neighboring fields such as securities business and asset management business can be mentioned as strong options. In order to overcome this situation, regional banks have been forced to merge or integrate their businesses (Kobayashi and Bremer, 2022), and in particular, they have been increasingly establishing securities subsidiaries or acquiring existing securities companies.

In September 2020, the Suga Cabinet was launched and insisted on the need to reorganize Japanese regional banks. In response to this, the Japanese Government and the Bank of Japan announced measures to support the reorganization of regional banks. And since then, the reorganization of regional banks in Japan has been attracting attention. First, in November 2020, the Bank of Japan provided regional financial institutions such as regional banks and cooperative (Shinkin) banks with a 0.1% interest rate addition to current account balances at the Bank of Japan, subject to either 1) improvement in the expense ratio or 2) the decision of an institution to integrate or merge. It was introduced as a temporary measure until FY2022. Next, on November 27, 2020, a special law was promulgated that exempts the management integration and merger of regional banks from the application of the Antimonopoly Act. Further, the Financial Services Agency (FSA) has enacted the 2021 Amendment to the Act on Strengthening Financial Functions, which includes a new system to subsidize system integration costs and branch consolidation costs for regional financial institutions that have chosen to merge or integrate. This Act is aimed at the recovery and revitalization of the post-corona regional economy in areas with declining populations and economies. These external forces as well as forms of deregulation could affect the potential of bank reorganizations.

On the other hand, these movements seem to be reaching their peak, and companies have been exploring the possibility of developing securities and asset management businesses through business alliances with Internet securities companies. For example, the SBI Group, which has strength in the Fintech business, has been promoting the concept of a regional bank alliance. SBI Securities Company and its partner regional banks have been trying to diversify their business into the securities business and the asset management business without having a securities subsidiary.

262 securities companies are members of the Japan Securities Dealers Association (JSDA) as of the end of March 2020. Of these, the parent companies of 27 securities subsidiaries are regional banks or regional bank groups; there are

11 newly established securities subsidiaries by regional banks, 9 acquired existing securities companies by regional banks, and 7 established joint ventures with existing securities companies during 2000 to 2019 in Japan. In addition, there are 35 regional banks collaborating with SBI Securities[3] as of SBI Holdings Annual Report 2021 p. 57.

3–2. Bank Collaboration Motivations

Based upon the causes suggested by Aigbe and Madura (2004), we hypothesize the following:

>Possible gains from combining bank and securities activities

It is hypothesized that the bank performance following acquisitions of securities companies will be positive. The reduction of barriers between securities services and banking services allowed banks to pursue securities companies to expand their product lines. Research in this area includes Johnston and Madura (2000); they insist that the offering of securities services in banks could enhance bank profitability because it expands the sources of bank income.

>Possible diversification effects from combining bank and securities activities

It is hypothesized that bank acquisitions of securities companies will experience a more favorable shift in risk than banks that acquire other banks. According to Berger et al. (1999), banks were historically separated from securities companies, so the operations are distinctly different, which is shown by low correlations between bank and securities firm returns. Further, Johnston and Madura (2000) argue that the diversification effects are expected to be more pronounced for securities companies because the securities companies provide unique services that are distinguished from traditional bank services. Also, they state that it could generate cross-listing synergies, as the bank could offer its banking services to its securities customers, and securities services to its banking customers.

Then, following the hypotheses of Japanese regional bank motives to collaborate with securities companies by Nakahara (2018) and Kizuna (2017), we divide our bank population into four types. The four types of regional bank collaboration motivations with securities activities are 1) newly establishing securities companies; 2) acquiring existing securities companies; 3) establishing joint ventures with existing securities companies (joint ventures between regional banks and Tokai Tokyo Securities); and, 4) the fintech alliance with SBI Securities.

3 SBI Securities Company is one of the major Internet Securities Companies in Japan and is collaborating with five regional banks data in our analysis (See Table 4).

Table 1: Regional Banks with Newly Establised Securities Companies in Japan, 2000 to 2019

Case Study #	Announcement Day of newly established securities companies	Actual establishment date of securities companies	Parent Bank	Bank Classification	Newly Established Securities Companies	Data Period
1	10/27/2000	12/22/2000	Shizuoka[8355](Shizuoka)(1)	1	Shizugin TM	1/5/1998-12/29/2017[8355]
3	7/23/2007	11/*/2007	Joyo[8333]=Mebuki FG[7167](Ibaraki)(2)	1=Holding	Joyo=Mebuki	1/4/2006-9/27/2016[8333]
5	5/14/2009	8/14/2009	Hyakugo[8368](Mie)	1	Hyakugo	1/4/2007-12/30/2019[8368]
7	11/11/2011+	2/2/2012	Iyo[8385](Ehime)	1	Shikoku Alliance	1/4/2007-12/29/2017[8385]
9	11/14/2014	2/6/2015	San-in Godo[8381](Shimane)	1	Gogin(3)	1/4/2007-12/29/2017[8381]
10	5/26/2015	8/28/2015	Toho[8346](Fukushima)	1	Toho	1/4/2007-12/29/2017[8346]
11	11/6/2015+	2/12/2016	Gunma[8334](Gunma)	1	Gungin	1/4/2007-12/30/2019[8334]
13	5/17/2016	7/27/2016	77[8341](Miyagi)	1	77	1/4/2007-12/30/2019[8341]
14	7/2/2016+	3/9/2017	Kyoto[8369](Kyoto)	1	Kyogin	1/4/2009-12/30/2019[8369]
15	1/4/2016	6/1/2017	Kyushu FG[7180](Kumamoto)	Holding	Kyushu FG	10/1/2015-12/30/2019[7180]
17	11/12/2018	3/5/2019	Ogaki Kyoritsu[8361](Gifu)	1	OKB	1/4/2007-12/30/2019[8361]

Source: JSDA(Japan Securities Dealers Association), each companies' HP, Nihon Keizai Shinbun, Nikkei Breaking News, and Nikami (2020) p.3 Table1.
Note: [Stock codes in brackets] (The head office prefecture in parentheses.)
Note: Holding companies are abbreviated to HD=Holdings, FG=Financial Group, and FHD=Financial Holdings.
Note: 1 in the bank classification denotes first-tier regional bank.
Note: + denotes that the announcement day is a holiday, so the next market opening day is substituted.
Note: * in a date denotes that the date has not been published in a securities report or in a newspaper.
Note: Eleven securities companies are wholly owned by the parent bank.
Footnote (1): Shizuoka Bank established Shizuoka FG, a wholly owned parent company, through a share transfer on 10/03/2002, and became its wholly owned subsidiary, and was delisted on 09/29/2022. Shizuoka FG was newly listed on Tokyo Stock Exchange Prime Section on 10/03/2022.
Footnote (2): Joyo bank establised Joyo Securities and changed its name to Mebuki Securities. 09/28/2016Joyo bank was delisted due to becoming a holding company.
Footnote (3): Gogin Securities was closed on 10/31/2020 due to a comprehensive alliance between Nomura Securities and San-inGodo bank.
A securities subsidiary wholly owned by a regional bank was closed down for the first time in Japan.

Table 2: Regional Banks Acquiring Existing Securities Companies in Japan, 2000 to 2019

Case Study #	Announcement Day of Being Acquired (subsidiaries) Existing Securities Companies	Date of Securities Companies being Acquired (subsidiaries) by Parent Banks	Parent Bank	Bank Classification	Acquired (being subsidiaries) Securities Companies	Data Period
18	9/10/2005+	4/*/2006	Hachijuni[8359](Nagano)	1	Hachijuni<Alps>	1/5/1998-12/30/2008[8359]
19	5/28/2009	6/*/2009	Chugoku[8382](Okayama)	1	Chugin<Tsuyama>	1/4/2007-12/29/2019[8382]
20	4/29/2011+	10/1/2011	Chiba[8331](Chiba)	1	Chibagin<Chuo>	1/4/2007-12/29/2019[8331]
21	10/21/2011+	4/1/2012	Fukuoka[8354](Fukuoka)(1)	1	FFG<Maeda=Fukuoka>	1/5/2009-12/30/2019[8354]
22	5/9/2015+	10/1/2015	DaishiHokuetsFG[7327](Niigata)(2)	Holding	DaishiHokuetsu<Niigata=Daishi>	1/4/2007-9/25/2018[8324]
23	2/9/2017	3/31/2017	Okinawa[8397](Okinawa)(3)	1	Okigin<Okinawa>	1/4/2007-12/30/2019[8397]
25	1/28/2017+	6/1/2017	Hiroshima[8379](Hiroshima)(4)	1	Hirogin<Utsumiya>	1/4/2007-12/30/2019[8379]
26	2/5/2018	10/*/2018	Nanto[8367](Nara)	1	NantoMahoroba<Nanto=Nara>	1/4/2007-12/30/2019[8367]
27	5/13/2017+	10/1/2018	NorthPacific[8524](Hokkaido)(5)	2	NorthPacific<Jyoko>	10/1/2012-12/30/2019[8524]

Source: JSDA(Japan Securities Dealers Association), each companies' HP, Nihon Keizai Shinbun, Nikkei Breaking News, and Nikami (2020) p.3 Table1.
Note: [Stock codes in square brackets] (The head office prefecture in parentheses.) <Former securities in angle brackets>
Note: Holding companies are abbreviated to HD=Holdings, FG=Financial Group, and FHD=Financial Holdings.
Note: 1 and 2 in the bank classification denotes first-tier regional bank and second-tier regional bank respectively.
Note: Nine securities companies are wholly owned by the parent bank.
Note: + denotes that the announcement day is a holiday, so the next market opening day is substituted.
Note: * in a date denotes that the date has not been published in a securities report or in a newspaper.
Footnote (1): 04/01/2021 Fukuoka Bank made Maeda Securities a wholly owned subsidiary and changed its name to Fukuoka Securities. After that, in May 2018, the name was changed again to FFG Securities. Thus, we adopt Fukuoka FG[8354] for an analysis.
Footnote (2): In November 1997, Naka Securities changed its name to Niigata Securities. 10/01/2015it became a wholly owned subsidiary of DaishiBank and changed its name to Daishi Securities. In October 2019, it became a wholly owned subsidiary of DaishiHokuetsuFG and changed its name to DaishiHokuetsu Securities.
10/01/2018DaishiBank and HokuetsuBank were merged to being DaishiHokuetsuFG. 09/26/2018Daishi was delisted due to becoming a holding company.
10/01/2018DaishiHokuetsuFG was listed. Thus, we adopt Daishi Bank[8324] for an analysis.
Footnote (3): 10/01/2021 Okinawa Bank was transferred to the holding company Okinawa FG[7350]. 09/29/2021 Okinawa was delisted due to becoming a holding company.
Footnote (4): 10/01/2020 Hiroshima Bank was transferred to the holding company Hirogin HD[7337]. 09/29/2020 Hiroshima was delisted due to becoming a holding company. 06/01/2017Hirogin became a wholly owned subsidiary of HiroshimaBank, and in October 2020, it became a wholly owned subsidiary of HiroginHD.
Footnote (5): The acquisition was originally announced on 05/13/2017, but on 08/26/2017, it was announced that the acquisition had been postponed. We adopt the initial release date of May 13th.

3–2–1. Newly Established Securities Companies

The first is the case where a regional bank independently establishes a securities subsidiary. Eleven out of 27 securities subsidiaries excluding 5 regional banks collaborating with SBI Securities fall under this category (Table 1). Since it will be established by the bank itself, it will be possible to establish a management strategy as a comprehensive financial service business centered on the bank, and to operate with a high degree of freedom. On the other hand, as it independently launches a securities business that is different from the banking business, it requires startup costs for branches, human resources, and know-how.

3–2–2. Acquiring Existing Securities Companies

The second is the case where a regional bank acquires an existing securities firm and makes it a wholly owned subsidiary. Nine out of 27 securities subsidiaries fall under this category (Table 2). Setting up a securities subsidiary is easy if a regional bank uses the method of acquiring an existing securities company. This is because, in addition to having established a local customer base, it also has accumulated the know-how necessary for the securities business, including the obligation to explain risks to customers.

3–2–3. Establishing Joint Ventures with Existing Securities Companies (Joint Ventures between Regional Banks and Tokai Tokyo Securities)

The third is the case where an existing securities firm and a regional bank invest jointly to establish a securities firm; it has been established through joint investment by Tokai Tokyo Financial Holdings, which is centered on Tokai Tokyo Securities, and regional banks. Seven out of 27 securities subsidiaries fall under this category (Table 3). In this case, as is similar to the acquisition of an existing securities firm, the burden of establishing a securities subsidiary is lighter than when a regional bank establishes a securities subsidiary on its own. Whereas it is possible to use financial products sold by specialized securities companies, the degree of freedom in management by banks is low due to joint investment.

Table 3: Regional Banks with Establishing Joint Ventures with Existing Securities Companies (Joint ventures Between Regional Banks and Tokai Tokyo Securities) in Japan, 2000 to 2019

Case Study #	Announcement Day of newly established securities companies	Actual establishment date of securities companies	Parent Bank	Bank Classification	Newly Established Securities Companies	Data Period
2	1/13/2007+	7/3/2007	Yamaguchi FG[8418](Yamaguchi)(1)	Holding	YM	10/2/2006-12/29/2017[8418]
4	1/31/2008	5/*/2008	Yokohama[8332](Kanagawa)	1	Hamagin Tokai Tokyo	1/4/2006-3/28/2016[8332]
6	8/25/2009	5/6/2010	NishiNipponCity[8327]=NishiNipponFHD[7189] (Fukuoka)(2)	1=Holding	NishiNipponCity Tokai Tokyo	1/4/2006-9/27/2016[8327]
8	10/30/2012	1/30/2013	IkedaSenshuHD[8714](Osaka)	Holding	SenshuIkeda Tokai Tokyo	10/1/2009-12/30/2019[8714]
12	3/22/2016	4/21/2016	Hokuhoku FG[8377](Toyama)	Holding	Hokuhoku Tokai Tokyo	1/4/2007-12/30/2019[8377]
16	3/23/2018+	4/24/2018	Juroku[8356](Gifu)	1	Juroku Tokai Tokyo	1/4/2007-12/30/2019[8356]
24	8/24/2016	4/3/2017	Tochigi[8550](Tochigi)	2	TochiginTokaiTokyo <Utsunomiya>	1/4/2007-12/30/2019[8550]

Source: JSDA(Japan Securities Dealers Association), each companies' HP, Nihon Keizai Shinbun, Nikkei Breaking News, and Nikami (2020) p.3 Table1.
Note: [Stock codes in brackets] (The head office prefecture in parentheses.)
Note: Holding companies are abbreviated to HD=Holdings, FG=Financial Group, and FHD=Financial Holdings.
Note: 1 and 2 in the bank classification denotes first-tier regional bank and second-tier regional bank respectively.
Note: Tokai Tokyo, after the name of the securities companiy, is 40% owned by Tokai Tokyo FHD (the holding company of Tokai Tokyo FG centered on Tokai Tokyo Securities) and 60% by the parent bank.
Note: YM Securities is also owned 40% by Tokai Tokyo FHD and 60% by the parent bank.
Note: + denotes that the announcement day is a holiday, so the next market opening day is substituted.
Note: * in a date denotes that the date has not been published in a securities report or in a newspaper.
Footnote (1): Yamaguchi FG was newly listed on 10/02/2006 through a stock transfer between Yamaguchi Bank and Momiji HD.
Footnote (2): NishiNippon City Bank establised NishiNippon City TokaiTokyoSecurities. 09/28/2016 NishiNippon City Bank was delisted due to becoming a holding company.

Table 4: Regional Banks Collaborating with SBI Securities Company in Japan

Case Study #	Announcement Day of Collaboration	Actual Collaboration Date	Bank	Bank Classification	Data Period
28	4/28/2018	5/1/2018	Aichi [8527](Aichi)	2	1/5/2009–12/30/2019
29	5/10/2018	5/14/2018	Fukushima [8562](Fukushima)	2	1/5/2009–12/30/2019
30	6/7/2018	7/30/2018	Kiyo [8370](Wakayama)	1	10/1/2013–12/30/2019
31	6/29/2018	4/8/2019	Shimane [7150](Shimane)	2	3/15/2011–12/30/2019
32	7/18/2018	8/1/2018	33 Daisan [8529](Mie)(1)	1	4/2/2018–12/30/2019

Source: SBI Holdings Annual Report 2021, SBI Holdings HP, each banks' home page, *Nihon Keizai Shimbun*

Note: [Stock codes in brackets] (The head office prefecture in parentheses.)

Note: 1 and 2 in the bank classification denote first-tier regional bank and second-tier regional bank respectively.

Footnote (1): 2018/3/28 Daisan Bank[8529] and Mie bank were delisted due to being 33FG[7322] and 2018/4/2 33FG was listed. Under 33FG, 33 bank will be launched. Thus, 33FG stock price is substituted for Daisan Bank stock price.

3–2–4. Fintech[4] Alliance with SBI Securities Company

The fourth is the case where a regional bank collaborates with SBI Securities

4 Fintech is a coined word that combines the words finance and technology, and refers to an area that combines traditional financial services and technology. Fintech has attracted attention over the past few years, but the link between finance and IT is not new; financial institutions have long been utilizing technology to provide convenient services. For example, ATMs and online banking services such as internet banking are the forerunners of Fintech. However in recent years, Fintech has not been about investment in technology by financial institutions, but rather collaboration and cooperation between IT companies and financial institutions, and by combining the knowledge and information of both parties it has become possible to provide more convenient financial services than ever before. Examples of Fintech include (1) personal financial management (PFM), (2) robo-advisors, and (3) mobile POS. (1) PFM is a service that allows customers to keep track of their monthly money movements on a household book-keeping application downloaded to their smartphone. It provides a function that automatically reflects income and expenditures in the household book-keeping application by linking bank account information, credit card information, etc. (2) A robo advisor is an asset management service that makes full use of the latest IT. Globally diversified investment methods that were previously available only to wealthy individuals can now be used to manage small amounts for relatively low fees. In addition, since portfolios are automatically proposed using an algorithm, there are no variations between asset managers. (3) A mobile POS is a service in the payment field that allows a smartphone equipped with a dedicated small terminal to be used as a credit card payment terminal. Thus, Fintech is forcing regional banks and their securities subsidiaries to pursue digital product strategies.

and provides a system related to fintech to conduct its securities business via the internet (Table 4). SBI Securities' strengths are as follows. It has the largest number of open and active accounts among the five major Internet brokerage companies[5] in Japan. In addition, its brokerage commissions are quite low, and there are many stocks handled in securities trading.

4-1. Methodology

Since the publication of Fama, Fisher, Jensen, and Roll (1969), event studies using the market model have become the standard methodology to measure the impact of a specific event on the value of a firm. The essential idea of our event methodology is that a fast and efficient Japanese stock market will make an unbiased evaluation of any change in the way regional banks are managed. The market will quickly determine the value created by a bank when it announces a merger, acquisition, or any kind of collaboration with a securities firm. The value created (or destroyed) by the collaboration will be measured as an "abnormal" change in the bank's stock price. Of course, valuing bank collaborations is difficult; the market must cope with incomplete information, risk, regulatory changes and even the possibility that the collaboration might not actually be completed. Nevertheless, our methodology assumes that the market gets these valuations essentially correct. Furthermore, we assume that when the market gets one valuation wrong, additional valuations will be essentially right. The market's overall valuation will give researchers and policy-makers insights about collaborations because errors from one over-valuation will be balanced out by other errors from under-valuation.

For this research, the "event" is the date of the public release of the collaboration between a regional bank and a security firm. This date is designated as day '0' in event time. Although the actual date of the first release of the collaboration information to the public is not always easily obtainable, we define the collaboration announcement to be the date it first appears in the *Nihon Keizai Shimbun Cyoukan*[6]. As illustrated in Figure 1, for each bank security we use 291

5 SBI is aggressively changing the securities business model in ways that might benefit regional bank customers. Oki (2023) reports that SBI will offer zero-commission stock trades from September, 2023. The five major internet brokerage companies are as follows and order of number of accounts opened as of December 2021; SBI Securities, Rakuten Securities, Monex, Matsui Securities, and auKabucom Securities

6 We also define collaboration announcements using Nikkei Breaking News, the Nikkei

daily return observations for the period around its collaboration event, starting at day −270 and ending at day +10 relative to the event[7]. The first 250 days in this period (−270 through −21) are designated as the 'estimation window' and the following days (−1 through +10) are designated as the 'period of interest'. The estimation window is used to determine the bank's "normal" stock price and the "normal" rate of change of its stock price. The difference between this normal value and the value that occurs when the collaboration information becomes public is defined as "abnormal." Significant abnormal values indicate that the collaboration created or destroyed value. Or that the collaboration with the security firm makes the bank more (or less) capable of supporting the regional economy.

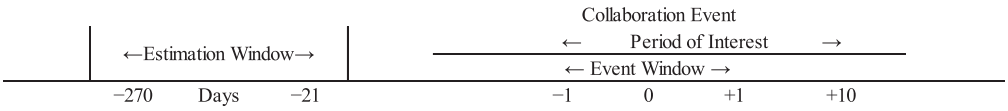

Figure 1. Time Line for a Regional Bank-Securities Business Collaboration Event

Note: Day 0 is the public announcement of the collaboration between a regional bank and securities firm. The estimation window and the event window do not overlap. This approach means that the estimators for the parameters of expected daily returns are not influenced by the returns near the collaboration event.

We focus mainly on the "event window" immediately around the collaboration event [−1, +1] in our analysis. This is defined as one day before the public announcement date [day 0] of the collaboration to one day after the announcement. Note that day 0 is unique for each bank. It is a different calendar date for each different bank collaboration. This three-day event window is appropriate because the collaboration announcement date is clearly defined in the public record and well-known to all market participants. Our approach assumes that the market adjusts quickly to the collaboration information[8]. The assumption of fast adjustment is reasonable in efficient capital markets such as Japan's. We also report abnormal returns for longer 'periods of interest' to consider whether the change in value associated with the event was later reversed. Another reason to report the longer 'periods of interest' is to facilitate comparison with previous

electronic edition, which has been provided since July 1, 2007. For the data in Table 4, we utilize the data when the collaboration event was posted on the SBI Holdings website.

7 In some cases, missing observations result in less than 291 daily returns being used.

8 Chordia, Roll and Subrahamanyam (2005) report that efficient markets quickly adjust to new information.

research. For example, Yamori, et al (2003) reported abnormal returns for banks over a −10 to +10 window.

4–2. Excess Return Measures

The next step is to calculate the expected (normal) return for each day in the event window for each bank. The expected return represents the return that would be expected if no collaboration event took place. A residual return is calculated for each day for each bank. The residual is the difference between the actual return for that day for and its expected return. The residual represents the abnormal return (AR), which is the part of the return that is not expected and is an estimate of the change in bank value that is caused by the information released by the news of the collaboration. The final step is to sum the residuals for each day over the event window to produce the cumulative abnormal return (CAR). The cumulative abnormal return (CAR) represents the total effect of the event across collaborating banks over all event windows.

4–2–1. Hypotheses About Excess Returns

Following the procedures described by Brown and Warner (1980, 1985) and MacKinlay (1997), we examine the relationship between the collaboration information and stock return responses. In order to determine the effects of collaborations for Japanese regional banks, we assert the following null hypothesis:

$$H_0\colon\ AR_{i,t} \text{ or } CAR_{i,t} = 0,$$

If there were no relationship between collaboration information and stock return responses (suggesting no value is created or destroyed) the cumulative mean daily excess return in the event window should be equal to zero. The alternative hypothesis is:

$$H_1\colon\ AR_{i,t} \text{ or } CAR_{i,t} \neq 0\ ,$$

If there were a positive relationship between collaboration information and return responses, and thus some value created by the collaboration, the cumulative daily excess return in the event window should be positive. Significant negative abnormal returns suggest that the market participants are not optimistic about the total value of the effects of the collaboration with regional banks and securities firms.

4–2–2. Specification of the Model of Excess Returns

This research uses the market model to measure the stock price reaction to the collaboration[9]. We perform the analysis using daily return data to study the impact of collaboration announcements on regional bank value. The statistical significance of the excess returns for each case shows the market's response to the collaboration information.

The market model equation is stated as:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t}$$

where $R_{i,t}$, is the daily return of bank i on day t, calculated as

$R_{i,t} = (Price_{i,t} - Price_{i,t-1})/Price_{i,t-1}$,

$R_{m,t}$ = the return on day t where the Nikkei 225 Stock Index is used as a market proxy: $(NIKKEI_t - NIKKEI_{t-1})/NIKKEI_{t-1}$,

α_i = a coefficient that represents the return of bank i, which is independent of the market,

β_i = a measure of the change in $R_{i,t}$ given a change in $R_{m,t}$, and

$\varepsilon_{i,t}$ = a zero mean disturbance term.

The expected daily return, $\widehat{R_{i,t}}$, for each bank is computed by observing market behavior over the 250–day benchmark estimation window prior to the event. A regression of the bank and market return is used to estimate the parameters α_i and β_i, which are used to determine the expected value of the bank return in the event period[10]. The regressions of the market equation produce estimates of α_i and β_i; defined as $\hat{\alpha}_i$ and $\hat{\beta}_i$. Figure 1 captures this logic; note that the $\hat{\alpha}_i$ and $\hat{\beta}_i$. are estimated with data that are not influenced by the collaboration. The expected return, $\widehat{R_{i,t}}$, for a bank for a day in the event period is the return given by the market model on that day using these equations. The abnormal return is the difference between the observed return in the event period and the expected return.

Although many event studies use the Tokyo Stock Price Index (TOPIX) as the

9 Other models of expected returns could be used such as Fama and French's (1993) multifactor model. We selected the standard market model because it is widely used and able capture the return information revealed by the announcement of the reorganization.

10 The Nikkei 225 is an equal weight index of the prices of the 225 largest Japanese stocks.

stock market proxy, we use the Nikkei 225 stock price index for several reasons. The banking sector has a disproportionate influence on the TOPIX[11]. It was responsible for as much as 7.12 percent of the movement of the TOPIX in late 2023; this is because the TOPIX is a value-weighted index. And this sector is dominated by Japan's large city banks rather than the much smaller regional banks that are the focus of our study. As such, these influential banks are not appropriate benchmarks for our population. On the other hand, the weight of banks in the Nikkei 225 stock average was only 0.76 percent in late 2023; this is because it is calculated as a simple, or equally weighted, average of stock prices. This smaller weight means that the benchmark that we use to measure abnormal performance is not unduly influenced by any specific sector. The disproportional influence of large banks dominates the TOPIX for the entirety of our 1999 to 2019 observation period. Another consideration is research by Corrado and Truong (2008) who argued that equally weighted indexes are better market proxies for Asia-Pacific stock market data. And a final consideration is that as a practical matter, the rate of return on the TOPIX is very similar to the rate of return on the NIKKEI 225. The Pearson correlation statistic for the two series is 0.96 over the period from 1999 to 2019.

The abnormal return (AR) equation is:

$$AR_{i,t} = R_{i,t} - \widehat{\alpha}_i - \widehat{\beta}_i R_{m,t}$$

where $AR_{i,t}$ = the abnormal return of bank i at trading day t, and $\hat{\alpha}_i$, $\hat{\beta}_i$. are the parameters estimated by an ordinary least squares regression over the estimation window. The cumulative abnormal return (CAR) is the sum of the average abnormal return:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \ .$$

A *Student's t*-test is used to test the null hypotheses H_0: $AR_{i,t}$ or $CAR_{i,t} = 0$. If the impact of the collaboration announcement is positive, the stock price after the release of the information will increase and be observed as significant positive abnormal returns. This *t*-test is:

11 Jun Hironaka of Mitsui & Co. Digital Asset Management kindly provided this important insight. We thank Hironaka for the careful analysis that shows the proportionate influence of the banking section on the TOPIX index.

$$t_{AR_{i,t}} = \frac{AR_{i,t}}{\hat{\sigma}_i} ,$$

where $t_{AR_{i,t}}$ = *t*-value of the excess return at event i and $\hat{\sigma}_i$ is the residual standard error of the abnormal return (AR) in the benchmark window.

When the impact of the announcement of the collaboration has a gradual impact, another way to test statistical significance is to examine cumulative abnormal returns (CAR). The *t*-tests are:

$$t_{CAR_{i,T}} = \frac{CAR_{i,t}}{\sqrt{\sum_{t=0}^{T} t\hat{\sigma}_i}} ,$$

where $t_{CAR_{i,t}}$ = *t*-value of the sum of the average abnormal return to test statistical significance, and

$CAR_{i,t}$ = the sum of the average abnormal return of the event i over T days.

By using these statistical methodologies, we measure the impact of the release of collaboration information on Japanese regional banks[12].

5. Data

5-1. The Population of Regional Bank Security Firm Collaborations

Our population consists of 32 cases of collaborations between securities firms and regional banks in Japan from 2000 to 2019. Tables 1, 2, 3 and 4 show these banks. They show each bank collaboration according to year, announcement day, actual collaboration start date, bank classification (first-tier, second-tier regional banks or holding companies) and the new name of the securities companies after the reorganization. The collaborations were identified from annual banks reports, online releases of information, the *Japanese Bankers Association Bank Library*

12 This standard event study methodology assumes that the standard error of the abnormal return from the benchmark market model is appropriate to make inferences about collaboration announcement abnormal returns. Yet, Sweeney (1991) notes that this is not exactly valid. The abnormal returns will include errors from both the event window and the benchmark estimation window. This problem arises from the fact that the market model parameters are estimates with their own errors. We argue that these errors are not important because our estimation window is very long at 250 observations and our event windows are small. In related research that adjusts for these estimation errors but is not reported here, we find that the standard errors are essentially the same.

and *Nihon Keizai Shimbun*. Additional information was collected from the *Japan Company Handbook*, published by Toyo Keizai. Bank stock prices are daily observations obtained from 1998 to 2019 from the Kabuka CD-ROM of the Toyo Keizai database. The Nikkei 225 stock index were obtained from the Tokyo Stock Exchange, part of the Japan Exchange Group. These data are highly reliable. Data were also collected from the SBI home page. Dividends are typically very small for regional banks; these were ignored in our analysis. None of the banks in our sample carried out stock repurchases. However, a few banks in our population did split their shares to meet minimum listing requirements. Our data were adjusted for these splits.

Bank daily stock returns were calculated in the conventional way, as the rate of change in each day's closing stock price. So, for example the daily return for Juroku Bank [8356] on January 5, 2007 is

$$R_{8356,Jan\ 5,2007} = \frac{Stock\ Price_{8356,Jan\ 5,2007}}{Stock\ Price_{8356,Jan\ 4,2007}} - 1 = \frac{660}{664} - 1 = -0.006024 \ .$$

The market return was measured in the same way for the Nikkei 225 Stock Price index.

6. Empirical Results

Our preliminary empirical results address our basic question: Does the market respond to announcements of collaborations between regional banks and securities companies in a positive way? The idea is that the market considers that these collaborations might enhance the market value of bank equity if the tie-up with the securities firm produces more customers, more revenues, lower costs or provides synergistic value by better combining bank services with securities services. On the other hand, the market might regard collaborations as poor management decisions that do not enhance value. The large literature on corporate acquisitions suggests that many mergers ultimately destroy value, or that only one participant in a merger sees its value increase. The empirical experience with joint ventures between companies is littered with failures and regrets along with some successes. Furthermore, the very idea that consumers prefer to receive services in a financial supermarket where a bank provides everything from transaction services, to loans to insurance to securities investments is not necessarily valid. The two approaches

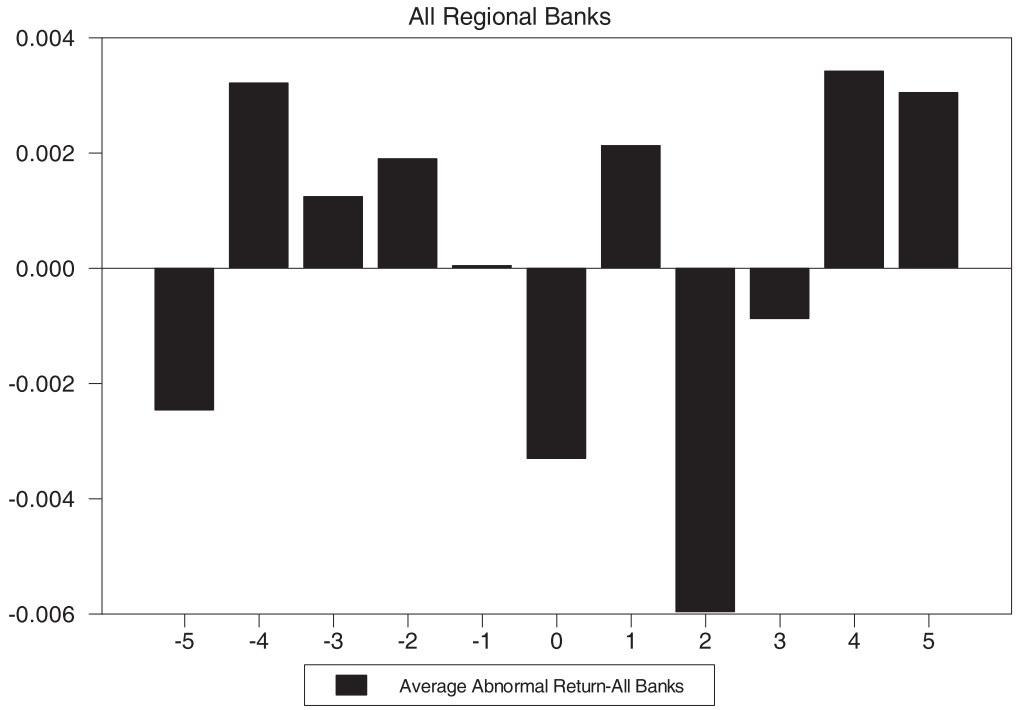

Figure 2. Announcement Abnormal Returns for All Banks

to the creation of value are examined as two-tailed tests in our research.

Figure 2 shows abnormal returns for our population of all regional banks from day −5 to day +5 around the announcement of collaborations with securities companies. The Day 0 average abnormal return is clearly low at about negative 0.003. The days before the announcement show both positive and negative returns with no clear trend. There is little evidence that news of the collaboration leaks before the actual announcement day. There is a fairly large negative return on day 2 after the announcement. There seems to be some recovery in the return on days 4 and 5. No trend is apparent.

Table 5 reports abnormal returns and cumulative abnormal returns around the date of collaboration announcements. A statistically significant positive abnormal (cumulative) return means that market participants "think" value is created (for bank equity investors at least). The top panel of Table 5 reports a Day 0 average abnormal return of −0.00310. This negative value suggests that the market "thinks" value is destroyed by the collaboration or perhaps that whatever value created by the collaboration is captured by the security firm. Yet, this negative abnormal return is not statistically significant; its *p*-value is 0.31. So, we are unable to draw

Table 5: Abnormal and Cumulative Abnormal Returns for Regional Japanese Banks Associated with Announcements of Collaborations with Securities Companies, 2000 to 2019

Days −1 to + 1 Cumulative Abnormal Returns	Day 0 Abnormal Return	Days 0 to + 5 Cumulative Abnormal Returns	Days 0 to + 10 Cumulative Abnormal Returns
All Announcements			
−0.00175 (−0.32) 0.75	−0.00310 (−1.02) 0.31	−0.00450 (−0.59) 0.56	0.00242 (0.22) 0.82
Announcements for Newly Established Securities Companies			
0.00092 (0.12) 0.90	−0.00035 (−0.08) 0.93	0.00347 (0.33) 0.74	0.01082 (0.71) 0.48
Announcements for Acquired Securities Companies			
−0.00307 (−0.31) 0.76	0.00092 (0.17) 0.86	−0.00775 (−0.54) 0.59	0.00145 (0.07) 0.92
Announcements for Banks Collaborating with Tokai Tokyo Securities			
0.00389 (0.29) 0.77	0.00630 (0.85) 0.40	0.01207 (0.66) 0.51	0.00599 (0.23) 0.82
Announcements for Banks Collaborating with SBI			
−0.00728 (−0.47) 0.64	−0.00386 (−0.46) 0.65	−0.01595 (−0.71) 0.48	−0.02227 (−0.73) 0.47

Note: These values are mean abnormal returns and cumulative returns around announcements of collaborations between regional Japanese banks with securities companies. They are calculated using the market model as described by Brown and Warner (1985) and MacKinlay (1997). These data are from the Tokyo Stock Exchange. The announcement dates for the banks are collected from *Nihon Keizai Shimbun* and individual bank press releases. The value in the top of each cell shows the average abnormal (cumulative) return. The parenthesized value in the middle is a *t*-statistic for a test of the null hypothesis that the announcement has no impact on bank value versus the alternative hypothesis that the announcement changes bank value. The value at the bottom of each cell is the *p*-value for the *t*-statistic. Smaller *p*-values suggest rejection of the null hypothesis with greater levels of confidence.

firm conclusions. Nevertheless, the result at least suggests that collaborations might not be beneficial for regional banks.

The top panel also reports cumulative abnormal returns. The left-most column shows cumulative abnormal returns for the broader window from one day before

the announcement to one day after the announcement. This return hopes to capture the full impact of collaboration announcements whose news may have leaked out early, or perhaps experienced a delayed analytical response by the market. Adjusted cumulative bank returns are down −0.00175 within this window. The associated *p*-value is not statistically significant. The column labeled "Days 0 to+5" shows average cumulative abnormal returns of −0.00450 with a *p*-value of 0.56. The extra days from+1 to+5 are considered to explore the possibility that the market might react slowly, or perhaps re-consider the value implications of the collaboration announcement. We also examine the period from "Day 0 to+10" for the same reason. The cumulative returns, "−1 to+1" and "0 to+5" are negative and insignificantly different from zero. The cumulative abnormal return (CAR) from Day 0 to day+10 is positive at 0.00242. Yet, this value is not significant. We are unable to conclude that collaboration announcements reduce value for the whole sample of regional banks over the period from 2000 to 2019. It seems reasonable to argue that collaboration announcements did *not* create measurable value.

The second panel of Table 5 shows abnormal (cumulative) returns for a subset of our population that consists of regional banks that have announced plans to establish new securities companies. The Day 0 abnormal return for these regional banks was −0.00035; this value is insignificant. It is essentially zero. Cumulative abnormal returns for the broader windows "−1 to+1", "0 to+5" and "0 to+10" are positive. These returns are not statistically significant. Still, the fact that these values are positive and especially that the "0 to+10" value is approximately one percent suggest that the market is at least mildly sanguine about the value of the collaboration. And it might be noted that as an owner of the new security firm, the regional bank would benefit from the positive value of the nascent security business as well as from any synergistic collaboration benefits.

The third panel of Table 5 shows abnormal (cumulative) returns associated with announcements of acquisitions of securities companies by regional banks. On Day 0, these regional banks had an average abnormal return of 0.00092, a value that is essentially zero. The cumulative abnormal return (CAR) for the broader window, "−1 to+1" is −0.00307. The cumulative abnormal values for the "0 to+5" and "0 to+10" are small. All these values are not significantly different from zero. The evidence suggests that value is neither created nor destroyed. Perhaps whatever value, if any, that is created by the acquisitions is captured by the stockholders of

the securities firms.

The fourth panel of Table 5 shows abnormal (cumulative) returns for the seven regional banks that announce collaborations with Tokai Tokyo Securities. The Day 0 return is 0.00630; which is not statistically significant. The average cumulative abnormal returns for the broader window, "−1 to+1" is positive at 0.00389—again, not statistically significant. The cumulative abnormal return (CAR) for days "0 to +5" is large at just over 1.2 percent. The cumulative abnormal return (CAR) for days "0 to+10" is also fairly large at 0.00599. Although all these values are not statistically significant, taken as a whole, they suggest that collaboration with Tokai Tokyo Securities might create value. Also, we might be justified in suspecting that collaboration with Tokai Tokyo Securities likely does not destroy value.

The bottom panel in Table 5 shows abnormal (cumulative) returns for the five regional banks that announced collaborations with SBI. The Day 0 abnormal return is −0.00386 which is not statistically significant. The broader window from "−1 to+1" cumulative abnormal return was −0.00728. The "0 to+5" and "0 to +10" cumulative abnormal returns are −0.01595 and −0.02227. All these values are not significant. We cannot say with confidence that value is destroyed. Nevertheless, these fairly sizeable negative values suggest that the market probably does not regard collaborations with SBI as hopeful events.

The differences in abnormal and cumulative returns between Tokai Tokyo Securities and SBI suggest that the market distinguishes between different kinds of collaborations. Perhaps Tokai Tokyo Securities offers better terms to regional banks than SBI. In analysis not reported here, we find that the abnormal (cumulative) return for regional banks that announce collaborations with Tokai Tokyo Securities is significantly greater than that for regional banks that announce collaborations with SBI.

7. Checks

One reason why we cannot draw firm conclusions is that the *t*-statistics associated with the abnormal returns and cumulative abnormal returns are small. This is both because the abnormal returns are small for several windows, but also because some of the σ_i of the abnormal returns are large. Figure 3 shows a plot of individual abnormal returns for our population of regional banks. Some of the abnormal returns are extremely large. Daishi Bank [8324] loses approximately

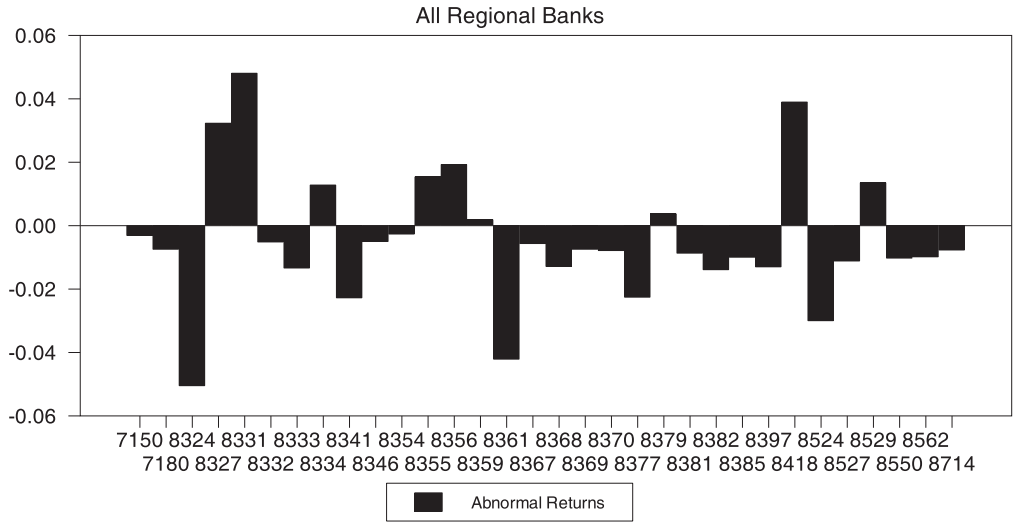

Figure 3. Announcement Day Abnormal Returns All Regional Banks, 2000 to 2019

five percent of its value on a market-model adjusted basis. Chiba Bank [8331] experiences a huge gain of more than five percent. Yamaguchi Bank [8418] has a gain of about four percent. Ogaki Kyoritsu Bank [8361] has a loss of almost four percent. These extreme returns and the potentially large σ of these more volatile banks from the estimation period may make the analysis of market reaction to collaboration announcements less precise. These bank outliers may have their abnormal returns influenced by other events in addition to announcements of collaborations with securities companies.

Table 6 summarizes additional confounding information for the four outlier banks that may have had an influence on abnormal returns. This information was collected by a careful reading of the *Nihon Keizai Shimbun* for each bank around the announcement date of the bank's collaboration with a security firm. Chiba Bank [8331] benefited from a very positive evaluation by JP Morgan securities; investors were advised to "buy" the bank's stock. Daishi Bank [8324] reported a substantial decrease in net income. Ogaki Kyoritsu Bank [8361] announced a complex pair of collaborations with Juroku Bank, Juroku Tokai Tokyo Securities and OKB Securities. We consider that the abnormal returns for these three banks are contaminated by confounding information. We therefore exclude these banks from further analysis. Yamaguchi Bank [8418] does not appear to have a contamination problem. It seems likely that its large positive abnormal return is genuinely associated with its collaboration announcement. Nevertheless, the size of

Table 6: Regional Bank Securities Collaboration Announcements that Coincide with Major Bank Events

Symbol; Stock code	Explanation
A 8418	Yamaguchi Bank: This is the first time in Japan that a regional bank and a securities firm have established a securities firm. Established by Tokai Tokyo FHD. This is the reason for the positive outlier.
B 8331	Chiba Bank: JP Morgan Securities raised its investment rating from middle neutral to top overweight in its three-step evaluation, and the stock price rose for three days in a row. This is the reason for the positive outlier.
C 8324	Daishi Bank: It was announced that the financial forecast for the fiscal year ending March 2016 indicated a 19 percent decrease in consolidated net income for Daishi Bank. This is the reason for the negative outlier.
D 8361	Ogaki Kyoritsu Bank: The regional banks headquartered in Gifu Prefecture are Juroku Bank and Ogaki Kyoritsu Bank. In April 2018, Juroku Bank established Juroku Tokai Tokyo Securities with Tokai Tokyo FHD, which has six branches. Yet, OKB Securities which collaborates with Daiwa Securities in system development and other areas does not actually have a brokerage firm branch. OKB Securities supplies financial products purchased from other securities companies to bank branches. This is complex and unique collaboration is likely to be the reason for the negative outlier.

Source: *Nihon Keizai Shimbun*, each companies' HP

the outlier abnormal return is so large, that we consider it appropriate to exclude this bank from further analysis. It is poor methodology to draw conclusions that may be driven by a single observation.

Table 7 shows abnormal (cumulative) returns for collaboration announcements for a subset of our population of regional banks that excludes the four outlier banks shown in Table 6. The top panel shows that the abnormal return on Day 0 for the subset is −0.00486. Its associated *t*-statistic is −1.60 with a two-tailed *p*-value of 0.11. If we consider a modified version of our hypothesis that asks, "Does the announcement of a collaboration create value?" our test becomes a one-tailed test. In this case, the *p*-value of the one-tailed test becomes 0.055. Hence, we can reject the revised hypothesis with a fairly high level of confidence. The stock market regards announcements of collaboration with securities companies as *not* creating value. Cumulative abnormal returns for the broader window from "−1 to+1" are negative and insignificant. Cumulative returns for the extended windows of "0 to+5" and "0 to+10" are also negative, but not significant. The evidence suggests that

Table 7: Abnormal and Cumulative Abnormal Returns for Regional Japanese Banks Associated with Announcements of Collaborations with Securities Companies, Excluding Events with Coinciding Releases of Information, 2000 to 2019

Days −1 to + 1 Cumulative Abnormal Returns	Day 0 Abnormal Return	Days 0 to + 5 Cumulative Abnormal Returns	Days 0 to + 10 Cumulative Abnormal Returns
All Announcements (Excluding Confounding Information Releases)			
−0.00532 (−0.98) 0.33	−0.00486 (−1.60) 0.11	−0.00840 (−1.09) 0.27	−0.00330 (−0.30) 0.76
Announcements for Newly Established Securities Companies (Excluding Confounding Information Releases)			
−0.00216 (−0.28) 0.78	−0.00304 (−0.71) 0.48	−0.00085 (−0.08) 0.94	0.00192 (0.13) 0.90
Announcements for Acquired Securities Companies (Excluding Confounding Information Releases)			
−0.00831 (−0.84) 0.40	−0.00432 (−0.80) 0.42	−0.01310 (−0.92) 0.36	−0.00138 (−0.07) 0.94
Announcements for Banks Collaborating with Tokai Tokyo Securities (Excluding Confounding Information Releases)			
−0.01071 (−0.80) 0.42	0.00085 (0.11) 0.91	−0.00525 (−0.29) 0.77	−0.02239 (−0.86) 0.39

Note: These values are mean abnormal returns and cumulative returns around announcements of collaborations between regional Japanese banks with securities companies that exclude the outliers described in Table 6. They are calculated using the market model as described by Brown and Warner (1985) and MacKinlay (1997). These data are from the Tokyo Stock Exchange. The announcement dates for the banks are collected from *Nihon Keizai Shimbun* and individual bank press releases. The value in the top of each cell shows the average abnormal (cumulative) return. The parenthesized value in the middle is a *t*-statistic for a test of the null hypothesis that the announcement has no impact on bank value versus the alternative hypothesis that the announcement changes bank value. The value at the bottom of each cell is the *p*-value for the *t*-statistic. Smaller *p*-values suggest rejection of the null hypothesis with greater levels of confidence.

collaboration announcements are not positive events for regional banks. There is modest evidence that collaborations reduce value.

The second panel of Table 7 shows abnormal (cumulative) returns for the subset of regional banks that announce collaborations with new, owned securities companies. For all event windows the returns are negative and insignificant.

Similarly, the third panel shows returns for the subset that announce collaborations through acquisitions of securities companies. All event windows have negative and insignificant returns. The bottom panel shows returns for the subset of banks that announce collaborations with Tokai Tokyo Securities. There is a small positive abnormal return on Day 0. However, this value is not significantly different from zero. The change from the abnormal (cumulative) returns reported in Table 5 for Tokai Tokyo Securities arises from dropping the Yamaguchi Bank [8418] observation from analysis. This single bank collaboration is responsible for much of the apparently positive value associated with the announcement. Cumulative returns in the broader window and the extended windows are negative, but insignificant. So, we are unable to conclude that collaboration announcements create value — as far as the stock market is concerned. Collaborations might even destroy value.

Our population of regional banks collaboration announcements covers the period from 2000 to 2019. Many different events occurred over this period. Monetary policy changed. Regional economies faced set-backs. Bank regulation policy changed too. During the later portion of this period, the government revised regulations to encourage bank mergers and increased the ability of banks to expand their businesses into other areas of finance. It is reasonable to ask if collaboration announcements were regarded differently by the stock market during some portions of the period from 2000 to 2019. Figure 4 shows the abnormal

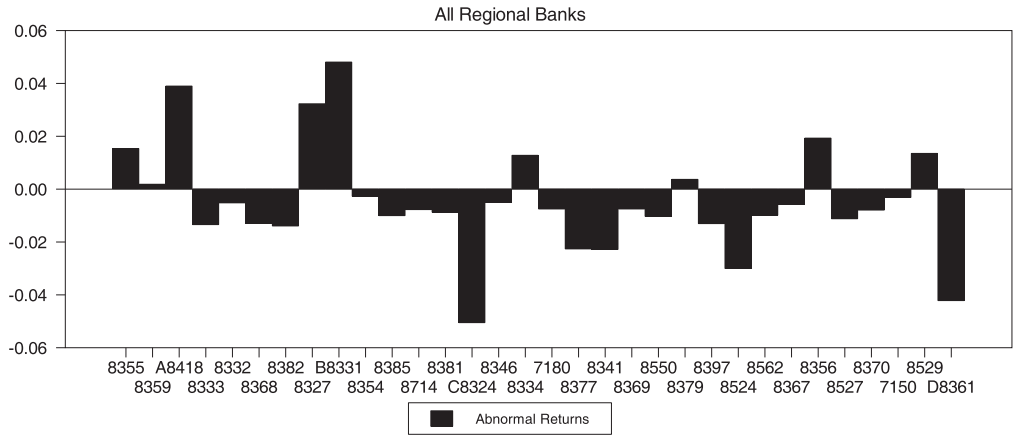

Figure 4. Announcement Day Abnormal Returns for All 32 Regional Banks, Ordered from 2000 to 2019

returns of our population of regional banks. This figure shows the same data as Figure 3, except that it rearranges the data chronologically from the year 2000 on the left to the year 2019 on the right. Also, the figure labels the outlier regional banks listed in Table 6 with letters: A, B, C and D.

Figure 4 shows no clear trend in the abnormal returns of regional banks. Abnormal returns in the early portion of the period are not noticeably different from abnormal returns in the later portion of the period. And if we exclude the outlier regional banks, abnormal returns seem fairly consistent over the whole period. These abnormal returns are mostly negative with a few positive returns.

8. Thoughts on the Results

The empirical results are clearly inconsistent with the hypotheses described in section 3. We are unable to support the idea that offering securities services in banks increases bank profitability as suggested by Johnston and Madura (2000). The efficient market apparently regards the offering of securities services by regional banks as creating no value nor profit. Indeed, we find weak evidence that offering security services reduces value and profits. Similarly, we are unable to find evidence that diversification arising from combining different types of financial services, such as banking and the securities business, improves bank profitability. Combining different businesses probably does reduce overall bank risk, yet the stock market apparently does not consider this change as creating value. This is inconsistent with Berger et al. (1999).

It is interesting to consider why the stock market seems to regard collaboration announcements with indifference, or perhaps even negatively. As mentioned briefly above, the benefits of mergers tend to go to targets. Joint ventures may also have asymmetric benefits. Perhaps the market regards most collaborations as not benefiting bank equity holders. Yet another possibility is that the market regards the very concept of a "financial supermarket" as unpromising. Securities firms already have well-staffed offices in the same markets that are served by regional banks. The stock market might not be convinced that offering financial services under one roof will provide customers with more appealing products, nor result in cost savings and synergies.

Another and more recent explanation for the apparent lack of value associated with securities firm collaboration is the possibility that the securities industry itself

is experiencing fundamental challenges to its profitability. With the advent of electronic trading, which includes the growing popularity of small investors trading on their cellular telephones, it is not at all clear that stock brokerages can offer their traditional products and services while earning a decent profit. According to *Nikkei Morning Edition* (2023), SBI Securities (from September 30, 2023) and Rakuten Securities (from October 1, 2023) will waive trading fees for Japanese stocks. SBI and Rakuten will each lose 10 to 20 percent of their revenues, forcing them to engage in a desperate war of attrition with their competitors. If these two companies adopt zero commissions, individual investors may develop the view that fees are not justified, and the entire industry will come under increasing pressure to eliminate fees. Securities companies already have a low reputation on the stock market because their earnings fluctuate and their profit margins are low. Eliminating stock trading fees may lead to a reorganization of the securities industry, and would also have an impact on bank-securities firm collaboration. In North America, many brokerages have adapted to the shift to zero commissions by being paid for their order flow. This brokerage model operates on the assumption that it receives revenues by routing retail buy and sell orders to specific, for-profit, market makers rather than the floor of the stock exchange. It is far from clear when, or even if, payment for order flow will be possible in Japan.

One potential issue with this research is that it focuses solely on the stock market's evaluation of collaboration announcements. We think that this is valid, and very much consistent with well-established methodology. Yet, there are other criteria that might be useful in the evaluation of collaborations. In particular, bank accounting data might be helpful. Accounting profits, retention of accounts and asset growth are also valid measures of bank success. We intend to explore these alternative measures of bank success in future research.

9. Conclusion

We began this research with the idea that collaborations with securities firms would improve regional bank value and profits. It seemed reasonable to argue that securities firm collaborations would help address the existential problems that are devastating Japan's regional banks. Nevertheless, we find little evidence that collaboration with securities firms creates value or profits — at least as measured by an efficient stock market. There is fairly convincing evidence that collaborations

might actually destroy bank value. The one positive result is that collaborations with Tokai Tokyo Securities might create value. Yet, this result is largely driven by a single collaboration with Yamaguchi Bank.

Our conclusion is that collaborations between regional banks and securities firms do not make regional banks more valuable, nor more profitable. There is no evidence to suggest that securities firm collaborations will improve the general health, and the long-term viability of regional banks. Regional banks would be wise to pursue other forms of reorganization as alternatives to collaborations with securities firms. Collaboration is *not* a solution to the problems faced by Japanese regional banks.

References

Aigbe, Akhigbe and Jeff Madura (2004) Bank Acquisitions of Security Firms: The Early Evidence, *Applied Financial Economics* 14, 485–496.

Berger, Allen N., Demsetz, Rebecca S., Strahan, Phillip E. (1999) The Consolidation of the Financial Services Industry: Causes, Consequences, and Implications for the Future, *Journal of Banking & Finance* 23, 135–194.

Boyd, John H. Stanley L. Graham, and R. Shawn Hewitt (1993) Bank Holding Company Mergers with Nonbank Financial Firms: Effects on the Risk of Failure, *Journal of Banking and Finance* 17, 43–63.

Brown, Stephen and Jerold B. Warner (1980) Measuring Security Price Performance, *Journal of Financial Economics* 8, 205–258.

Brown, Stephen and Jerold B. Warner (1985) Using Daily Stock Returns: The Case of Event Studies, *Journal of Financial Economics* 14, 3–31.

Casu, Barbara, Pnagiotis Dontis-Charitos, Soriris Staikouras and Jonathan Williams (2016) Diversification, Size and Risk: The Case of Bank Acquisitions of Nonbank Financial Firms, *European Financial Management* 22(2), 235–275.

Chordia, Tarun, Richard Roll and Avanidhar Subrahamanyam (2005) Evidence on the Speed of Convergence to Market Efficiency, *Journal of Financial Economics* 76(2), 271–292.

Corrado, Charles J. and Cameron Truong (2008) Conducting Event Studies with Asia-Pacific Security Market Data, *Pacific-Basin Finance Journal* 16, 493–521.

Fama, Eugene F. and Kenneth French (1993) Common Risk Factors in the Returns of Stocks and Bonds, *Journal of Financial Economics* 33, 3–53.

Fama, Eugene F. Lawrence Fisher, Michael C. Jensen and Richard Roll (1969) The Adjustment of Stock Prices to New Information, *International Economic Review* 10, 1–21.

Harijoto, Maretno A. Ha-Chin Yi and Tosporn Chotigeat (2012) Why Do Banks Acquire Non-banks? *Journal of Economics & Finance* 36, 587–612.

Oki, Hidetaka (2023) Biggest Japan Online Brokers to Debut Zero-Commission Stock Trades: Top

Online Brokerages SBI, Rakuten Lead Way in Hunt for Retail Investors, Downloaded from the World Wide Web on October 7, 2023: Asia Nikkei.com/Business/Finance? Biggest-Japan-onlinebrokers-to-debut-zero-commission-stock-trades

Johnston, J. and Jeff Madura (2000) Valuing the Potential Transformation of Banks into Financial Service Conglomerates: Evidence from the Citigroup Merger, *Financial Review* 41, 17–36.

Kizuna Financial Markets R&D (2017) Chihouginkou no Syouken Business (in Japanese)

Kobayashi, Ayami (Tanaka) and Marc Bremer (2022) Lessons from Mergers and Acquisitions of Regional Banks in Japan: What Does the Stock Market Think?, *Journal of The Japanese and International Economies* 64, 1–16.

MacKinlay, Craig A. (1997) Event Studies in Economics and Finance, *Journal of Economic Literature* 35, 13–39.

Nakahara, Shin (2018) Chiikiginkou no Syoukenkogaisya no Keieidoukou, *Bank of Japan Review* 18–J–2 (in Japanese)

Nikami, Kiyoshi (2020) Chiginkei Syokenkaisya ni Tsuite, *Syouken Report* No. 1723 (in Japanese)

Nikkei Morning Edition (2023) Nihonkabu no Muryouka SBI Happyo ni Rakuten Tuizui, September 1, (in Japanese)

Ramirez, Carlos D. (2002) Did Banks' Security Affiliates Add Value? Evidence from the Commercial Banking Industry during the 1920s, *Journal of Money, Credit, and Banking* 34(2), 393–411.

Sweeney, Richard J. (1991) Levels of Significance in Event Studies, *Review of Quantitative Finance and Accounting* 1, 373–382.

Yamori, Nobuyoshi, Kozo Harimaya and Kazumine Kondo (2003) Are Banks Affiliated with Bank Holding Companies More Efficient Than Independent Banks? The Recent Experience Regarding Japanese Regional BHCs, *Asia-Pacific Financial Markets* 10, 359–376.