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## Certification announcement effect of financial holding company – a GARCH event study

### Abstract

This study discusses the certification announcement effect in financial holding companies (FHC) when they get other business licenses. The paper discusses the trend of financial holding company in the USA, Japan and Taiwan. Next, the authors explore the advantages and disadvantages of financial holding companies and examine the investors' expectation about the merger event. In addition, the paper discusses the conflicts between commercial banking and investment banking and explore the empirical literature that examine the conflicts of interest effect in bank's underwriting activities. The study focuses on the certification announcement effect between different business mergers, especially the commercial banking, investment banking, and insurance industry. The paper conducts a GARCH (1,1) model to examine the effect of the fourteen FHCs newly established in Taiwan. Except the certification announcement effect, the authors also compare the stock price performances of conglomerate FHCs and non-conglomerate FHCs, head-quarter and its affiliates.

**Keywords:** certification effect, financial holding company, merger, conflicts of interest, commercial banks, investment banks, GARCH model.

**JEL Classification:** G14, G24, G34.

### Introduction

In recent years, the government started a series of revolution because of the continuous financial environment worsening and promulgation of the Financial Institution Merger Act (FIMA) on December 13, 2000, and implementation of Financial Holding Company (FHC) Act on November 01, 2001. These Acts speed up the merger of financial institutions and the establishment of financial holding companies. Because of the trend of financial holding companies, we want to discuss the subject about that if there really exists certification effect about the merger.

This study discusses the certification announcement effect in FHCs when they get other business licenses. We discuss the trend of financial holding company in the USA, Japan and Taiwan. Next, we explore the advantages and disadvantages of FHCs and the focus of this study is to examine the investors' expectation about the merger event. In addition, we discuss the conflicts between commercial banking and investment banking and explore the empirical literatures that examine the conflicts of interest effect in bank's underwriting activities.

The study focuses on the certification announcement effect between different business mergers, especially the commercial banking, investment banking, and insurance industry. We conduct a GARCH (1,1) model to examine the effect of fourteen FHCs newly established in Taiwan. Except the certification announcement effect, we also compare the stock price performances of conglomerate FHCs and non-conglomerate FHCs, head quarter and its affiliates.

After summing up the abnormal returns, we found the CAR of the six classifications were all positive;

that is, there was existing "certification effect". We also took a look at the performance of head quarter and its affiliates and found that the performance of affiliates is better than head quarter. This is consistent with the empirical studies: The stock price performances of the targets are always better than that of the acquirers. At last, there is no apparently evidence to show that the performance of conglomerate FHCs or non-conglomerate FHCs is better than the other.

The rest of this paper is organized as follows. Section 1 reviews the literature and develops the hypotheses. Data and empirical methodology are discussed in section 2. Empirical evidences are presented in section 3. The final section concludes.

### 1. Literature review and hypotheses

The Glass-Steagall Act restricted commercial banks from engaging in securities underwriting, from taking positions for their own accounts in certain types of securities, and from acting as agents for others in securities transactions. These activities were to be the domain of the investment banks and related securities firms. On the other hand, investment banks were barred from deposit taking and corporate lending. These activities were to be the domain of commercial banks<sup>1</sup>. It seems that businesses of insurance industries don't have apparent conflicts with commercial banks and investment banks. In this section, we will focus on the discussion of the core business of commercial banks and investment banks and then talk about the conflict nature between these two businesses.

Commercial banks perform functions similar to those of savings institutions and credit unions, that is, they accept deposits and make loans. However,

they differ in their composition of assets and liabilities, which are much more varied. Commercial bank liabilities usually include several types of non-deposit sources of funds, while their loans are broader in range, including consumer, commercial, and real estate loans. By accepting deposit and making short-term loans, commercial banks play the role as both supplier and demander in the money market. In addition to that, they usually have branches all over the country and take deposit from the public. As stated above that the loss in public confidence may have contagion effect, thus will result in bank runs and the collapse in the financial market. As a result, the safety and soundness of commercial banks tend to be much more important than that of other financial institution. Therefore, the building of safety net such as deposit insurance or discount window and the restriction on commercial banks' investment decision are required.

Due to the reasons stated above, risk management should be an important issue to commercial banks, especially the liquidity risk management. To reduce the risk of a liquidity crisis, banks can insulate their balance sheets from liquidity risk by efficiently managing their liquid asset positions or managing the liability structure of their portfolios. Banks are more than willing to hold securities as their liquid assets for their high rate of return and high liquidity. With high returns, banks may earn profit from holding large position in securities; on the other hand, banks may cash out securities immediately when there's a need in deposit withdrawal.

To see whether conflicts of interest really exist in the underwriting activities of commercial banks, we must conduct an empirical research. Puri (1996) provided empirical evidence regarding conflicts of interest by analyzing ex ante pricing of securities underwritten by commercial banks and investment banks in a pre-Glass-Steagall period. It is one of the first papers to evaluate conflicts of interest by examining ex ante pricing.

There are studies that assess conflicts of interest by examining ex post default performance. Kroszner and Rajan (1994) found no evidence of conflicts of interest in bank underwriting during the period of 1921-1929. Not only bank affiliate underwrote higher-quality issues, but also they found that the affiliate-underwritten issues performed better than comparable issues underwritten by independent investment banks. The superior affiliate performance is most pronounced among the lower-rated and more information-intensive issues<sup>1</sup>. The public appears to rationally account for the possibility of

conflicts of interest and this appears to constrain the banks to underwrite high-quality securities<sup>2</sup>.

However, examining only ex post default performance is inadequate for reaching conclusions regarding the exploitation of potential conflicts of interest. Examining a security's pricing is equally important, since this pricing reflects expected default rates on the security. For example, even if bank-underwritten securities defaulted more often, but investors paid substantially less for these issues, it would be unclear whether conflicts of interest had been exploited (Puri, 1996).

To understand how conflict of interest is reflected in a security's pricing, it is important to examine the underwriters' incentives in certifying a security's value. The commercial banks' incentives are different from investment houses' in that commercial banks also conduct loan-making activities. In making and monitoring loans, commercial banks may obtain information, which is not accessible by external investors. With this private information, commercial banks may encounter two contrast effects: certification effect or conflicts of interest effect.

Commercial banks, as opposed to investment houses, can access to private information about the firm through loan monitoring activities. This private information can have two opposing effects. First, conflicts of interest effect make the bank misrepresent the value of the firm's securities and use the proceeds to repay loans at the bank. Second, according to the certification effect, with this private information, the bank can certify the firm's value more accurately.

By owning private information itself, commercial banks stand in better positions in certifying a security's value than investment houses. With proper use of private information, commercial banks' underwriting can have a stronger certification effect than those of investment houses. Therefore, investors would be willing to pay more for the securities underwritten by commercial banks and then price these securities higher.

But what if commercial banks misuse this private information gained through their lending activities? For example, a firm having bank loans outstanding may want to raise money by public offering. At this time, the bank who is the creditor of the firm may use the proceeds from the issue to pay down loans by underwriting the firm's securities. The bank encounters a conflicts of interest effect in this situation because it protects its own interest at the expense of outside investors.

<sup>1</sup> See Kroszner and Rajan (1994), *supra* note 14, at p. 829.

<sup>2</sup> For more research of conflicts of interest by examining ex post default performance, see Ang and Richardson (1994), Puri (1994), Allen and Jagtiani (2000), Duarte-Silva (2010), Shivdasani and Song (2011).

Rational investors should anticipate which financial intermediary is in a better position in certifying a security's value and price the security accordingly. To be more specific, a rational investor should price the bank-underwritten issue lower (have higher yields) than similar investment house underwriting if he/she perceives there's strong conflicts of interest effect. On the contrary, if the conflicts of interest effect is small which means the bank stands in a better certification role, the price of the bank-underwritten issue should be higher.

Puri (1996) found that bank-underwritten issues generated higher prices than similar investment-house underwritings suggesting that conflicts of interest were minimal. Thus, investors perceived such issues to be of higher quality, *ex ante*. This result of higher *ex ante* quality by investors for bank-underwritten securities supports the research findings regarding *ex post* quality. The results of this paper also suggest that there is a higher net certification effect (that is, the certification effect net of any conflicts of interest) for more junior an information-sensitive security.

Puri (1999) has three major findings. First, how prior financial claims held by the commercial bank affects its underwriting behavior? The prior financial claims held by commercial banks can cause banks to obtain better prices for underwritten securities than investment houses, particularly when information collection costs are high. That is commercial banks have certification effect on information sensitive securities. This finding is consistent with the research done by Puri (1996). Second, whether the kind of financial claims held by the bank, either debt or equity, affects the ability of the bank certify securities and the prices of securities that is underwrites? The generally accepted view is that holding equity plays a positive role in enhancing the credibility of the bank, and in reducing potential conflicts of interest. But Puri (1999) finds that this result need not always be the case. His research shows that when the proceeds of the security issue are used to liquidate bank claims, equity holdings reduce the credibility of the bank as an underwriter, more so than debt claims. That is, equity holding can hinder banks' certification ability. Third, whether the banks' advantage in accessing the private information of the firm will allow banks to drive specialized investment houses from the market? Puri (1999) finds that banks and investment houses can coexist in a given economy. While the information advantage that banks may allow them to obtain higher prices, the gains to the firm can be offset by banks charging higher underwriting fees, and by their extracting rents from the firm.

Studies conducted after the relaxation of the 1933 Glass-Steagall Act, allowing commercial banking subsidiaries to participate in the underwriting of corporate bonds and equities, also support the certification effect of commercial banks. For example, Gande et al. (1999) show that those debt instruments, which were underwritten by commercial banks tend to be issued at a higher price. Benzoni and Schenone (2010) compare the long-run returns of IPO equity issues underwritten by "relationship banks" and "independent banks" and support the certification role of commercial banks.

Liu et al. (2012) examine the regulatory impact by investigating whether credit spreads at the time of issuance can be explained by ultimate recovery rates at the time of default. Specifically, they want to find out if the explanatory power of recovery rate has been strengthened after commercial banks are allowed to underwrite corporate securities. They find that recovery rate is reflected in the spread at issuance, and their relationship has become more significant since commercial banks were allowed to underwrite corporate securities. Moreover, the enhanced informativeness of recovery rate can be attributed to the lowering of information asymmetry.

Our study focuses on the certification announcement effect between different business mergers, especially the commercial banking, investment banking, and insurance industry. We conduct a GARCH (1,1) model to examine the effect of the fourteen FHCs newly established in Taiwan. This gives us our first hypothesis.

*H1: The CARs of the six classifications are positive.*

Except the certification announcement effect, we also compare the stock price performances of conglomerate FHCs and non-conglomerate FHCs, head quarter and its affiliates. This gives us our second hypothesis.

*H2: The performance of conglomerate FHCs is better than that of non-conglomerate FHCs.*

## 2. Data and methodology

This study explores the certification announcement effect of FHCs. There are fourteen financial holdings which are listed on TSE and TAISDAQ until March 2003. The data used are the daily returns of the stocks and their corresponding market index returns. All of these data are obtained from the official TSE and TAISDAQ website. The sample period for each stock ranges from 30 days before and 30 days after the announcement of the merger.

To identify the certification effect that one company has earned after the merger, these components of the financial holding companies are sorted into three

different domains according to their business. These businesses are commercial bank, investment bank and insurance company. After sorting these companies, we find the earliest announcement date of the merger and collect the stock price 30 days before and after the date. Calculating the daily return of the stock and corresponding market index and employing them into the GARCH (1,1) model, with the market index return as the exogenous factor.

The GARCH (1,1) model:

$$\begin{aligned}
 R_t &= \alpha + \beta \cdot Rm_t + \varepsilon_t, \\
 h_t &= A + B \cdot h_{t-1} + C \cdot \varepsilon_{t-1}^2, \\
 \varepsilon_t &\sim N(0, h_t),
 \end{aligned}
 \tag{1}$$

where  $R_t$  is the return of a single stock in period  $t$ , which is defined as  $\ln(P_t / P_{t-1})$ .  $Rm_t$  is the return of the market on which the certain stock is listed.  $\beta$  is the coefficient which is measuring the effect that exogenous factor on the return of certain stock.  $\varepsilon_t$  is the residual of the stock return in period  $t$ , which obeys the normal distribution, with 0 as its mean and  $h_t$  as its variance.  $h_t$  is the conditional variance in period  $t$ .

Using the GARCH process as a filter, we can obtain the abnormal return which is represented by  $\varepsilon_t$ , the residual of the model, represents the abnormal return of the single stock, which can't be explained by the market factor in period  $t$ .

Counting up the  $T$  days AR for each stock and summing up the CAR of each stock which belongs to the same business domains. We obtain the last CAR by dividing the number of companies of each classification. The formula is as follows:

$$\frac{1}{n} \sum_{i=1}^n \sum_{t=1}^T e_{it} = CAR,
 \tag{2}$$

where  $n$  is the number of companies of each classification.  $T$  is the number of days after announcement.

### 3. Empirical findings

Tables 1 and 2 show that CARs of the six classifications are basically positive, indicating that the markets are in favor of the mergers. This is what we mean by the certification announcement effects. The positive CARs are mainly due to the combination of the resources among different financial institutions. The banks, insurance companies and security houses can share their customer bases and cross-sell their products and services by providing some extra benefit to customers of components of the financial holding. Moreover, although they are regulated by an internal firewall, they can finance one another directly to deactivate it. Next paragraphs discuss more details about the advantages.

Table 1. CAR before and after announcement 1 day

3 days	1 (CB-IB)	2 (CB-IN)	3 (IB-CB)	4 (IB-IN)	5 (IN-CB)	6 (IN-IB)
Average	2.3969	-0.5753	1.6806	0.8675	3.0461	1.0208

Note: Summing up the abnormal returns of the day before announcement, announcement date, the day after announcement.

Table 2. CAR before and after announcement 5 days

11 days	1 (CB-IB)	2 (CB-IN)	3 (IB-CB)	4 (IB-IN)	5 (IN-CB)	6 (IN-IB)
Average	7.1848	2.3327	7.3727	1.3565	6.8240	6.5631

When a commercial bank obtains an insurance license, the long-term fund of the insurance company is the most benefit for the commercial banks. This reduces the duration mismatch of commercial banks. After the merger, the commercial bank can use both short-term and long-term fund to be engaged in its operating activities. In addition, with commercial banks' many outlets, they can sell insurance products at the counters and make more economic efficacy from the fixed costs they pay for the outlets. For the same reason, the insurance companies increase their channels to sell their policies. This is well known as the "synergies" of merger. And as they finance the commercial banks, they actually locate their assets at a relative less risky place.

The investment banks play an interesting role in financial holdings. Of course they can exchange their customer bases with commercial banks and benefit each other. But further, they can give some more detailed information of their institutional clients to the commercial banks for their references when offering their credits. This reduces the information asymmetry and lowers the risk of commercial banks. On the other hand, the investment banks can help to improve the duration mismatch of commercial banks by securitizing their long-term portfolio, most of which are real estates. In the investment banks' point of view, they can find loyal companions when investing in financial instruments. For example, the issuances of convertible bonds, most with maturities less than 7 years, are more and more popular in Taiwan. Security houses are looking for investors who can take the straight bonds decomposed from convertibles. In this example, the commercial banks have an investment with less duration whereas the investment banks have a call option with very low cost<sup>1</sup>. Thus, both of them take advantages from each other.

The situation is similar when an insurance company cooperates with an investment bank. Investment

<sup>1</sup> The implied volatility of stock warrants in Taiwan is in average 40%-60%, depending on the maturities. However, because of the severely discounted pricing of convertibles, the implied volatilities of the embedded call options are usually 8%-12%, leading to a very beneficial investment, though somehow risky, or an opportunity to arbitrage if there are other warrants of the same underlying securities trading in the exchange.

banks can securitize the large real estate investments of insurance companies in Taiwan. Insurance companies can be the investors of financial products. As the example in the last paragraph, insurance companies would be glad to include the corporate bond in their portfolios. Generally speaking, the three main parties, insurance companies, investment banks and commercial banks, are all benefited by sharing customer bases to increase business opportunities, rearrange the financial risks, and support one another with capitals of different durations. Undoubtedly, the formation of financial holdings does benefit the share holders of financial institutions and became a current around the world.

Tables 3 and 4 show the comparison of the head-quarters and its affiliates. From the table we can find that the affiliates' performance of the 3 days CAR (the day before announcement, announcement date, and the day after announcement) and the 11 days CAR is both better than that of the head quarters. This is consistent in the empirical studies (e.g., Bradley et al., 1988; Houston et al., 2001; Leeth and Borg, 2000): The stock price performances of the targets are always better than that of the acquirers.

Next, we compare the conglomerate FHCs with non-conglomerate financial holding companies. The results of Tables 5 and 6 is not the same and we can't tell which one is better than the other.

Table 3. CAR before and after announcement 1 day (head quarter and affiliates comparison)

3 days	Head quarter		Affiliates
Fubon Insurance	-2.8790	Fubon Securities	3.0158
	-0.6768	Fubon Bank	-1.9409
HUA NAN Commercial Bank	4.1634	Taipei Bank	11.6905
China Development Industrial Bank	0.4592	Entrust Securities	5.8492
	-6.4365	Grand Cathay Securities	4.2145
Cathay Life	6.4998	United National Bank	1.9502
	1.5442	United World Chinese Commercial Bank	11.7603
E. Sun Bank	0.3596	ICBC	-0.5304
Chiaotung Bank	1.1276	China insurance	5.5174
	-1.2808	Chung Hsing Bill Finance Corp.	10.2909
	-0.5691	Apac Bank	3.3819
Fuhwa Securities	1.3223	Baodao Bank	-0.3330
JHHSUN Securities	-5.4922	Dah An Commercial Bank	-1.9508
Taishin Commercial Bank	1.7380	Taiwan Securities	6.0667
	9.8068	National Securities	7.8925
Shin Kong Life	0.4241		
Waterland Bills Finance	5.6102		
SinoPac Bank	0.5611		
Chinatrust Bank	0.1381		
Average	0.8642	Average	4.4583

Table 4. CAR before and after announcement 5 days (head quarter and affiliates comparison)

11 days	Head quarter		Affiliates
Fubon Insurance	-0.5297	Fubon Securities	6.3484
	-2.8121	Fubon Bank	3.8917
HUA NAN Commercial Bank	13.6546	Taipei Bank	14.2513
China Development Industrial Bank	3.7897	Entrust Securities	5.1565
	2.5807	Grand Cathay Securities	11.9095
Cathay Life	-0.5715	United National Bank	7.5080
	-8.3851	United World Chinese Commercial Bank	13.4171
E. Sun Bank	3.5100	ICBC	-3.1345
Chiaotung Bank	16.2250	China insurance	21.5732
	-3.6354	Chung Hsing Bill Finance Corp.	31.2650
	-0.5691	Apac Bank	-1.3133
Fuhwa Securities	-0.8196	Baodao Bank	-2.0730
JHHSUN Securities	1.9479	Dah An Commercial Bank	1.8148
Taishin Commercial Bank	-4.5108	Taiwan Securities	-6.8194
	7.4767	National Securities	20.9361
Shin Kong Life	-1.3541		
Waterland Bills Finance	15.7618		

Table 4 (cont.). CAR before and after announcement 5 days (head quarter and affiliates comparison)

11 days	Head quarter		Affiliates
SinoPac Bank	10.2181		
Chinatrust Bank	1.4442		
Average	6.9229	Average	10.6000

Table 5. CAR before and after announcement 1 day  
(conglomerate FHCs and non-conglomerate FHCs comparison)

3 days	Conglomerate		Non-conglomerate
Fubon	-2.8790	HUA NAN	4.1634
	3.0158		5.8492
	-1.9409	China Development	0.4592
	-0.6768		-6.4365
	11.6905		4.2145
Cathay	6.4998	Maga	1.1276
	1.9502		-1.2808
	1.5442		-0.5691
	11.7603		-0.5304
E. Sun	0.3596		5.5174
Chinatrust	0.1381		10.2909
Taishin	1.7380	JHHSUN	-5.4922
	-1.9508		-0.3330
	9.8068	Fuhwa	1.3223
	6.0667		3.3819
		Shin Kong	0.4241
		Waterland	5.6102
		Sinopac	0.5611
			7.8925
Average	3.1415	Average	1.9038

Table 6. CAR before and after announcement 5 days  
(Compare conglomerate FHCs and non-conglomerate FHCs)

11 days	Conglomerate		Non-conglomerate
Fubon	-0.5297	HUA NAN	13.6546
	-2.8121		5.1565
	6.3484	China Development	3.7897
	3.8917		2.5807
	14.2513		11.9095
Cathay	-0.5715	Maga	16.2250
	-8.3851		-3.6354
	7.5080		-0.5691
	13.4171		-3.1345
E.Sun	3.5100		21.5732
Chinatrust	1.4442		31.2650
Taishin	-4.5108	JHHSUN	1.9479
	7.4767		-2.0730
	1.8148	Fuhwa	-0.8196
	-6.8194		-1.3133
		Shin Kong	-1.3541
		Waterland	15.7618
		Sinopac	10.2181
			20.9361
Average	2.4022	Average	7.4800

We collected the sixty CAR data (30 days before and after the announcement) and drew them on the figure. According to the different classifications and different merger events, we had the following results.

Figure 1 presents the average of the whole events. We can find that there is an apparent jump 5 days before announcement and the CAR is positive after the announcement. Figures 2 and 3 show the head

quarters' trend in comparison with the affiliates' and the conglomerate FHCs trend in comparison with the non-conglomerate FHCs. We can find that the CAR performances of the affiliates are much better than that of the head quarters and the CARs of the affiliates are always positive. The trends of the conglomerate FHCs and non-conglomerate FHCs are not very different and we can't recognize which one is better performed than the other. Figures 4 and 5 present that the trend of the six classifications; there are commercial banks which get investment banking licenses

(CB-IB), commercial banks which get insurance licenses (CB-IN), investment banks which get commercial banks' licenses (IB-CB), investment banks which get insurance licenses (IB-IN), insurance companies which get commercial banks' licenses (IN-CB), insurance companies which get investment banking licenses (IN-IB). Most of them had an ascending trend after the announcement and were positive. The best performers are the CB-IN and IB-IN and the possible explanation is that the insurance companies can supply their stable long-term fund.

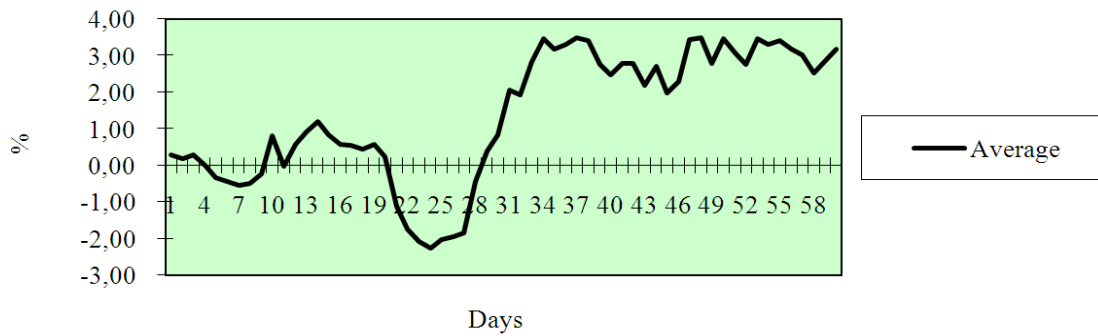


Fig. 1. CAR before and after announcement (average)

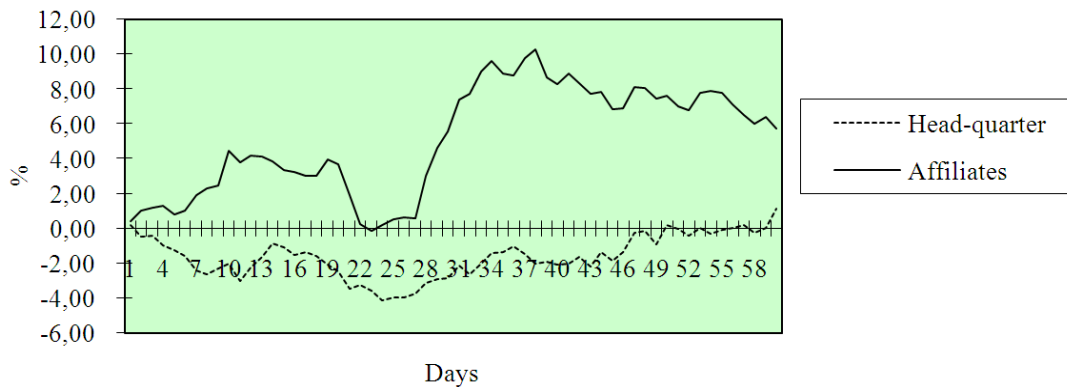


Fig. 2. CAR before and after announcement (head quarter and affiliates)

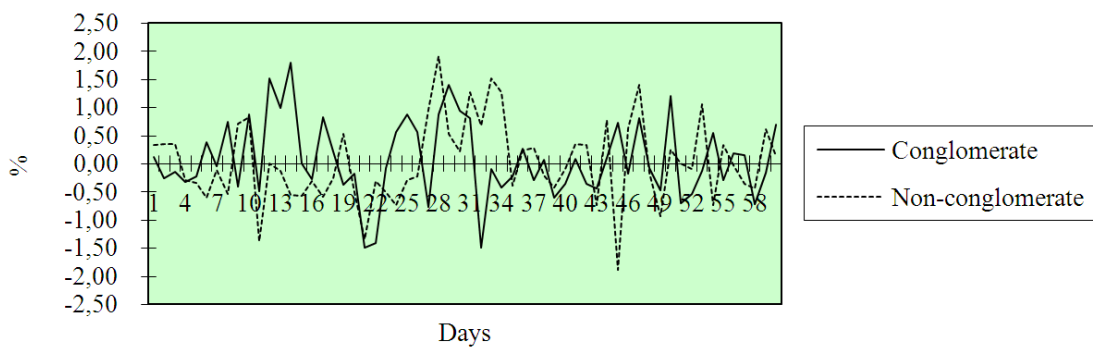


Fig. 3. CAR before and after announcement (conglomerate FHCs and non-conglomerate FHCs)

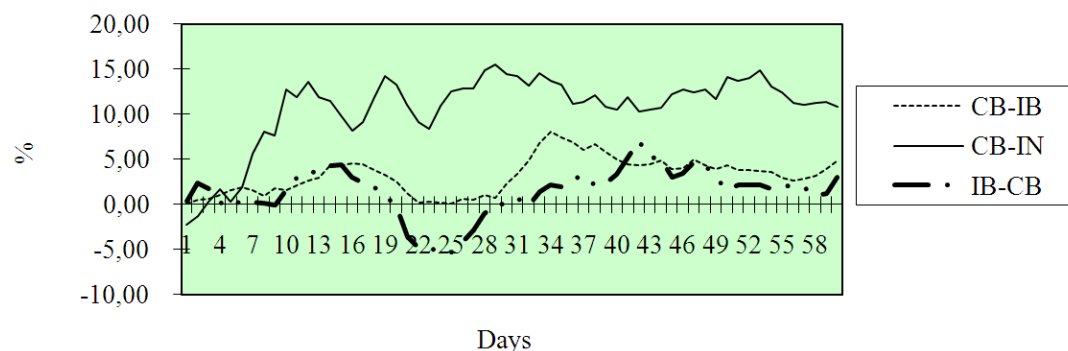


Fig. 4. CAR before and after announcement (CB-IB, CB-IN, IB-CN)

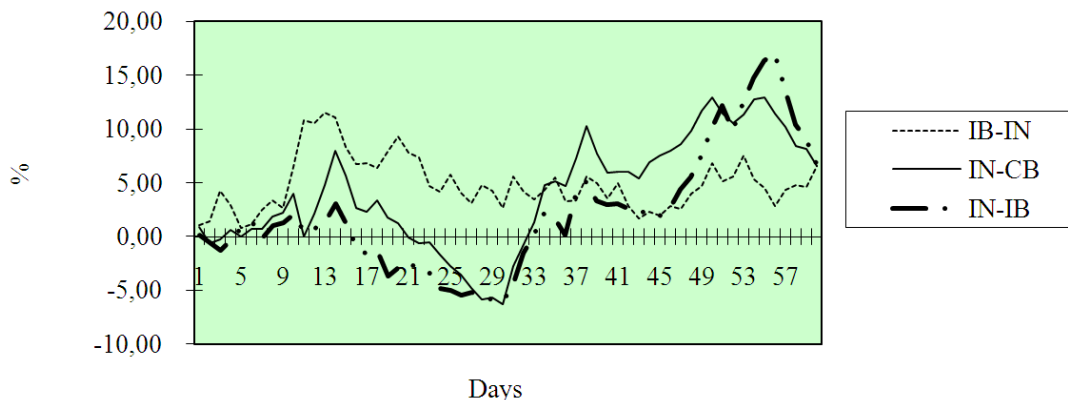


Fig. 5. CAR before and after announcement (IB-IN, IN-CB, IN-IB)

### Conclusion

This study is focused on the certification announcement effect of FHCs. First, we took a look at the development of the USA and Japan and also introduced the financial revolution process of Taiwan. The FHC system is a future trend in response to the globalization of financial business and the variation of financial environment. Next, we discussed the advantages and disadvantages of FHCs. It seems that the establishment of FHC is good to customers, stockholders, and investors, but it is also more difficult to manage and control risk between such a big “company”.

Before Glass-Steagall Act, commercial banks could underwrite corporate securities as investment banks.

There is always a controversy about the role that commercial banks played. We discuss the core business of commercial banks and investment banks and then talk about the conflict nature between these two businesses. At last, we conduct a GARCH (1,1) model to examine the “certification effect”. The definition in this study is the CAR after announcement date and we found that there is existing certification effect, that is, investors believe that the merger is good news! This study is focused on the “short-term” effect and we can roughly say that the establishment of financial holding companies is always bringing the good performance of stock price. To further research, we can examine the real synergy of the financial holdings and compare different kinds of FHCs in the future.

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