

YMC Management Review**Volume 16, No.1, 2023 pp. 1-19****The Determinants of Financial Holding Company's Profitability in Taiwan****Chanthalasy Vaenthong**

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Abstract

This paper aims to investigate the determinants of profitability of Financial Holding Company's (FHC) based on the panel data of thirteen listed firms in Taiwan Stock Exchange. This study uses the data for the period from 2007 to 2017. To verify the efficiency of empirical results, the ordinary least squares (OLS) method in SPSS software is used to examine the relationship between internal and external factors and FHC's profitability, which is measured by Return on Asset (ROA) in this study.

The empirical results indicate that all variables in micro and macro-determinants in this study will significantly affect FHCs' profitability. More precisely, in micro-determinants, there is a significantly positive relationship between the asset size, the total deposit to liability ratio and ROA. However, the relationship between total debt ratio, operation expenses to net sales ratio and ROA are significantly negative. In addition, in macro-determinants, the study concludes that the USD to NTD exchange rate, Gross Domestic Product, and money supply will have a significantly positive relationship with ROA.

Keywords: *Micro-determinants, Macro-determinants, Financial Holding Companies.*

1. Introduction

Financial institutions are corporations that provide services as intermediaries in financial market. Financial Holding Company (FHC) is one of the primary financial institutions and formed by the group of commercial banks, life insurance companies, and securities companies. To expand operational scale, it allows cross-selling and client's information sharing in industry by one-stop service. These advance FHC to over their competitors on cost saving and diversification of products and services. The damage of Asia financial crisis in 1997 and world economic decline in 2000 influence many countries in Asia as Japan, South Korea, China include Taiwan to restructure their financial system by establishing financial holding company. The main purpose of this paper is to provide a better environment for business operation, boost economy and increase the synergy of financial industry to advance their competitors.

Taiwan financial holding company was established in 2001 by the Financial Institution Merger Act on 13 December 2000 and Financial Holding Company Act on 9 July 2001. During the period between 2000 and 2003, Taiwan faced with the global world economic downturn. Which damaged Taiwan with double raising of number of unemployed from 2.89% in 2000 to 5.11 % in 2002 (Figure 1), many enterprises were shut down, and financial institutions had to hold bad loan quality as total non-performing loan peak to 7.48% in 2001. To solve problems, Taiwan government decided to reform financial system with objective to develop bank size, increase synergy of financial institutions, and enhance their competitiveness on financial market. After the establishment of a FHC, it plays the important role to contribute the development of Taiwan economic by decreased non-performing loan values to 6.12% in 2002, continued to fall down to 2.81% in 2004 and the economy growth rate had increased 6.83% from -1.26% in 2001 to 5.57% in 2002.

The question of which factors can determine the efficiency of financial holding company on generating profitability is a significant issue to interpret the directly influence the policy decisions on FHCs in Taiwan. And the results of efficiency analysis support firms to clearly realize on the overall effect of independent factors to FHC's performance. Especially, micro-determinants group relates to the operating efficiency of FHCs. Firm size accounts to effect profitability through scale of economic and diseconomic concerning to costs per unit reduction. The sizable can offer bank to reduce their fixed cost over greater asset base, which contributes to reduce average cost of the bank (Liu & Hsu, 2014). Debt ratio has related to the loanable ability for financial institution. The higher of debt burden may affect potential of net income to be lower due to debt servicing (Raheman & Nasr, 2007; Shubita & Alsawalhah, 2012; Ching et al., 2011; Rao et al., 2007; Lazaridis & Tryfonidis, 2006). Operation expense as staff salaries, administration cost and etc. relates to bank profit through indicating ability of bank to manage and control their cost expense (Kosmidou, 2008). Deposit also plays a significant role in affecting bank's profitability. It provides the source and liability for the bank which has main affect to bank operation on generating

profitability (Rivard & Thomas, 1997; Anginer et al., 2012; Ogunbiyi & Ihejirika, 2014).

The second group affecting FHC's profitability is macro-determinants, which are some variables related to financial market environment of FHCs. To go a step further, these factors can affect whether FHCs will achieve the goal of high profitability. Currency exchange rate is associated with bank's activities involved with foreign currency transactions and foreign operations as lending, borrowing, transferring, etc. The instability of currency exchange may affect the gain or loss on bank profit (Obadan, 2006). GDP involves with the improvement of economic and personal level income, that supports buying-selling activities of people in economic. It is associated with bank profitability through affect amount of fund supply in the market as loans (Kumaran et al., 2018; Kosmidou, 2008). In addition, money supply concerns about the serving money to an economic of central bank to control inflation rate. This variable can affect the interest rate of borrowing and depositing account of financial institutions in central bank. Hence it will impact interest income and interest expense of financial institutions (Pan & Pan, 2014; Bourke, 1989). Investigating above relationships is the main purpose of this study, and the empirical results will be clearly described in the following chapters.

The structure of this paper is organized as follows: Section 1 introduces the motivation and purpose of this study. Section 2 presents the Taiwan's Financial Holding Company Sector and the literature reviews. Section 3 describes the data and methodology. Section 4 states the empirical results. Finally, section 5 interprets summary and future suggestion.

2. Literature Review

The prior literatures have investigated the performance of financial institutions and corporates in different economy, politics, and culture. The numerous determinants from specific bank factors, industry characteristics, and economic indicators are adopted to evaluate the ability to generate profitability. In this section, the main objective is to provide correlation results of variables in previous studies.

2.1 Microeconomic Determinants and Profitability

Micro-economic determinants are defined through the internal factors including scale of size, total debt to total assets, operating expenses management and total deposit to total liability, which reflects the management mechanism, policies issues, and profitability of financial institution and firms.

2.1.1 Asset Size

Based on the findings of DeYoung and Rice (2004) emphasize positive interrelation of bank's size and non-interest income in commercial banks of USA during 1989 and 2001 by stated that the proceeding of non-traditional

and transactions-based on strategies of large bank can enhance capacity of generation non-interest income. And Liu and Hsu (2014) who research the performance of FHCs in Taiwan from period 2001–2009, finding that size is the factor to encourage profitability. Since the integration of FHCs advocate economies of scale and creates a greater synergy on diversify products and services. Thus FHCs can capture higher earnings. Those results are in the same line with Ali et al. (2011), Sufian and Habibullah (2009), Sufian (2011) who analyze correlation in Pakistan, South Korea and Bangladesh.

However, in earlier papers also provide negatively affiliation of size and profitability due to the market and economic conditions. For example, Staikouras and Wood (2004) who evaluate the determinants of European banks, showed that assets size has non-supports the growing on profitability of big bank. On the account of the existence of diseconomies sales during upwards of size affects the shrink down on marginal returns of growth banks. Including Hawtrey and Liang (2008) also explain that bank's size influences adverse bank performance on the account of the big bank can afford to develop R&D more than small bank and enjoy with cost leadership policy at high interest rate payment on deposits and less charge on loan for consumers. It affects the falling down on interest margin and profit of big bank. Those results are in the same line with Obamuyi (2013) who researches Nigeria banks.

Other results have been found an insignificant association of asset size and bank's profitability by Athanasoglou et al. (2008) who investigate Greek's bank performance on period 1985-2001 by stipulated that the effect of mergers and acquisitions of bank has not yet arisen in Greek's financial industry.

2.1.2 Total Debt to Total Asset

Owing to firms and financial institutions are financed by debt but it also be their obligations to return. Thus there are many researchers curious about their association and evaluates the role of debt to firm performance. Led by Kebewar (2012) who examines the effect of short and long term debt to corporate profitability in French, showed that debt has disempower to impact French firm's profitability, only influence to the changing in firms' asset.

In addition, previous studies as Raheman and Nasr (2007) show that debt ratio has adversely related to profitability of Pakistani companies. To clarify that most of the company was financed by debt but the increment of debt raises leverage risk of firm. Abor (2005) supports These results by showed non-encourage of debt to bank profitability on account of long term debt is expensive cost and heavy for firms to return money. Proved the results by Shubita and Alsawalhah (2012), Ching et al. (2011), Rao et al. (2007), Lazaridis and Tryfonidis (2006) who research in Jordan, Brazilian, Omani and Greece companies.

However, based on the findings of Baum et al. (2006) show that short-term liability makes greater encouraged profitability than long-term liabilities of corporates in Germany due to it is better monitoring and controlling to

exploit on investment opportunities. These results are favored by Abor (2005) who analyses the association of debt to firm's performance in Ghana. By provided evidences that short-term debt is less expensive and low interest rate, therefore the raising on short-term supports the growing on profitability on business opportunities. And he also mentions that debt ratio will positively promote to profitability belonged to their financial options, encouraged this research results by Gill et al. (2011).

2.1.3 Operating Expenses Management

Operating expenses are parallel of business operation occurred during business function. Consequently, various researches apply operating expenses to examine operating efficiency and potential of firms and financial institution. Experienced by Kosmidou (2008) who discusses the association of operation cost with performance of Greek banks during the integration of financial system in EU. This research found that operating efficiency positively associates with bank profitability, due to operating efficiency measures high assurance of accretion in profitability, which correlates with wage theory on the increasing of wage cost encourages the growth in working efficiency of employees. Results are reacted by Tan and Floros (2012) who examine the associations in state-owned and joint-stock commercial banks in China interpret that the growth on cost efficiency and labor productivity advances financial institution performance.

However, Chinoda (2014) conclude no positive connection between operating cost and Commercial Banks Profitability in Zimbabwe. By stands with the reasons that large operation expense indicates low efficiency on operation management cost, thus the high cost can measure high risk which probably supports annual loss on assets through bad debt and doubtful debt. These results are in the same line with Said and Tumin (2011), Yao et al. (2018) analyzed in China and Malaysia.

2.1.4 Total Deposit to Total Liability

Deposit is one of the lowest fund resources of financial institutions, while it is also being short-term liability of bank to repay depositors. According to previous studies which appraise associations of deposit and profitability of financial institutions. Led by Vong and Chan (2009) who examine the determinant of bank profit in Macau have exposed insignificant correlation between customer deposits to bank performance. By explained that deposits can enhance profitability under the conditions of the cheap funds and sufficient in loan demand. However, total loan demands in the market have insufficient based on personal income and economic environment. Thus, large deposit takes large cost for bank. Furthermore, Kunt and Huizinga (1999) who focus on the determinants of bank's interest margins and profitability in 80 countries, pointed out that deposit reflects the lowering on bank profitability because the occurred of higher cost reserve. These results agree with Alkassim (2005) who analyzes the influence factors of banks profit in Islamic banks in Gulf Cooperation Council (GCC) countries.

However, based on the study of Rivard and Thomas (1997) on the theme of the effect of interstate banking on large bank holding company profitability and risk, the results reveal that the growth rate of deposits supports bank's performance and decrease solvency risk for bank holding company of United States. These results are proved by Anginer et al. (2012) who study the deposit insurance affected bank Risk. The results present that deposit insurance has mainly supported the lowering on systemic risk of bank. Consequently, the higher reliance on deposits has positively associated with bank performance. These results also have correlation with research of Ogunbiyi and Ihejirika (2014) who evaluate the impact of interest rate and deposit money of bank profitability in Nigeria. To show that there is significantly positive association of both indicators due to deposit is low-cost of source of funds, thus the raising on deposit improves Nigerian banks profitability. However, it also belongs to efficiency of asset management of better return on asset.

2.2 Macroeconomic Determinants and FHC's Profitability

In terms of macro-economic is referred to economic factors, which impacts the changing on economy, industry, firms and households' activities, consists with exchange rate, GDP and money supply.

2.2.1 Currency Exchange Rate

The exchange rate plays an important role in macroeconomics, which is controlled by government. The fluctuation of exchange rate impacts to trade benefit of goods and services with foreign countries (Obadan, 2006). The extensive studies have researched the effect of unstable currency exchange rate to banks' performance. Started with the research of Taiwo and Adesola (2013) who analyze the influence of volatility of exchange rate to Nigeria banks' profitability. The results show that the fluctuation of exchange rate contributes the high level of bank's bad debt, which affects difficult on loan management of the bank. It is supposed that the depreciation of domestic currency creates instability in macroeconomic because it produces higher import price in local currency, consequently the obligors have to hold the heavy cost to repay the bank. These results have correlation with Combey and Togbenou (2017) and Lantara (2014) who state that exchange rate negatively impacts to corporate's return on asset in Togo and decreases profit before tax in Indonesia. To mention that the loan losses of banks will be bigger if the mother currency depreciation, due to the raising on price purchasing can reduces the purchasing power of domestic consumer.

However, those results are adversities with Isaac (2015) who mentions that exchange rate has significantly and positively direct effect to bank's performance, owing to bank can speculate profit from foreign currency transactions. For instance, when local currency appreciation is a good opportunity for banks and investors to invest and make high returns by purchased foreign currency at the cheaper price and sold it when its value increased. These results are supported by Kumaran et al. (2018) who investigates the determination of profitability of local and foreign banks in Malaysia. The results present that foreign exchange rate has a great supported the lending

rate growth in Commercial banks. Owing to the Government be able to control exchange rate in consistency supported the financial institutions to be able setting appropriate lending policies.

2.2.2 Gross Domestic Product

GDP measures the total monetary value of all the final goods and services produced in a country, which is used to indicate living standard and gauge the health of an economic. Therefore, the question of does GDP can impact the profitability of financial institutions or not becoming main topic which is discussed in research coteries. According to the research of Ben Naceur and Goaid (2008), Sufian and Chong (2008) find that there is no relationship between GDP to profitability. While, the study of Seemule et al. (2017) have shown negatively related between economic growth and bank profitability, due to the soundness of an economic attracts new competitors into banking industry and takes the portions on market share. Accordingly, the bank's income is impacted.

However, based on the findings of Kumaran et al. (2018), GDP has great promoted local and foreign bank's performance in Malaysia, by explaining that improvement of economic can boost consumer loan demand in the market, due to it has increasing personal income which enhances the ability of households and corporates to hold liability, consequently bank generates profit by lending out more loans for them. These results are proved by Kosmidou (2008), who finds out the same results in Greece bank performance.

2.2.3 Money Supply

Money supply is money reserved for an economy, which impacts bank's profitability through monetary policies of central bank to control inflation rate. As the research of Carr and Darby (1981), which analyzes the role of money supply affect short-term funding demand, shows that the change of money supply can influence to temporary desire of households and businesses sector to purchase and sale the assets. However, the results also demonstrate that it is just a short-period of trading which is no influence to determine the bank's profitability. These results were supported by Kosmidou (2008) and Haron (1996) who find insignificant relationship between money supply and bank's profit in Greece and Islamic. Meanwhile, Badarudin (2009) who tests the relationship of money supply endogeneity and bank stock returns in G-7 Countries. The results reveal that money supply has unprompted to bank profitability. Due to the high concentration in bank industry and the tight monetary policy can reduce bank performance in those countries. The results are proved by Seemule et al. (2017) in Botswana

Furthermore, Pan and Pan (2014) have examined the relationship of money supply to commercial bank profit in China, finding that the rising of money supply can enhance the peak up of bank profitability on reason of the decreasing of the interest rate controlled by central bank, which affects the low of borrowing interest rate of the

bank and develops available funds for clients. Consequently, bank can generate profit from large of loan supply at high interest rate. These results are supported by Bourke (1989).

Overall, the existence of literature has provided the effect of internal and external to firms and financial institutions performance by adopted diverse data from many countries and applied different methods to run the regression. The final results have shown the difference direction of association between the dependent and independent variables, which includes positive, negative and insignificant correlation. However, some literature has proved non-enough evidence to support their results and many significant variables are missing from their analysis. Consequently, this is the gaps that this study would like to fulfill and expose the real controlling beneficial of financial holding companies in Taiwan.

3. Research Data and Methodology

3.1 Research Data

This study classifies the variables into 2 types. The first type is a dependent variable which is represented by ROA. And the second type is an independent variable which is featured by micro determinants and macro determinants. In addition, definition of variables, the research framework and data collection are also provided in this section. Table 1 presents summary symbol, proxy, resource of data, including expected sign of dependent and independent variables in this study.

Table 1
Dependent and independent variables in this study

Variable	Symbol	Proxy	Source	Expected sign (+/-)
Dependent Variable				
Return on Asset	ROA	(Net income + interest income + depreciation) / Total assets	TEJ	
Independent Variable				
Micro-Determinants:				
FHC's Size	LNFS	Ln (Total Assets)	TEJ	+
Total Debt To Total Asset	DTA	Total Debt / Total Asset	TEJ	-
Operating Expense Management	OEM	Operating expense/net sale	TEJ	+

Table 1
Dependent and independent variables in this study (continue)

Variable	Symbol	Proxy	Source	Expected sign (+/-)
Total Deposit to Total Liability	DTL	Total Deposits/Total of liability	TEJ	+
Macro-Determinants::				
Currency Exchange rate	LNCER	Ln (currency exchange rate USD/NTD)	www.poundsterlinglive.com	+
Gross Domestic Product	LNGDP	Ln (GDP per capita in U.S.\$ price)	DGBAS	+
Money Supply	LNMS	Ln (growing annual rate of money supply M1A)	DGBAS	+

3.2 Research Framework

Figure 1 shows the research framework of this study, which shows overview of relationship between dependent and independent variables and direction of hypothesis of this study.

To investigate the influence factors of FHC's profitability more precisely, this study has adopted quarterly data of 13 in 16 financial holding companies in Taiwan, since 01/01/2007 to 31/12/2017 totally 11 years. The resources of data are collected from the TEJ database, the official website of the national statistics of the Republic of China, the central bank of Taiwan, financial supervisory commission of Taiwan and website of 13 financial holding companies.

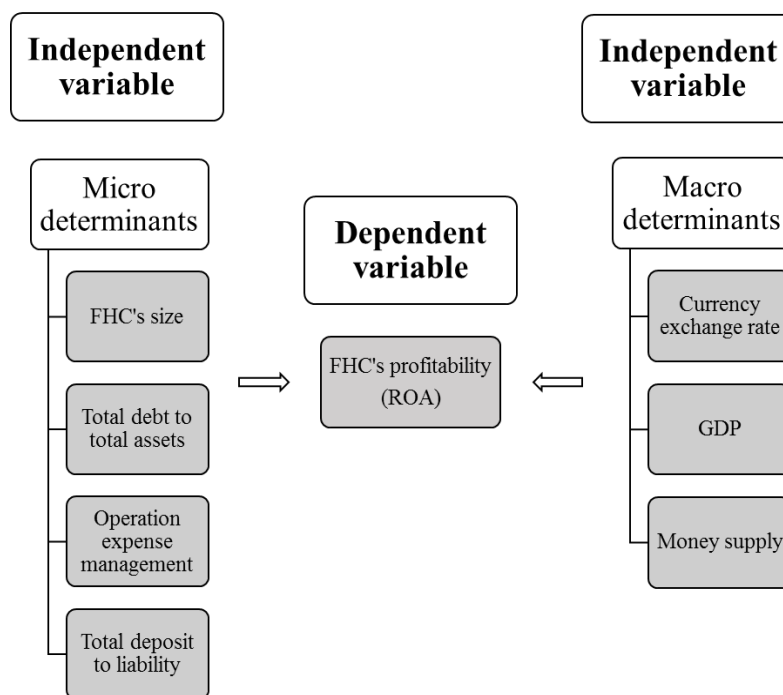


Figure 1
Research framework of this study

3.3 Methodology

To assure the precise of empirical results, this study has adopted Ordinary Least Squares (OLS) method to examine the regression of data. In order to analyze the reflection of variables to FHCs' profitability in Taiwan, as described in table 1, this study conducts regression model as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 LNFS_{i,t} + \beta_2 DTA_{i,t} + \beta_3 OEM_{i,t} + \beta_4 DTL_{i,t} + \beta_5 LNCER_t + \beta_6 LNGDP_t + \beta_7 LNMS_t + \varepsilon_{i,t} \quad (1)$$

where

i : represents 1 to 13 financial holding companies

t : represents 2007-2017;

$\varepsilon_{i,t}$: represents the error term for FHCs i at time t ;

β_0 : represents constant terms;

β_1 - β_9 : represents the coefficients of each independent variable.

4. Empirical Results

4.1 Descriptive Statistics

Table 2 presents the summary descriptive statistics of dependent and explanatory variables by revealing the means, standard deviation, minimum values and maximum value. From Table 2, the results demonstrate the summary descriptive statistics of dependent and independent variables. Especially, the independent variable is measured by the average ROA, to indicate a lowest minimum value in statistic at -1.92 and moderate of the mean value, standard deviation and maximum value at 0.57, 0.51, and 3.37 respectively. In term of dependent variables, The LNFS has highest of total maximum value at 3.95 with the moderate mean value, standard deviation and minimum value at 3.22, 1.59 and 2.36 respectively. From above results, this study can explore that the variables ROA, LNFS, DTA, OEM, LNCER and LNGDP have low variability in data. Meanwhile, LNMS variable has a medium variability in data.

4.2 Multicorrelation Matrix

The main purpose of multicorrelation matrix statistic examination is to test the correlation coefficient between dependent and independent variables. According to Kennedy (2008), the multicollinearity problem will occur when correlation values are above 0.8. As shown in Table 3, the results illustrate that the correlation values range from -0.68 to 0.61 indicating that the multicollinearity problem has nonexistence in this study. In addition, the

Table 2

Summary descriptive statistics of variables

Variables	Mean	Std. Deviation	Minimum	Maximum
ROA(%)	0.57	0.51	-1.92	3.37
LNFS	3.22	0.37	2.36	3.95
DTA	0.90	0.08	0.54	0.97
OEM	0.33	0.19	-0.25	0.99
DTL	0.62	0.24	0.02	0.89
LNCER	3.44	0.04	3.36	3.52
LNGDP	1.64	0.12	1.38	1.86
LNMS	1.79	0.67	-0.40	3.08

results also explain the correlation between ROA and its independent variable such as OEM, LNGDP and LNMS are positively accounted, except LNFS, DTA, DTL and LNCER which are negatively associated with ROA.

Table 3

Multicorrelation matrix

Variables	ROA	LNFS	DTA	OEM	DTL	LNCER	LNGDP	LNMS
ROA(%)	1							
LNFS	-0.08**	1						
DTA	-0.42***	0.61***	1					
OEM	0.11***	-0.68***	-0.41***	1				
DTL	-0.11***	-0.17***	0.31***	0.51***	1			
LNCER	-0.05	-0.06	-0.01	-0.03	-0.02	1		
LNGDP	0.21***	0.25***	0.09**	0.01	0.00	-0.52***	1	
LNMS	0.05	-0.01	-0.01	0.07	0.01	0.08**	-0.08**	1

Note: *, ** and *** indicate level of significance at 10%, 5% and 1%, respectively.

4.3 Muticollinearity Statistics

Variance inflation factor (VIF) is used to investigate the existence of multicollinearity in multiple regression variables correlation. Gujarati (2003) states that the multicollinearity problem will occur if the VIF value is higher than 10. Moreover, as shown in Table 4, the results of tolerance and VIF test show that all variables since LNFS to LNMS have total VIF values at 1.03 to 3.57 and tolerance values at 0.28 to 0.98. It can imply the nonexistence of multicollinearity problem among the variables on the analyzing process of this study.

Table 4
Muticollinearity statistics

Variables	Tolerance	VIF
LNFS	0.34	2.99
DTA	0.36	2.79
OEM	0.28	3.57
DTL	0.39	2.59
LNCER	0.72	1.39
LNGDP	0.62	1.61
LNMS	0.98	1.03

4.4 Regression Results

This section focuses on the interpretation the empirical results and declares the hypothesis testing results based on the examination results of SPSS. The study results from Table 5 describe that all of the variables are significant at R-square 0.31 or 31%, which supports the movement of dependent variables are completely explained by the movement of an independent variable.

FHC's size is represented by the natural logarithm of total assets (LNFZ). The results demonstrate that the sizes of FHC's and FHC's profitability have significantly positive coefficient at 1%, which clarifies that the increase of FHC's asset size can enhance their profitability. Due to the reason that the integration of FHCs can increase bigger market share and diversification on products and services, hence the expand of economic scale and scope can contribute to cost reduction per unit of FHCs, which positively cause the increasing on FHCs profitability. These results are supported by previous studies such as Liu and Hsu (2014), DeYoung and Rice (2004), Ali et al. (2011) Sufian and Habibullah (2009), Sufian (2011) who analyze the relationship of bank profit and assets size in Pakistan, Korea and Bangladesh.

Total debt to total assets is represented by total debt to total asset (DTA). The results illustrate that the total debt ratio and FHC's profitability have significantly negative coefficient at 1%. The results show that the higher of debt burden increases, the higher interest cost for its creditor, which raises credit risk and reduces net income of FHCs. These results have corresponding with previous studies such as Raheman and Nasr (2007), Abor (2005), Shubita and Alsawalhah (2012), Ching et al. (2011), Rao et al. (2007), Lazaridis and Tryfonidis (2006).

Operation expenses management is measured by operation expense to net sale (OEM). The results demonstrate the opposite results with our prior expectation, by showing that the operation expense management is significantly negative coefficient to ROA at 1%. This is consistent with Chinoda (2014), Said and Tumin (2011), Yao et al. (2018). Even through, FHCs can save cost from integrated marketing and cross-selling. However, the

Table 5
Summary of regression model

Explanatory variables	ROA(%)
Constant	-1.62
LNFS	0.35***
DTA	-5.14***
OEM	-0.47***
DTL	0.57***
LNCER	1.02**
LNGDP	1.18***
LNMS	0.06**
No. of observation	572
R-Squared	0.31
F-Statistic	36.48***

Note: *, ** and *** indicate level of significance at 10%, 5% and 1%, respectively. The probability values are in the brackets.

high operation expense indicates that Taiwan FHCs has low operation efficiency and is unable to pass over their operating expense to customer, it may affect the increasing of competitions in Taiwan financial market.

Focusing on total deposit to total liability (DTL), the results illustrate that total deposits to total liability is significantly positive coefficient related to ROA at 1%. This is in line with Rivard and Thomas (1997), Demirguc-Kunt and Zhu (2012), and Ogunbiyi and Ihejirika (2014) that show the positive coefficient between total deposit and ROA. It may explain that the FHCs is financed by customer deposit, which is lowest and safest funding resource to adopt in main business operation and investment to generate profit. Thus, the increasing on total deposits enhances the rising on FHCs' profitability.

Current exchange rate is represented by natural logarithm of exchange rate USD to NTD (LNCER). The results demonstrate the contrary to our prior expectation about direction of relationship of current exchange rate and FHC's profitability, by showing the significantly positive associated at 5%. This may because of the government has adopted stable maintaining of the NT/US dollar exchange rate. Therefore, it encourages FHCs to have high efficiency to speculate profit through traditional financial activities especially in foreign currency activities such as money exchange, foreign money transfers, etc. In addition, the higher exchange rate also supports the trade activities such as importing, which increases market place for FHCs. Consequently, the increasing on exchange rate contributes to the growth of FHC's profitability. This result is consistent with Isaac (2015) and Kumaran et al. (2018).

GDP is represented by natural logarithm of GDP (LNGDP). The results indicate that GDP and FHC's profitability have significantly positive coefficient at 1%. The above results are consistent with the finding of

Kumaran et al. (2018) and Kosmidou (2008). In fact, the high GDP represents good economic conditions and higher personal income, which advocates business activities as demand on financial productivity in Taiwan market. Therefore, the increase on GDP can contribute the increase of FHC's profitability.

Last but not least, money supply is represented by natural logarithm of M1. The results display that money supply and FHCs' profitability have positively correlation related at 5%. The increase of money supply into the economy means the central bank is deliberate to control inflation. Those factors affect the decrease of interest rate which FHCs can participate in financial products and services in low prices and can serve cheaper financial products and services to consumer. It directly and positively supports the FHCs' profitability. The results are proved by Pan and Pan (2014) and Bourke (1989).

5. Conclusion

This study employs the OLS methodology to investigate the key determinants to the profitability of financial holding companies in Taiwan. The quarterly data of financial information are collected from the TEJ database, the official website of CBC, FSC and National Statistics of Republic of China, and firm website of 13 financial holding companies.

The empirical results of this study show that all micro-determinants in this study will affect Taiwanese FHCs profitability. Led by FHC's size (LNFS) which has a significantly positive association with FHC's profitability. It clarifies that the larger size of a firm's asset, thus the FHC will have a higher productivity and market share to generate profit. Secondly, operation expense management (OEM) shows a significantly negative connection with profitability of Taiwanese FHCs. The higher of operating cost per unit indicates the low operating efficiency and unable to cross over their operation expense of FHCs.

Next, the results show a significantly positive connection between total deposit to total liability (DTL) and the profitability of Taiwanese FHCs, which can clarify that the deposit is the cheapest and safest funding resource for FHCs to generate higher profit.

While, this study concludes that the total debt to total assets (DTA) ratio can decrease FHC's profitability. Higher debt ratio indicates that the FHC needs to pay its creditor higher interest cost, thus the higher debt ratio presents a heavy repayment and huge credit risk for FHCs.

Furthermore, the empirical results show that, all macro determinants in this study have a significant relationship with Taiwanese FHC's profitability. First, this study concludes that FHC's profitability is significantly and positively associated with the Currency Exchange Rate (LNCER). Due to the Central Bank of the Republic of China has adopted an appropriate foreign exchange policy, by maintaining the stability of the NT/US dollar

exchange rate, which has a positive influence on the FHC's profitability in Taiwan.

In addition, the GDP (LNGDP) variable, which is a monetary measure of the Taiwanese market value of all the final goods and services produced, has significantly and positively contributed to determine FHC's profitability. Good economic conditions and higher personal income will advocate business activities as demand on financial productivity in Taiwan market.

Lastly, this study finds that Money Supply has a significantly positive association with FHC's profitability as well. If the central bank adopts the policy to remain moderate on money supply at a higher level, which will lower the financial cost and increase the supply for fund, thus it will encourage more companies to invest in the market.

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