

Evaluation of Investment Value of Commercial Banks: Taking ICBC as an Example

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Abstract. The banking industry is the most important component of the national economy, and people's daily deposit and loan business is closely related to banks. In recent years, the development speed of China's banking industry has been extremely fast, and many commercial banks have successfully gone public, achieving a rapid doubling of their asset size. Therefore, many investors are turning their attention to the banking industry. However, as a special enterprise with high debt characteristics, banks have differences in their investment analysis compared to other enterprises. Therefore, many scholars have also conducted research on this issue. Previous research has focused more on analyzing whether various estimation methods are suitable for investment analysis of commercial banks and providing relevant investment recommendations by comparing the estimated commercial bank value with the benchmark date value. This article takes ICBC as an example to estimate the intrinsic value of its stocks using the DDM model, compares the intrinsic value of the stocks with market prices, studies whether there are differences, analyzes the potential reasons for the differences and provides relevant investment suggestions.

Keywords: DDM model; investment value; commercial bank.

1. Introduction

The banking industry is the most important component of the national economy, and the daily deposit and loan business of people is closely related to banks. As the center of gravity of China's financial system, banks are closely related to the security of the national financial system. In recent years, the development speed of China's banking industry has been extremely rapid [1]. Banks have achieved a rapid doubling of their asset size through various methods such as listing and refinancing, and introducing foreign strategic investors. The banking industry has therefore attracted the attention of a large number of investors. Numerous scholars have also started researching the investment value of commercial banks. Given the particularity of high liabilities in commercial banks, the analysis of investment value in commercial banks still needs to be studied.

Li Xiaotian (2022) analyzed the advantages and disadvantages of the relative valuation method and absolute valuation method in valuing commercial banks and found that the subjective conjecture part in the two methods can cause certain errors. The article uses the price-to-book ratio method, EVA model, and DDM model to separately evaluate and comprehensively compare, obtaining relatively accurate valuations and providing investment suggestions [2]. Shi Junya (2022) focuses on exploring the valuation of commercial banks through financial information. In the article, it uses two relative valuation methods, the P/E ratio method and the P/B ratio method, for valuation. By analyzing the financial data of commercial banks predicting future profit trends, and comparing and analyzing the valuation results using the P/E ratio method and the P/B ratio method, corresponding results and investment suggestions are provided [3]. Liu Shengli (2019) organized the general methods of enterprise investment value, introduced the general form of fundamental analysis method, as well as the advantages, disadvantages, and limitations of commonly used value evaluation methods; This article elaborates on the particularity of evaluating the banking industry and its investment value, and constructs an investment value evaluation system that combines the Harvard analysis framework with the residual income method; Then, based on the investment value analysis system, a case study of commercial banks is conducted to qualitatively and quantitatively grasp their investment value from the perspectives of strategic analysis, accounting analysis, financial analysis, etc. Then, combined

with the Orson residual income model, the intrinsic value of relevant stocks is evaluated to evaluate their stock price rationality [4].

The above studies mostly use one or more methods of relative valuation or absolute valuation to value commercial banks and provide corresponding investment conclusions. Or by comparing and studying the shortcomings of several valuation methods, and determining which valuation method's calculation results are more accurate in valuing the value of commercial banks. However, there is a lack of relevant analysis on whether there are differences between the intrinsic value valuation results of commercial banks and their market prices, as well as the potential reasons for the differences. Therefore, this article will take ICBC as an example to compare the intrinsic value of commercial banks with their market prices, explore whether there are differences and the reasons for the differences, and provide relevant investment suggestions.

2. ICBC Stock Value

The profitability of commercial banks is highly correlated with the operating conditions of the stock market. At the same time, the free cash flow of its commercial banks also profoundly affects its own value. In order to enable investors to make more rational investment choices, we will use the fixed growth dividend discount model in the DDM model to evaluate the intrinsic value of ICBC [5].

2.1. Intrinsic Value Assessment

The fixed growth dividend discount model of the dividend discount model (DDM) is:

$$P_0 = \sum_{t=1}^{\infty} \frac{D_1(1+g)^{t-1}}{(1+r)^t} = \frac{D_1}{r-g} \quad (1)$$

2.1.1 Use the CAPM model to determine the expected return on ICBC stocks

Formula:

$$r = r_i = r_f + \beta(r_m - r_f) \quad (2)$$

(r_m : expected return rate of the market; ($r_m - r_f$) : stock market premium; r_i : expected return on a single stock or stock portfolio; β It is the beta coefficient of security, used to measure the magnitude of the systemic risk of an asset.)

Firstly, determine the r_f value. Due to the good liquidity of treasury bonds and the guarantee provided by the national government, the risk of holding the creditor's rights that cannot be cashed at maturity is small and can be ignored. Therefore, the yield of treasury bonds is generally considered risk-free. Taking the yield of the US five-year treasury bond as the standard, for the convenience of calculation, the approximate interest rate is 4.5%, so the risk-free interest rate r_f of ICBC is 4.5%. The second step is to determine the β Value. The formula for calculating the β value is as follows:

$$\beta_i = \frac{Cov(r_a, r_m)}{\delta^2 m} \quad (3)$$

Among them, $Cov(r_a, r_m)$ is the covariance between the return of security a and the market return, while $\delta^2 m$ is the variance of market returns. According to the calculation results, ICBC's β value is 0.24. Table 1 shows the ICBC's determination of β . By regressing the monthly returns of the ICBC Hong Kong Stock Exchange over the past 60 months with the monthly returns of the Hang Seng Index in Hong Kong over the past 60 months, the corresponding β Value is determined [6].

Table 1. ICBC β value calculation

Date	ICBC		HIS	
	price	Monthly Return Rate	price	Monthly Return Rate
2022/10/1	3.14	0.147	14687.02	0.266
2022/11/1	3.60	0.028	18597.23	0.064
2022/12/1	3.70	0.042	19781.41	0.104
2023/1/1	3.85	-0.064	21842.33	-0.094
2023/2/1	3.61	0.066	19785.94	0.031
2023/3/1	3.85	0.010	20400.11	-0.025
2023/4/1	3.88	-0.007	19894.57	-0.083
2023/5/1	3.85	-0.002	18234.27	0.037
2023/6/1	3.85	-0.091	18916.43	0.061
2023/7/1	3.50	0.030	20078.94	-0.085
2023/8/1	3.60	0.044	18382.06	-0.040
2023/9/1	3.76	0.013	17655.41	-0.701
$\beta=0.39$				

Thirdly, the determination of r_m value. The investment period is from October 2018 to September 2023, and the market return = (closing price at the end of the period - closing price at the beginning of the period)/closing price at the beginning of the period can be obtained: $r_m=(17655.4-14687.02)/14687.02*100\% = 20.21\%$. Therefore, ICBC's market return is 20.21%.

Fourthly, calculate ICBC's expected return is: $r = r_i = 4.5\% + 0.49 \times (20.21\% - 4.5\%) = 12.2\%$

2.1.2 Calculation method for ICBC dividend growth rate (g)

Based on ICBC's position in the industry and market share, and based on its 2020 to 2022 report and securities profit forecast data from some authoritative research institutions, predict ICBC's profits for the next year [7].

2.1.3 ICBC's future performance forecast

Table 2. ICBC's future performance

	2020	2021	2022
operating revenue	855,428	942,762	917,989
Business growth rate	3.2	6.9	2.6
Total profit	391,382	423,564	420,378
net profit growth rate	0.2	10.2	3.1
Cash Flow Per Share	5.76	5.19	1.32
net asset value per share	7.48	8.15	8.81
earnings per share	0.86	0.95	0.97

According to the data in Table 2, the 2020 earnings per share of HK\$0.86 and HK\$0.97, the average annual growth rate of earnings per share over the past three years can be calculated to be about 6%. Therefore, the annual growth rate of the Pudong Development Bank is 6%. [8].

2.1.4 Evaluate intrinsic value

According to ICBC's dividend distribution situation in the past two years, as well as the distribution plan for retained undistributed profits before the issuance, and the dividend distribution plan after the issuance and listing, the dividend ratio in 2020 is 30.9%, 2021 is 30.9%, 2022 is 31.3%, and it is expected to be 31% in 2023. The intrinsic value of the stock calculated from $r=12.6\%$, $g=6\%$ is:

$$P_0 = \frac{D_1}{r-g} = 0.97 * \frac{0.3}{(12.2\%-6\%)} = 4.69$$

Based on the above valuation, ICBC's intrinsic value is HK\$4.69. When the market price is below HK\$4.69, investors can purchase its stocks.

2.2. Market Price

Based on the daily K-line data from finance.yahoo.com and from September 18, 2023, to September 22, 2023, the current average market price of ICBC is HK\$3.8 per share. As can be seen from the previous text, ICBC's intrinsic value is HK\$4.69, so its market price is lower than the current intrinsic value of the Industrial and Commercial Bank of China.

3. Reasons for the Difference Between Intrinsic Value and Market Price

3.1. The Macroeconomic Situation is Declining

In recent years, affected by the epidemic and a series of other factors, the global economy has shown a downward trend. Take the Hang Seng Index of Hong Kong stocks from October 2018 to September 2023 as an example, as shown in Table 3 below.

Table 3. ICBC's historical performance

Date	Adj Close	Date	Adj Close	Date	Adj Close
2018/10/1	24979.69	2020/6/1	24427.19	2022/2/1	22713.02
2018/11/1	26506.75	2020/7/1	24595.35	2022/3/1	21996.85
2018/12/1	25845.7	2020/8/1	25177.05	2022/4/1	21089.39
2019/1/1	27942.47	2020/9/1	23459.05	2022/5/1	21415.2
2019/2/1	28633.18	2020/10/1	24107.42	2022/6/1	21859.79
2019/3/1	29051.36	2020/11/1	26341.49	2022/7/1	20156.51
2019/4/1	29699.11	2020/12/1	27231.13	2022/8/1	19954.39
2019/5/1	26901.09	2021/1/1	28283.71	2022/9/1	17222.83
2019/6/1	28542.62	2021/2/1	28980.21	2022/10/1	14687.02
2019/7/1	27777.75	2021/3/1	28378.35	2022/11/1	18597.23
2019/8/1	25724.73	2021/4/1	28724.88	2022/12/1	19781.41
2019/9/1	26092.27	2021/5/1	29151.8	2023/1/1	21842.33
2019/10/1	26906.72	2021/6/1	28827.95	2023/2/1	19785.94
2019/11/1	26346.49	2021/7/1	25961.03	2023/3/1	20400.11
2019/12/1	28189.75	2021/8/1	25878.99	2023/4/1	19894.57
2020/1/1	26312.63	2021/9/1	24575.64	2023/5/1	18234.27
2020/2/1	26129.93	2021/10/1	25377.24	2023/6/1	18916.43
2020/3/1	23603.48	2021/11/1	23475.26	2023/7/1	20078.94
2020/4/1	24643.59	2021/12/1	23397.67	2023/8/1	18382.06
2020/5/1	22961.47	2022/1/1	23802.26	2023/9/1	17655.41

From Table 3 above, it can be seen that in the past five years, the overall downward trend is relatively obvious in the Hang Seng Index. Since 2018, the decline rate of the HSI has been about 29.3%. According to estimates, the annualized market returns in the past five years are respectively, $r_{m2018}=4.45\%$, $r_{m2019}=-10.09\%$, $r_{m2020}=4.76\%$, $r_{m2021}=-29.92\%$, $r_{m2022}=2.51\%$. The overall market is relatively sluggish, with severe market fluctuations and less optimistic profit prospects. Therefore, investors will lower their expectations of the market, thereby reducing their willingness and number of holdings, leading to a decline in stock prices, resulting in market prices lower than their intrinsic value.

3.2. At a Disadvantage in Horizontal Competition

In the traditional business model of commercial banks, interest income accounts for the vast majority of their operating income. In recent years, in the context of mixed operation, various commercial banks have started to develop noninterest businesses. The proportion of noninterest business income has also become an important indicator for evaluating the development prospects and comprehensive strength of commercial banks

The sources of non-interest income are more extensive compared to the business model where interest income is relatively single. There are many types of non-interest income businesses, including bank cards, custody, wealth management, settlement, guarantee, and other businesses. The sources of income are very broad. Satisfying the differentiated needs of commercial bank customers, and enriching the sources of revenue for commercial banks, is a powerful manifestation of the bank's innovation ability.

Noninterest income has high requirements for commercial banks. Firstly, commercial banks need to have a certain scale and a large customer base to carry out noninterest businesses. In addition, this type of business requires higher professional abilities and qualities of practitioners, making it more difficult to carry out and requiring higher specialization.

Therefore, when the proportion of non-interest income in commercial banks is higher, it means that commercial banks have stronger innovation ability, richer sources of income, higher degree of specialization, larger scale, and stronger profitability. This means that under the same conditions, such banks have stronger risk resistance and more optimistic development prospects. Therefore, investors are also more willing to invest in commercial banks with a higher proportion of noninterest income [9].

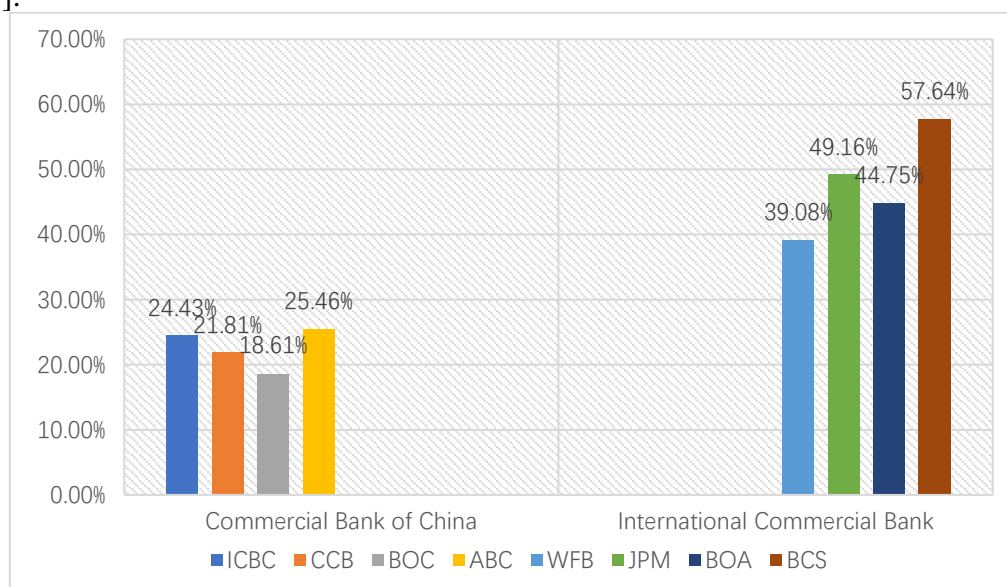


Fig. 1 Ratio of non-interest income to total income of commercial banks

Taking 2022 as an example, in Fig. 1, it can be clearly seen that the average proportion of noninterest income of Chinese commercial banks is around 23%, while the proportion of noninterest income of other international commercial banks during the same period is about 47%, about twice that of domestic banks. ICBC's non-interest income accounted for only 24.43%, which is almost lower than the proportion of non-interest income of all foreign commercial banks. Therefore, investors may have a certain negative view of ICBC's development prospects and risk resistance ability, which in turn reduces their willingness to hold their stocks, leading to a lower market price than their actual intrinsic value [10].

4. Investment Suggestions for Bank Stocks

This article proposes some suggestions based on ICBC's investment value analysis. When analyzing the investment value of commercial banks for current bank stock investors, investors should pay attention to the following aspects.

4.1. Government Support and Compliance Risks for Commercial Banks

In terms of government support, Central Huijin Investment Co., Ltd. holds 34.713% of ICBC's shares. In addition, the Chinese Ministry of Finance holds 31.140% of ICBC's shares, making it the

only commercial bank in China with a Chinese Ministry of Finance holding a stake. Its government shareholding ratio exceeds 65%, so ICBC's operational risk is much lower than other commercial banks. In addition, in terms of compliance risk, ICBC is the only Chinese commercial bank that did not violate regulations in 2022.

4.2. The Asset Size and Quality of Commercial Banks

The larger the asset size of a commercial bank, the stronger its ability to resist risks. The better the asset quality, the lower the risk of commercial banks and the smaller the impact on profitability. Investors should pay attention to the true asset quality of banks when conducting investment value analysis, as different commercial banks' non-performing loan recognition standards and loan impairment provision principles can have a significant impact on profits. ICBC's asset size consistently ranks first among the world's commercial banks, surpassing the second place by HKD500 billion, making it highly resilient to risks. At the same time, ICBC's non-performing loan ratio has been continuously decreasing over the past five years, the average is around 1.3%. Therefore, it has certain investment prospects [11].

4.3. Transformation Ability and Characteristic Development Trend

Banks cannot rely solely on traditional deposit and loan business development but can utilize differentiated competitive advantages and distinctive development to enhance value. For example, ICBC increases its proportion of noninterest income by developing an investment banking business. Its proportion of noninterest income ranks second in China, while its proportion of investment banking business income ranks first in China. Therefore, banks with distinctive development capabilities are more worthy of investment.

5. Conclusion

This article takes ICBC as the research object and conducts a comparative analysis through three dimensions: macro environment, different industries, and within the same industry. It explores the reasons and related influencing factors that cause differences in the intrinsic value and market value of corporate stocks. This article uses the DDM model to measure the intrinsic value of stocks and to predict future market returns and there may be some errors in the regression calculation of β values, resulting in a certain deviation between the results and the actual situation. Future research could improve by reducing the impact of corresponding data errors.

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