



Analysis of the Investment Value of Chinese Digital Banking—on DuPont Analysis

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Abstract. Digital banking is an important carrier of digital economy, and it has been taken by some investors. The digital banking has high intrinsic value and very high return. This paper makes a comparative study in the establishment of the index system based on Dupont analysis. The results show that it is helpful for the investment value of the digital banking and it also provides investors with more reference.

Keywords: Digital Banking; Value Investment; Dupont analysis

1 Introduction

Digital banking is the banking of internet banking, mobile banking and online marketing in general, and it has been taken by some investors. Why is it? One is that it has high intrinsic value and strong stability, on the other hand, it is an important carrier of digital economy, its secondary market share price volatility is very high. However, because of COVID-19, the banking shares are now undervalued, and some investors analyze the investment value of banking, it is, often limited to short-term investment effects. When they analyze financial indicators, it refers only to one or several common profitability indicators, they cannot analyze systematically with professional eyes. The fund managers are used to Dupont analysis of the bank's financial situation. One of the drawbacks of this approach is its emphasis on the short-term perspective. Therefore, we make a comparative study in the establishment of the index system based on Dupont analysis, to evaluate the value investment of digital banking from China, it provides investors with more reference.

2 Methodology

Evaluation Model

By now, the research on the investment value of digital banking is based on the following three aspects: (1) Profitability. (2) Liquidity. (3) Security. World Economic Forum (WEF), International Institute for Management Development (IMD) often use camels model for analysis. BIS1 took the electronic money as the storage of traditional money in electronic form¹. The theme of the lecture is the relationship between the nature of money, the scope for changes in the overall level of prices, and constraints on or opportunities for discretionary monetary policy (see Freedman²). And Torben M. Andersen³, Holmstrom and Tirole⁴, Bolton and Freixas⁵, Busch CM and Prieto E.⁶ etc. studied bank credit and financial issues in different perspectives. Habib, Ahsan & Hasan, Mostafa Monzur⁷ researched on the corporate life cycle in accounting, finance and corporate governance and gave directions for future research. Toh Moau Yong, Gan Christopher, Li Zhaohua⁸ did an empirical analysis about the impact of stock market liquidity on bank liquidity creation from Malaysia. Risfandy Tastaftiyan etc.⁹ analyzed equity financing at Islamic Banks. Chinese scholars analyze the bank financial data based on statistical methods. Cuirong Guo and Liang Liu¹⁰ used factor analysis to analyze the profitability, security and liquidity of 16 listed banks in China. Yihong Chen¹¹ selected nine evaluation indicators to analyze the risk control ability, profit creation ability and sustainable growth ability of commercial banks. Zhifeng Lin, Weida He and Rong Hao¹² studied the influence of the banking market structure. Rongrong Wei and Xiaoyong Zou¹³ used the quantitative indicators to analyze the competitiveness of 12 listed urban commercial banks and rural commercial banks in 2016 through factor analysis and cluster analysis. Li Wang, Yufei Zou and Yanan Wang¹⁴ researched on time-varying 'Bank-shareholder' network. However, we find that there is a little research on the qualitative indicators of the investment value of banking industry, and there is a lack of dynamic analysis. Therefore, this paper establishes an innovative index system based on DuPont analysis, which can make up for the shortcomings and provide more references to investors.

In fact, DuPont analysis is a method to analyze the financial situation and economic benefits of enterprises according to the relationship between several main financial indicators. In this paper, we need focus on three main financial indicators: Rate of Return On Common Stockholders' Equity (ROE), Return On Assets (ROA), Equity Multiplier (EM). In DuPont analysis, the relationship between core indicators and main financial statements can be represented in Figure 1.

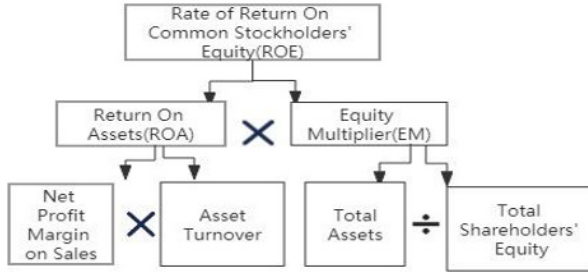


Fig. 1. DuPont Financial Analysis Chart

DuPont analysis of the roe decomposed into five parts, the following formula is:

$$\text{Eq.1: } ROA = (\text{net income}/\text{sales}) \times (\text{sales}/\text{total assets}) = (\text{net income}/\text{total assets}) \quad (1)$$

$$\text{Eq.2: } ROE = ROA \times (\text{total assets}/\text{equity}) \quad (2)$$

$$\text{Eq.3: } ROE = (\text{net income}/\text{sales}) \times (\text{sales}/\text{total assets}) \times (\text{total assets}/\text{equity}) \quad (3)$$

$$\text{Eq.4: } EM = 1 / (1 - \text{asset-liability ratio}) \quad (4)$$

Evaluation Indicators and Data Description

This paper constructs the financial index system based on Dupont analysis, and selects the data of 10 banking stocks of digital Banking for six consecutive years (2015-2020) to empirical study according to the statistics. The calculation results are as follows.

3 Results and Discussion

We conducted calculations, the results of real investment value of the digital Banking and the index of correlation is as follows in Table 1 to table 5 and Figure 2 to Figure 6.

(1) The net assets per share of 10 digital commercial banks from 2015 to 2020 was growing fast, CMB is the fastest by 25.36% in 2020 and ABC is the slowest by 5.39% in 2020. The following banks are highly profitable: CMB, CIB, SPDB. The large number of net assets per share proves that the company has strong profitability (see Table 1 and Figure 2).

(2) The earnings per share can reflect the average earnings. The results show that the total profit of large companies is usually higher than the small enterprises, so this indicator is more accurate in measuring the profitability of enterprises (see Table 2 and Figure 3).

(3) The operating cash flow per share is used to further explain earnings per share. When the earnings per share of a listed company is good, this index is negative, it proves that this enterprise has not received accounts receivable which create the illusion of good benefits in the income statement. The profit statement needs to be combined with the cash flow statement to judge whether the profitability of an enterprise is positive or negative (see Table 3 and Figure 4).

(4) The capital reserve per share is an index reflecting the after-tax profit of listed companies. The capital transferred from undistributed profits to the capital reserve can also reflect the profitability of the enterprise (see Table 4 and Figure 5).

(5) The index of undistributed profit per share reflected the fund left in listed companies after they pay dividends to shareholders or converted capital reserve. The high value of this index shows that the listed company has a lot of funds after shareholders' dividends (see Table 5 and Figure 6).

Net Assets Per Share

We can see the Net Assets Per Share of 10 commercial banks from the following Table 1 and Figure 2.

Table 1. Net Assets Per Share (¥)

No.	Name	2015	2016	2017	2018	2019	2020
1	ICBC	4.8	5.29	5.73	6.3	6.93	7.48
2	CCB	5.74	6.28	6.86	7.65	8.39	9.06
3	BOC	4.09	4.46	4.74	5.14	5.61	5.98
4	ABC	3.48	3.81	4.15	4.54	5	5.39
5	BCM	7	7.67	8.23	8.6	9.34	9.87
6	CMB	14.31	15.95	17.69	20.07	22.89	25.36
7	PAB	11.29	10.61	11.77	12.82	14.07	15.16
8	CIB	15.1	17.02	18.82	21.18	23.37	25.5
9	PSBC	3.942	4.277	5.319	5.855	5.75	6.25
10	SPDB	15.29	15.64	13.47	15.05	16.83	18

Source: China's listed companies, 2021.

The indicator of Net Assets Per Share means the net assets after removing all liabilities, which is able to illustrate the asset strength of an enterprise.

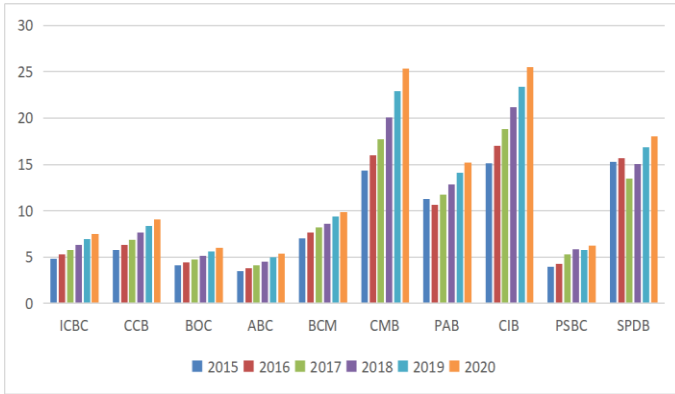


Fig. 2. Net Assets Per Share (¥)

Illustrate: Draw from the table 1.

Earnings Per Share

We can see the earnings per share of 10 commercial banks from Table 2 and Figure 3.

Table 2. Earnings per share (¥)

Serial	Stock	2015	2016	2017	2018	2019	2020
1	ICBC	0.77	~	0.79	0.82	0.86	0.86
2	CCB	0.91	~	0.96	1	1.05	1.06
3	BOC	0.56	0.54	0.56	0.59	0.61	0.61
4	ABC	0.55	0.55	0.58	0.59	0.59	0.59
5	BCB	0.9	0.89	0.91	0.96	1	0.99
6	CMB	2.29	2.46	2.78	3.13	3.62	3.79
7	PAB	1.56	~	1.3	1.39	1.54	1.4
8	CIB	2.63	2.77	2.74	2.85	3.1	3.08
9	PSBC	~	0.55	0.59	0.62	0.72	0.71
10	SPDB	2.665	2.404	1.84	1.85	1.95	1.88

Source: China's listed companies,2021.

Earnings Per Share can reflect the average earnings. The total profit of large companies are usually higher than the small enterprises, so this indicator is more accurate in measuring the profitability of enterprises.

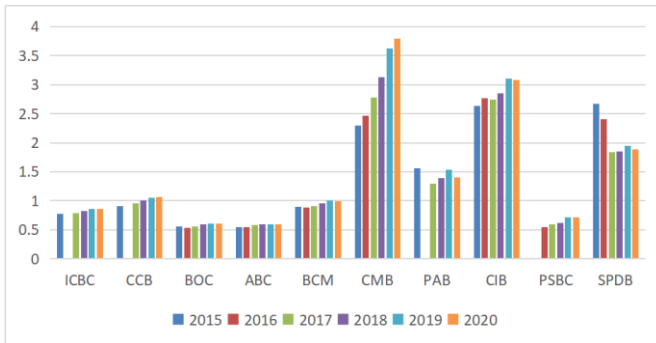


Fig. 3. Earnings Per Share (¥)

Illustrate: Draw from the table 2.

Operating Cash Flow Per Share

From Table 3 and Figure 4, we can see the operating cash flow per share of 10 commercial banks.

Table 3. Operating Cash Flow Per Share (¥)

No.1	Name	2015	2016	2017	2018	2019	2020
1	ICBC	3.1755	0.6712	2.1629	2.0318	1.9487	4.3703
2	CCB	2.5339	3.53	0.3163	2.4632	2.325	2.3226
3	BOC	2.283	0.6185	1.3796	2.25	-1.645	0.2481
4	ABC	2.5257	2.2044	1.9502	0.3027	1.0074	-0.1741
5	BCB	5.1051	6.5318	0.1444	1.6683	-1.1115	2.0117
6	CMB	15.8772	-4.7825	-0.2244	-1.4164	0.1757	16.7062
7	PAB	-0.1276	0.64	-6.9177	-3.3385	-2.0625	-0.8328
8	CIB	42.9707	10.6558	-7.829	-17.141	-28.3048	-1.6476
9	PSBC	46.5732	11.0229	-18.2525	9.2253	0.3068	1.8599
10	SPDB	19.2361	-8.881	-4.7926	-11.527	-2.3381	4.3058

Source: China's listed companies,2021.

Operating Cash Flow Per Share is used to further explain Earnings Per Share. The profit statement needs to be combined with the cash flow statement to judge whether the profitability of an enterprise is positive or not.

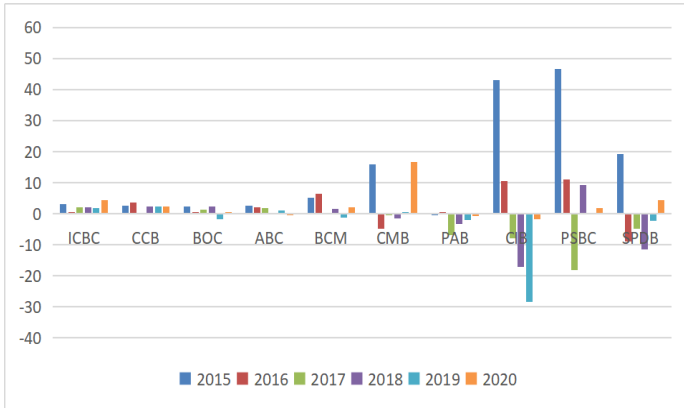


Fig. 4. Operating Cash Flow Per Share (¥)

Illustrate: Draw from the table 3.

Capital Reserve Per Share

From table 4 and figure 5, we can see the capital reserve per share of 10 commercial banks.

Table 4. Capital Reserve Per Share (¥)

No.1	Name	2015	2016	2017	2018	2019	2020
1	ICBC	0.4264	0.4265	0.4263	0.4264	0.4183	0.4168
2	CCB	0.5396	0.5381	0.5381	0.5381	0.5381	0.537
3	BOC	0.4759	0.4823	0.4819	0.4828	0.462	0.4619
4	ABC	0.3041	0.3041	0.3041	0.4959	0.4959	0.4959
5	BCB	1.5269	1.5269	1.5306	1.5306	1.5306	1.5005
6	CMB	2.6774	2.6774	2.6774	2.6774	2.6774	2.6774
7	PAB	4.1462	3.2885	3.2885	3.2885	4.1645	4.1645
8	CIB	2.6695	2.6695	3.6108	3.6108	3.6061	3.6061
9	PSBC	1.8492	3.7293	3.733	3.7324	1.1308	1.1601
10	SPDB	3.2508	3.4544	2.7855	2.7855	2.7855	2.7855

Source: China's listed companies,2021.

The capital reserve per share is an index reflecting the after tax profit of listed companies. Because the self owned capital of an company includes four components: Registered Capital, Surplus Accumulation Fund, Capital Accumulation Fund and Undistributed Profit.

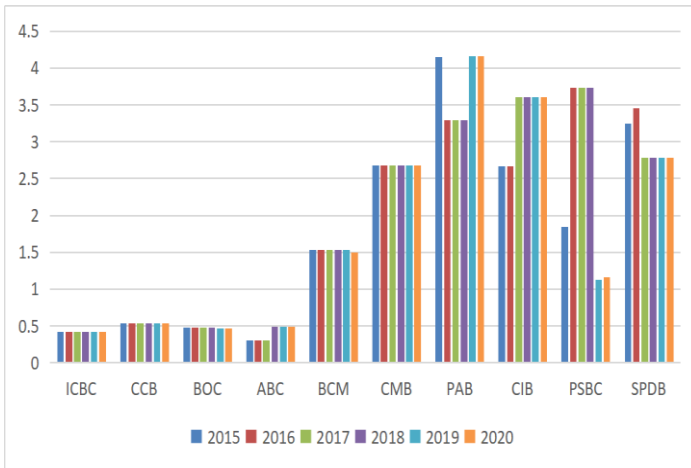


Fig. 5. Capital Reserve Per Share (¥)

Illustrate: Draw from the table 4.

Undistributed Profit Per Share

From table 5 and Figure 6, we can see the undistributed profits per share of 10 commercial banks.

Table 5. Undistributed Profit Per Share (¥)

No.1	Name	2015	2016	2017	2018	2019	2020
1	ICBC	2.1941	2.6393	3.0795	3.3856	3.8398	4.2383
2	CCB	2.6885	3.1473	3.5475	3.9633	4.4659	4.957
3	BOC	1.6379	1.9034	2.1963	2.3316	2.6392	2.9378
4	ABC	1.2685	1.5274	1.7783	1.8656	2.1175	2.3665
5	BCB	0.9843	1.356	1.6767	1.7392	2.3853	2.8877
6	CMB	6.4746	7.895	9.5585	10.8788	12.7523	14.6815
7	PAB	3.6994	3.7357	4.6394	5.5349	5.842	6.7601
8	CIB	7.4351	9.1078	10.3483	12.4097	14.3153	16.204
9	PSBC	2.9402	3.8286	5.3156	6.6467	1.8263	2.0761
10	SPDB	4.8608	4.5016	4.0817	4.7768	5.8166	6.4063

Source: China's listed companies,2021.

The index of Undistributed Profit Per Share reflected the fund left in listed companies after they pay dividends to shareholders or converted capital reserve. The high value of this index shows that the listed company has a lot of funds after shareholders' dividends.

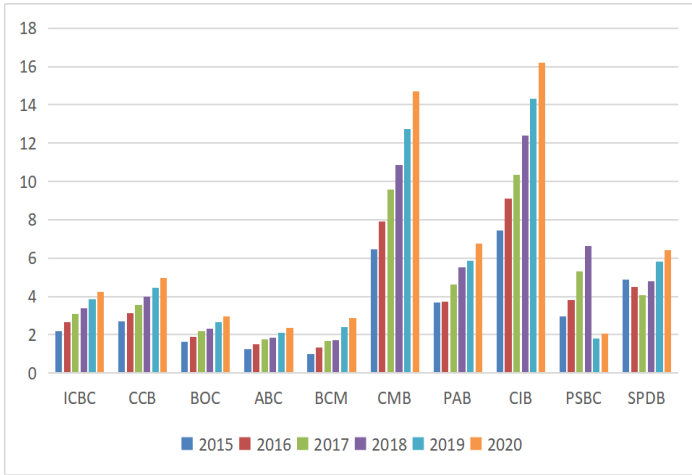


Fig. 6. Undistributed Profit Per Share (¥)

Illustrate: Draw from the table 5.

4 Conclusion

Digital banking is an important carrier of digital economy and is favored by many investors. The total profits of large banks are high, their average profit is not necessarily higher than the small banks, but it is to widen the channel of banking business and to give customers better service. The future research should strengthen the digital banking’s risk prevention.

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