

# Based on Risk Indicator Analysis to Deal with Risk: A Case Study of Westpac Bank

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## Abstract

Under APRA's requirements, all Australian savings institutions need to develop risk appetite statements containing various risk indicators. This article will analyze Westpac's various risk indicators based on Westpac's annual report and risk appetite statement. There are six sections in this article. The first part is the background introduction. In the second part, by calculating and comparing the critical capital ratios of each quarter in 2020 and the preceding year, we analyze Westpac's capital risk and the impact of CET1 on shareholders. The third part judges whether Westpac has achieved its credit risk target by comparing Westpac with the data of other banks in Australia. The fourth part is mainly about market risk. In this part, we analyze the most significant market risk Westpac faces. Westpac's measurement and management methods of market risk and give Westpac improvement suggestions based on these data. The fifth part mainly studies the relationship between Bank's Net Stable Funding Ratio, Liquidity Coverage Ratio and relevant risk appetite. In the last part, we summarize the article.

**Keywords:** risk indicators, Westpac

## 1. Background

In Australia, all savings institutions are regulated by APRA, and APRA has issued rules and regulations to restrict the risk management of individual savings institutions. After Roal Commission rectified the Australian banking industry in 2018, APRA requires each savings institution to develop a risk appetite statement through discussion between the board of directors and management, which includes the bank's risk appetite, risk category and risk tolerance, then the bank's business plan should be based on the

content of bank's risk appetite statement.

Combined with the financial annual report and appetite statement of the savings institutions, the investigator can analyze the risk information of the savings institution more conveniently and accurately.

## 2. Capital

### 2.1 The Key Capital Ratios for Each Quarter

It directly shows us the upward tendency of 3 key capital ratios for each quarter in the reporting years. CET1 ratio and Tier1 ratio increased with

slight fluctuation. The differences between the highest and lowest ratio are approx. 0.5%.

Total ratio with a higher fluctuation than others show an obvious rise after it arrived at the lowest point on 30th Sep., 2019.

## *2.2 Trajectory of the Capital Ratios Over the 2-Year Period*

Capital ratio is the ratio that shows the capital adequacy for financial institution, and banks have to meet the minimum requirement ratio of financial regulator (i.e. APRA in Australia) to ensure the bank do not take the excess risk and can continuously operate, therefore, higher capital ratio, lower capital risk.

From 30th Sep., 2018 to 30th Sep., 2020, three key capital ratios have been increased in varying degrees. The most important one, the common equity Tier 1 capital ratio, had a gently rise from 10.63 to 11.13, mainly because of the increased cash earnings, which rose 0.30% in the first half year of 2020 and decreased risk-weighted assets. In terms of the foreign exchange rate, the value of the Australian dollar against the US dollar was increasing, which was also the reason for the increase in capital ratio. The increasing ratio means the decline of the capital risk, and Westpac has sufficient funds to deal with unforeseen losses and ensure the interests of shareholders.

Since the end of 2016, Australian banks have been building huge capital buffers to help them resist the recurrence of the global financial crisis. With the COVID-19 pandemic, Westpac Bank was required to have a capital equity Tier 1 ratio of 10.5% by APRA, the actual capital ratio at the 30th Sep. of 2020 even reached 11.13%, which is higher than the APRA minimum requirement and satisfied Westpac Bank's risk appetite statement.

In 2020, APRA announced further capital management guidance for banks. It required banks through the approaches of retaining at least half of their earnings, actively use dividend reinvestment plans and other capital management initiatives to at least partially offset the diminution in capital from distributions to keep the adequacy of capital. However, Westpac bank's capital buffer was well above the minimum requirement and even reached 11.13% at the end of the reporting year of 2020, which was enough to help them mitigate the capital risk of the COVID-19

outbreak.

## *2.3 The Impact of the Bank's CET1 Results on Shareholders*

As Westpac Bank's CET1 ratios were rising, bank have more capital buffers and less liabilities to against unknown risks. Westpac Bank's capital equity Tier 1 ratio under APRA's supervision was well above the minimum, which gives shareholders much confidence that the bank will not run out of cash or face insolvency in the economic recession caused by the coronavirus. Shareholders could trust the future of Westpac Bank.

However, shareholders also face a negative situation because the adverse impact of low risk is the low return. Australia's big banks sought to conserve capital in the first half of their financial year, limiting discretionary capital allocations under APRA's recommendations. Westpac Bank announced the decision to postpone the 2020 interim dividend to ensure stable profitability and growth of the Bank. Therefore, shareholders will not get dividends. Moreover, under the requirement of APRA, shareholders need to reinvest their dividends to increase the capital funding of the bank. As the results, the money they get will decrease.

In addition, one of the components of CET1 is the foreign exchange reserve. Before September 2020, the exchange rate of Australian dollar continued to rise relative to the US dollar, which did not guarantee the same trend in the future. Therefore, when Australian dollar depreciates, the amount of foreign exchange reserves will decrease, and the CET1 ratio will also decrease.

## **3. Credit Risk**

Credit risk can be defined as a bank borrower or counterparty do not having enough ability to meet its obligations in accordance with agreed terms that cause the event of default (BIS 2013). The impairment charge is a cost that shows a reduction in the carrying value of a specific asset on a balance sheet, it also can be regarded as the past due to loan that the bank should be specially considered. Applying this type of charge can make sure the accounting records reflect a realistic situation between the worth of the assets held by the company and the overall financial value of the company itself. The exist of impairment charges

harm the earning of banks, and the table below charges on profits. directly show the adverse impact of impairment

**REPORTED NET PROFIT ATTRIBUTABLE TO OWNERS OF WESTPAC (\$m)**

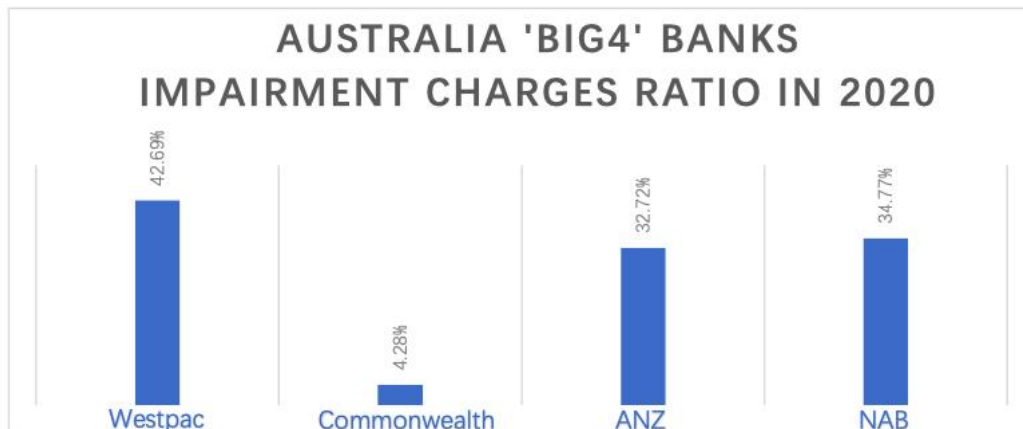
	FULL YEAR SEPT 2020	FULL YEAR SEPT 2019	% MOV'T SEPT 20 - SEPT 19
<b>Net interest income</b>	<b>16,696</b>	16,907	(1)
Non interest income	3,487	3,742	(7)
<b>Net operating income</b>	<b>20,183</b>	20,649	(2)
Operating expenses	(12,739)	(10,106)	26
<b>Net profit before impairment charges and income tax</b>	<b>7,444</b>	10,543	(29)
Impairment charges	(3,178)	(794)	large
<b>Profit before income tax</b>	<b>4,266</b>	9,749	(56)

According to the annual report from “Big Four” banks, we defined core earnings as the net profit before impairment charges and income tax because it directly shows the total profit without any effects from tax or any other charges. The ratio between actual impairment charge and core earnings indicates how many profits or earnings that will be offset by impairment charges.

Combining with the definition of credit risk I mentioned before, we can know that higher ratio, high credit risk.

Abstracting relative data from Westpac, Commonwealth Bank, ANZ, and NAB 2020 annual reports to calculate the impairment charges ratio, and getting the table and chart below:

Banks	Impairment charges	Net operating income before impairment charges and income tax	
Westpac	\$3178m	\$7444m	42.69%
Commonwealth	\$544m	\$12929m	4.28%
ANZ	\$2738m	\$8369m	32.72%
NAB	\$2752m	\$7915m	34.77%



From the chart, we can quickly know that the impairment charges to core earnings ratio of Westpac are the highest one, which means the reduction of earnings, or the loss of Westpac is enormous. As I mentioned in the previous report:

higher impairment ratio, higher credit risk, the shareholder will be exposed to higher credit risk than another three banks in Australia. Therefore, Westpac did not achieve the goal of “within or below peer range to reduce the potential for

outlier reputation risk”.

The reasons for Westpac’s high impairment charge ratio can be concluded as the decline of core earnings and dramatic growth of impairment charges in the year 2020. The COVID-19 pandemic has a profound impact and created challenges for many individuals and companies. Westpac’s annual report (2020) pointed out that much of the decline in profit can be traced back to the impact of COVID-19 on our business. Meanwhile, the sharp decrease in Australia economic growth let the unemployment rate raised and numerous companies insolvent with inadequate funding. During this recession, borrower default became a common phenomenon because a vast number of borrowers could not pay their loans, therefore, Westpac prepared higher impairment provisions for the estimated impact of potential future credit losses to meet a rise in customer defaults. Westpac 2020 annual report showed the impairment charges significantly increased to \$3,178 million in 2020, up to \$2,384 million compared to 2019. Although APRA published payment holiday policy (allowing borrowers impacted by COVID-19 to defer loan repayments for a period) as COVID-19 support packages for borrowers to solve the problem of default, impairment charges remained elevated, as the economic recession from the COVID-19 pandemic will continue for a long time, consumer and business still cannot repay the loan after the payment holiday. APRA noted that there still exists an upward trend of loans to repayment deferral and peaked at 10% in June, with only about 10% of borrowers repaid full repayment in June (APRA report 2020). While the research from Citigroup (2020) indicated, only half the borrowers of loans that have been deferred in Australia have been able to make repayments. Therefore, even implemented holiday payment policy, banks faced credit risk caused by huge impairment charges as before. The effect of the COVID-19 pandemic has and is expected to continue to harm business and economic conditions, with adverse effect on a wide range of Westpac’s customers was, causing increased fluctuations in financial markets, and potentially leading to the increasing of impairments, and defaults.

#### **4. Market Risk**

##### *4.1 The Biggest Market Risk of Westpac*

Interest rate risk is the biggest market risk Westpac faces. Market risk refers to the risk that changes in market factors would cause a company to face losses. As an essential factor affecting market price fluctuations, the change from interest rate would potentially make bank expose to market risk, this is mainly manifested in the following three aspects.

To begin with, under the circumstance that the interest rate sensitivity of commercial banks’ liabilities and assets do not match, changes in interest rates will have an impact on the bank’s net interest margin income. For Westpac, the term of deposits and loans is seriously imbalanced. Time deposits and savings deposits account for a considerable proportion of deposits, while short-term loans account for the vast majority of loans. This shows that Westpac’s interest rate sensitive assets are greater than interest rate sensitive liabilities. In this case, the lower interest rate has greatly restricted the net interest margin income of commercial banks.

In addition, changes in interest rates will bring the risk of customers’ right to choose. Most loan contracts contain various options related to interest rates. When the interest rate rises, deposit customers may withdraw unmaternity deposits and then re-deposit at a new higher interest rate; when the interest rate falls, loan customers may repay the loan early and then repay the loan at a new lower interest rate. Reapply for the loan. This will reduce the bank’s net interest income. Therefore, when the interest rate rises or falls, commercial banks will face the risk of customers’ options to varying degrees.

What is more, Changes in interest rates will affect the bank’s yield curve. Generally speaking, long-term interest rates are higher than short-term interest rates, that is, the slope of the yield curve is positive. However, in the commercial expansion stage, due to the reverse short-term operation of monetary policy, short-term interest rates may be higher than long-term interest rates. In the more mature Australian financial market, bank deposit and loan interest rates are mostly based on the Treasury bond yield. If the yield curve changes from positive to negative, the banks’ long-term unliquidated floating-rate loans will reprice interest rates and short-term deposit interest rates. The spread will be greatly reduced or even lead to

negative spreads and negative bank returns.

What should be mentioned is that considering the impact of COVID-19, the low interest rates would place pressure on the net interest's margin. In addition, severe market volatility also made banks keep adjusting their interest rate, therefore, the volatility of interest rates was also a significant factor that caused banks to suffer substantial losses.

#### *4.2 Interest Rate Risk Measurement*

Market risk may arise from trading book activities and non-trading book activities. VaR method was used for measuring trading book activities, Westpac estimated the potential loss of its earnings through VaR and is based on 99% confidence level using the last 12 months of historical market data. The holding period is 1 day which means they calculated daily VaR. VaR considered the variation of several material factors, including interest rates, FX rates, price changes, volatility and the correlation between these, that may have an impact on its value of the portfolio. Daily monitoring of the market risk exposures against VaR and structural concentration limits was conducted, and stress testing was also used to test the risks beyond the 99% confidence interval.

Given non-traded activities do not have an open market to find information supporting calculations like trading book activities. Therefore, they calculated the change of net interest income when the interest rate had changed, which is net interest income-at-risk (NaR). They used a simulation model to estimate its potential NaR, which expected repricing behaviour and changes in market interest rates so that different potential future NII outcomes has been provided. Under this mode, a three-year time horizon and 99% confidence interval has been used, as well as 100 and 200 basis point shifts up and down from the current market yield based on Australia and New Zealand. The result from these modelled scenarios showed the sensitivity to the change of interest rates.

#### *4.3 Interest Rate Risk Management*

Westpac has developed a specific framework for managing market risk, where it is managed appropriately through an understanding of risk appetite. For managing interest rate risk, Westpac can be used to manage market risk through both

traded market risk and non-traded market risk. With the above risk measurement for assessing market risk from interest rates, Westpac gives some methods for managing risk.

The first step is to ensure that the quantified risk is within manageable limits. Since Westpac's risk appetite is to protect the bank from changes in financial market factors, however, it is not possible to be completely immune to them. The trading and ALM departments manage the position they can take to hedge market risk based on the size and nature of the interest rate risk (Westpac group n.d., p. 245). Secondly, data such as VaR, stock or bond volatility and stress tests are monitored on a daily basis (Westpac group n.d., p. 245). For example, whether the current data on stress tests in special cases like COVID-19 have produced unexpected changes. Furthermore, the calculation of the data needs to be broken down to each product line and different regions, so that MARCO needs an escalation framework to prevent further escalation of risk if data occurs that exceeds the extreme and unexpected values predicted by historical data (Westpac group n.d., p. 245). Also, market exposures need to be tested daily to avoid uncontrollable situations (Westpac group n.d., p. 245). Because banks have a large amount of capital flows and product transactions every day, if they do not monitor the data daily, then they cannot do a strict control of interest rate risk, then it will lead to an increase in market risk. In the non-trading market interest rate risk, ALM department through the appropriate use of derivatives products to reduce the risk by hedging (Westpac group n.d., p. 245).

#### *4.4 How the Same Exposure Is Managed by Other 'Big Four' Banks in Australia and Improvements*

Westpac's risk management of interest rates is similar to that of the other "Big Four" banks. For ANZ Bank, the results of their risk measurement and balance sheet market risk data are used to set a range of risk management controls and to improve the management approach based on the results of this risk classification (ANZ n.d., p. 53). The Commonwealth Bank's management approach focuses on the appropriate transfer and pricing of detected risks to avoid short-term positioning resulting in unlimited loss, as well as the daily monitoring of risk monitoring values (Commonwealth Bank n.d., p. 204). The National



Australia Bank also monitors market assessments and changes in returns and also analyzes them through measurement and comparison in a risk management framework to reduce losses (National Australia Bank n.d., p. 145). Here are some improvements for “Big Four” banks.

Improvements:

- (1) As interest rates in Australia continue to remain low, banks should reduce short-term borrowing to avoid excessive risks that banks have to take.
- (2) Although derivatives can help transfer risk, the interest rate risk associated with derivatives is difficult to control. Therefore, techniques in measuring risk need to be further improved to avoid excessive investment in derivatives.
- (3) Strict control over the quality of risk technology and the competence of staff, clear supervisory tasks and timely detection of loopholes.

## 5. Liquidity Risk

### 5.1 Evaluation of Westpac’s LCR and NSFR

The Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) are important indicators for Westpac to measure funding and liquidity risks. In order to introduce these two indicators in detail, this article refers to Westpac’s 2020 Annual Report and Pillar 3 Report -September-2020.

For NSFR, which is defined as Available amount of stable funding (ASF)/Required amount of stable funding (RSF). According to the data on 30th Jun., 2020, the total ASF was 608,589m, and total RSF was 524,334m, so that NSFR was 116.1%. Similarly, for the data on 30th Sep., 2020, the total ASF was 624,097m and total RSF was 512,656m so that NSFR was 121.7% (Pillar 3 Report 2020, n.d.). Westpac’s NSFR exceeds 100% of the minimum regulatory requirements, leaving a sufficient buffer against liquidity risks. For another indicator, the Liquidity Coverage Ratio (LCR), which is defined as Stock of HQLA/Total Net cash outflows over the next 30 calendar days. Analyzing it in the same period, it can be observed that on 30th Jun. 2020, the number of Westpac’s total liquid assets was 185,380m, and total net cash outflows was 127,030m so LCR was 146%. On 30th Sep., 2020, the number of Westpac Bank’s HQLA was

181,774m, total net cash outflows was 120,330m and LCR was 151%. Among all liquid assets, HQLA was 116,687m and 112,215m in September and June, respectively (Pillar 3 Report 2020, n.d.). Based on the above data, we can see that Westpac’s LCR has always been higher than the regulatory minimum of 100%.

### 5.2 Strategies to Control Liquidity Risk, Especially NSFR and LCR

Westpac has developed a series of funding and liquidity risk management frameworks, including but not limited to identifying risk appetites, responsibilities for various essential tasks, risk reporting and control, and other restrictions, etc. Westpac has developed a series of funding and liquidity risk management frameworks, including but not limited to clear risk appetite, responsibilities of various important tasks, risk reporting and control, and other restrictions, etc. A regular financing strategy review and daily liquidity risk the review is also the focus.

In addition, Westpac has been adopting a strategy of regularly reviewing financing sources to ensure diversification of financing channels. In addition, Westpac has been adopting a strategy of regularly reviewing funding sources to ensure diversification of funding channels. Including but not limited to deposits; debt issues; proceeds from sale of marketable securities; repurchase agreements with central banks; principal repayments on loans; interest income; and fee income. Furthermore, group continues to monitor the composition and stability of capital sources. Figure 1 shows the group’s capital composition in 2019 and 2020 (Fix Simplify Perform, n.d.).

%	2020	2019
Customer deposits	65	62.5
Wholesale term funding with residual maturity greater than 12 months	15.7	16.6
Wholesale funding with a residual maturity less than 12 months	10.4	12.1
Securitisation	0.9	1
Equity	8	7.8
Group’s total funding	100	100

**Figure 1.** Group’s funding composition

Maintaining diversification and stability of funding sources is essential to control liquidity risks. It is also important to adopt the strategy of

holding high-quality liquid assets, which can play an effective buffer against liquidity risks. Figure 2

shows the Group's liquid asset holdings.

	2020		2019	
\$ m	Actual	Average	Actual	Average
Cash	29,099	28,157	18,398	19,189
Trading securities and financial assets measured at FVIS	29,364	14,789	18,867	17,184
Investment securities	91,097	82,678	73,328	66,701
Loans <sup>2</sup>	71,616	66,512	58,933	52,498
Other financial assets	-	468	345	723
Total liquid assets	221,176	192,604	169,871	169,871

Term Funding Facility (TFF) is also an important initiative. On 19th Mar. 2020, the Reserve Bank announced extensive measures aimed at providing liquidity to financial markets and to support the banks in providing credit to businesses. This measure provides more liquidity to the financial market, banks can get huge subsidies from it, and Westpac can also benefit from it.

## 6. Conclusion

All in all, this report analyzes Westpac's risk by combining Westpac's 2020 annual report and risk appetite statement containing Westpac's risk indicators. First, we analyzed Westpac's capital adequacy ratio, capital risk and the impact of CET1 on shareholders. Second, compare the data of Westpac and other banks to determine whether Westpac has achieved its credit risk target. Next, we analyzed Westpac's market risks and made suggestions for improvement. Finally, we analyze Westpac's liquidity risk and its countermeasures.

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