
Bank Bill Benchmark Rate and closing rates

October 2017

*An overview of New Zealand's Bank Bill Benchmark Rate (BKBM)
and closing rates, their purpose, and how they are regulated*



Contents

Purpose	1
What are BKBM and closing rates?	1
Why do banks trade in Bank Bills?	2
Current calculation methods	3
Rules and protections for BKBM	3
Appendices	5
Glossary	8

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Purpose

This resource sheet explains how BKBM and closing rates operate and are regulated in New Zealand. It is aimed at local bank staff involved in trading activity or oversight of trading activity. In particular, junior members of trading teams who may be less familiar with BKBM or closing rates may find this report useful to supplement our [guidance note](#). It may also be useful for finance teams in New Zealand businesses that have exposures linked to BKBM.

Our related [guidance note for market participants](#) sets out our expectations around this wholesale trading conduct.

We intend these resources to raise awareness of how BKBM and closing rates are calculated and the controls around this type of wholesale trading.

Why are we interested in BKBM and closing rates?

The FMA's main objective is to promote and facilitate the development of fair, efficient, and transparent financial markets. We take a risk-based approach to this objective – focusing our regulatory attention and effort on conduct that threatens fairness, efficiency or transparency, or has the potential to harm investors and consumers.

Our interest in financial 'benchmarks' and other wholesale trading activity stems from the wider impact this activity can have on businesses, investors and consumers.

In recent years there has been significant publicity worldwide concerning misconduct by various global banks¹ relating to benchmarks such as LIBOR² and EURIBOR³. However, there is still a low level of awareness about how these financial benchmarks and related wholesale market trading work in practice.

What are BKBM and closing rates?

BKBM is the main interest rate benchmark in New Zealand⁴. It is designed to reflect the supply and demand for Bank Bills⁵ and is used by market participants to calculate the amounts payable under various financial instruments. It is also used in calculating the value of many financial instruments.

Closing rates are the end-of-day rates or prices for various traded securities⁶, including interest rate swaps, foreign exchange (FX) rates, corporate bonds and government bonds. Closing rates are particularly important to the funds management industry, including KiwiSaver funds, which rely on closing rates to assess the value of their portfolios.

The New Zealand Financial Markets Association (NZFMA) acts as Benchmark Administrator for BKBM and many New Zealand closing rates. Thomson Reuters acts as the administrator of the WM/Reuters FX Benchmarks, which are the main FX rate benchmarks. In each case, the administrator sets the methodology for calculating the rates, performs the calculations and distributes the resulting rates.

Changes in the BKBM rate will not usually have a direct effect on individual New Zealanders, although there can be an indirect effect. The rate of interest paid on most personal loans and mortgage loans is generally linked to a commercial rate set by the relevant bank. One factor affecting these rates is the bank's own cost of borrowing, which in part may be directly affected by BKBM. In contrast, the interest payable on large corporate loans is often calculated by reference to the BKBM rate on a specified day for each interest period. This means any issues affecting BKBM can have a significant impact on the costs of that borrowing for corporate New Zealand.

¹ For example, see this [summary of the action](#) taken in the UK.

² The Intercontinental Exchange London Interbank Offered Rate

³ Euro Interbank Offered Rate

⁴ 'BKBM' is the name of the Reuters page where the interest rate benchmarks were originally published.

⁵ Bank Bills are securities representing short-term debt obligations of a bank with a maturity up to six months.

⁶ Closing rates may not meet the IOSCO definition of a 'benchmark', but similar issues apply in relation to the trading in these securities.

What are benchmarks?

The International Organization of Securities Commissions (IOSCO) defines benchmarks in its Principles for Financial Benchmarks⁷ report as prices, estimates, rates, indices or values that are:

- a) Made available to users, whether free of charge or for payment;
- b) Calculated periodically, entirely or partially by the application of a formula or another method of calculation to, or an assessment of, the value of one or more underlying interests⁸; and
- c) Used for reference for purposes that include one or more of the following:
 - determining the interest payable, or other sums due, under loan agreements or under other financial contracts or instruments;
 - determining the price at which a financial instrument may be bought or sold or traded or redeemed, or the value of a financial instrument; and/or
 - measuring the performance of a financial instrument.

Financial benchmarks matter because people rely on them as objective measures of the prices, rates or values to which they relate. Financial benchmarks are widely used to calculate the price or value of financial market transactions, and significant value changes hands based on decisions made by reference to them. Closing rates also are used to assess financial value and make decisions that affect the wider market.

Why do banks trade in Bank Bills?

BKBM is designed to reflect the supply and demand for Bank Bills. Banks may buy and sell Bank Bills for cash management and funding purposes. A bank that sells Bank Bills is effectively borrowing money, which can be used to fund other parts of its business, such as loans to customers. A bank that purchases Bank Bills is lending or investing money. This may be because they have money that is not needed in the short term for other parts of their business. By buying Bank Bills they invest in a relatively safe and liquid investment that will earn a base level of interest.

New Zealand banks' funding mainly comes from retail deposits (often around 60% to 70% of their funding needs). The proportion of funding New Zealand banks get from selling Bank Bills has gradually decreased over the years. Currently, Bank Bills account for only 1% to 2% of New Zealand banks' total funding⁹.

Banks also buy or sell Bank Bills to manage (or hedge¹⁰) their daily interest rate risk position. Banks acquire interest rate risk positions from existing loans and other financial products, with payments linked to BKBM rate sets. Each day, banks are effectively borrowing or investing at the BKBM rate as a result of those existing loans and other financial products.

Hedging the rate

To hedge their daily interest rate risk positions, banks investing at the BKBM rate (through existing loans or other financial products) can sell Bank Bills during the rate-set window. Similarly, banks borrowing at the BKBM rate can hedge their position by buying Bank Bills during the rate-set window. This effectively reduces the bank's net interest rate risk position going forward¹¹.

A bank's funding and investment needs, and its rate-set exposures and hedging needs change daily. A bank's clients may also ask them to buy or sell Bank Bills, which may give a further reason for their trade.

⁷ [iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf](https://www.iosco.org/library/pubdocs/pdf/IOSCOPD415.pdf)

⁸ 'Interests' refers to any physical commodity, currency or other tangible goods, intangibles (such as securities, rates or indexes) or any financial instrument on an Interest, which is intended to be measured by a benchmark.

⁹ Capital and term loans make up most of the remainder of funding in addition to retail deposits and Bank Bills.

¹⁰ Some, but not all, banks will only refer to 'hedging' interest rate risk where a transaction fully neutralises a particular position. They describe transactions that do not fully neutralise the risk as 'managing' interest rate risk. In this document we use the concept of 'hedging' to cover transactions that either partly or fully neutralise interest rate risk.

¹¹ Interest rate risk is the risk from the present value of the bank's assets and liabilities (including payments due and receivable under loans) changing as the market interest rates used to value them change. By hedging, a bank is reducing the extent to which the net present value of its positions will fluctuate as a result of changes in market interest rates.

Current calculation methods

BKBM

BKBM rates are currently calculated based on electronic capture of trade information, or executable bid and offer pricing in the absence of trades, during a daily two-minute trading window.

Closing rates

Until recently, end-of-day closing rates calculated by NZFMA were based on submissions of indicative prices (expert opinions about the relevant price, value or rate) from market participants. In 2017, NZFMA moved to a methodology based on electronic capture of dealable¹² bids and offers from selected market participants. More details about the new methodology for calculating closing rates are available on the [NZFMA website](#).

Find out more about the different [WM/Reuters FX Benchmarks methodologies](#).

Rules and protections for BKBM

There are various protections around BKBM to help ensure market integrity. All NZFMA members who participate in the two-minute trading window must adhere to the NZFMA's [Reference Rate Operating Rules & Principles](#), which include:

- **The no-gapping rule.** This rule requires participants to only move their bid or offer by one basis point (0.01%) at a time and give 'sufficient time' for the market to transact before entering a new bid or offer. This effectively limits the ability of members to significantly move the rate (whether intentionally or unintentionally) over the short two-minute trading window.
- **The rules requiring participants to be able to offer/accept a minimum number of lines of prime Bank Bill paper.** Buyers must be able to accept Bank Bills issued by at least four different banks in order to bid on screen during the BKBM trading window. Sellers must be able to offer their own Bank Bills. Sellers that do not issue prime Bank Bills must be able to offer at least three lines of prime Bank Bills. These rules help ensure a minimum liquidity during the rate-set trading window. This liquidity helps to ensure that the calculated rate reflects all the information available in the market and reduces the influence of any one trade on the final rate.

NZFMA will be reviewing its Operating Rules & Principles to see where they can further support the recommendations in our [guidance note for market participants](#).

NZ's rate calculation method

The calculation of BKBM rates based on actual observed transactions is a pioneering feature of the New Zealand market. The IOSCO Principles, which are an internationally recognised set of recommended practices for the administration of financial benchmarks, mostly focus on encouraging benchmarks to move to trade-based calculation methods, rather than calculations based on submissions. However, most international benchmarks still rely on submissions from market participants.

¹² Execution of 'dealable' bids and offers requires confirmation by the counterparty of the relevant price/volume to be traded. There is generally insufficient liquidity in the relevant Closing Rate Markets to move to a methodology based on actual executed transactions.

The detailed legal protections that prohibit manipulation of benchmarks and closing rates are explained in more detail in our [guidance note for market participants](#). These protections prohibit trading that is not for legitimate purposes. However, even legitimate trading can cause potential conflicts of interest. This is why the controls and good culture within market participants is crucial.

Potential conflicts of interest in hedging interest rates

The BKBM rate affects the cash flows payable under financial instruments linked to the BKBM rate – the higher the rate set, the higher the fixed cash flow and the higher the value of the financial instrument.

For example, if a bank loans \$100 million to its corporate customers where the interest payable is linked¹³ to the BKBM rate on the first day of each interest period, then the bank will earn more interest on those loans if BKBM is set higher and less interest if BKBM is set lower on that day.

A potential conflict of interest can arise in this situation. To hedge its interest rate risk on that position a bank could sell Bank Bills during the rate-set window (effectively borrowing money at the relevant BKBM rate). By selling Bank Bills, the bank could be causing the rate to be set higher, to the detriment of its corporate clients.

However, banks may also be exposed to the BKBM rate set in a way that is aligned with their corporate customers. For example, a bank may enter into a swap (a type of derivative) linked to offshore funding under which the bank is effectively paying interest at the BKBM rate.

The bank will pay less for that funding if BKBM is set lower and will pay more if BKBM is set higher. However, if the bank hedges its interest rate risk on that position by buying Bank Bills during the rate-set window, that could also cause the rate to be set lower, reducing the amount they pay on the funding, to the detriment of their swap counterparty.

Controls and culture

Large companies that borrow money with an interest rate linked to BKBM tend to view BKBM rates as more objective than interest rates set internally within a bank. To a certain extent this is correct, but there is a potential conflict of interest between banks' trading in the Bank Bill market and the interests of their counterparties and customers. This is why good controls are required to ensure any conflicts of interest are appropriately managed.

In our [guidance note for market participants](#) we discuss the types of controls banks should consider to manage any conflicts of interest appropriately.

One fundamental principle, however, is to ensure hedging activity is aimed at risk mitigation rather than influencing or manipulating the BKBM rate set.

While certain controls can help ensure this, it is more important that banks develop a culture that focuses on achieving good outcomes for customers, rather than over-incentivising profits at a team or organisational level.

¹³ In practice, because BKBM broadly represents the bank's own cost of funds, the interest rate charged will be BKBM plus any costs, plus a margin of profit for the bank.

Appendices

Appendix 1: BKBM calculation history

1980s

BKBM introduced. Prime banks¹⁴ provided information about the rates at which Bank Bills could be bought and sold, based on actual transactions, at 10.30am on each calculation date. The reference interest rate was calculated by removing the highest and lowest submissions and averaging the remaining rates. This was used to settle various derivative contracts including NZD Interest Rate Swaps, Forward Rate Agreements, and contracts traded on the New Zealand Futures and Options Exchange.

2006

Quarterly publication of market transactions within a one-minute 'trading window' around 10.30am in the Bank Bill market. This coincided with the close-out date for standardised Bank Bill futures contracts (a type of derivative), the day on which the amount payable was calculated. Various rules introduced included a 'no-gapping' rule and a requirement for banks to be able to accept multiple lines of bank paper.

2008/2009

NZ data System implemented, to provide for the capture, calculation and distribution of BKBM data and a range of closing rates.

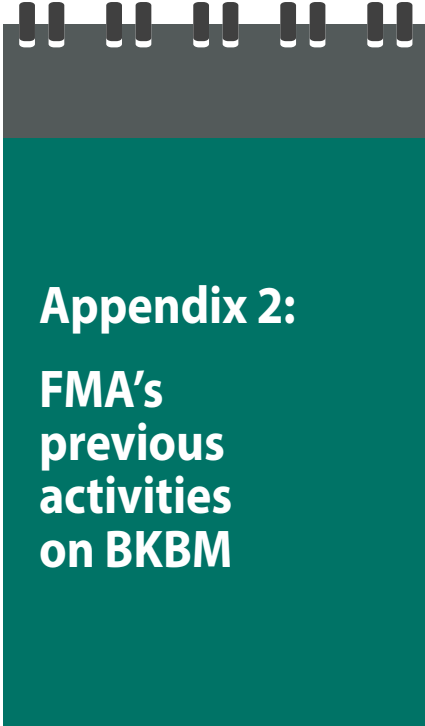
2009

Trading window extended to two minutes, and all transactions during the window published daily rather than just on futures close-out days.

2015

Following publicity around international misconduct, banks were reluctant to submit information for benchmark calculations. Electronic capture of Bank Bill trade information and executable bid and offer pricing was introduced, allowing benchmarks to be calculated without banks having to submit information.

¹⁴ 'Prime' banks are those whose short-term debt is treated as equivalent to that of any other prime bank. This means Bank Bills issued or accepted by these prime banks are treated as homogeneous.



Appendix 2: FMA's previous activities on BKBM

Analysing trading data

In 2014, we analysed a sample of trading and rate-set exposure data from 1 April 2013 to 31 March 2014. We did this to see if there was any significant correlation between participants' BKBM rate-set positions and their trading behaviour, and to assess whether there was significant volatility around BKBM rate sets.

Although we found evidence that some banks' aggregate exposures on any given day were correlated with their trading in the Bank Bills market, there was no significant volatility around the rate sets. A correlation between a bank's aggregate rate-set exposure and its Bank Bill trading is expected where the bank is using the Bank Bills market to hedge its rate-set exposure, as outlined on page 2. However, looking at the detail of exposures together with BKBM movements can help identify any suspicious trading conduct that may not have a legitimate commercial purpose.

Our analysis¹⁵ showed that:

- there were only three days during the year on which the BKBM rate moved more than 0.05% (five basis points). All these larger movements could be explained by external factors such as an OCR announcement from the Reserve Bank of New Zealand
- the average daily change in BKBM was two basis points
- where all six participating banks had rate-set exposures the same way around on a given day, BKBM moved by roughly 0.03% (three basis points)
- there were a number of occasions when trading by the most active banks had the effect of moving the BKBM rate by more than 0.03% (three basis points) in their favour, which can be a natural result of legitimate hedging activity as described above. The estimated combined gain from the banks' rate-set exposure across all those days was approximately \$1.7 million over the 12-month period. Although this is a significant sum, we saw no reason to indicate this was the result of non-legitimate trading.

Since our review in 2014, we have conducted further targeted enquiries into specific trading conduct, but have not found evidence of systemic trading in New Zealand Bank Bills that was not for legitimate purposes. We are, however, aware of misconduct that has been proved and/or alleged in other jurisdictions. For this reason we have continued to engage with banks on this topic, with the intention of minimising the risk of inappropriate trading conduct in the future and restoring public confidence in this systemically important market.

¹⁵ The rate movements described should not be considered firm indicators of whether trading is legitimate; surrounding circumstances will always be relevant. See our [market guidance](#) for further detail.

Engaging with licensed banks

During 2016, we engaged with all New Zealand licensed banks that have a significant role in the Bank Bills market to understand what actions they had taken, and additional controls they had put in place, in response to the international benchmark rigging scandals. During discussions, the banks raised concerns about falling liquidity in the BKBM rate-set window. There was a view that falling liquidity may be largely due to a perceived increase in regulatory risk. Where fewer banks participate in setting a benchmark there are increased risks that the benchmark could be moved by smaller individual transactions.

Although we will act when we identify illegitimate trading activity, we also need to give banks clear expectations around what we see is appropriate trading conduct, to encourage confident participation in the markets. Our separate [guidance note for market participants](#) is designed to give an appropriate level of regulatory certainty. It also sets out the relevant legal restrictions and clarifies our expectations about the trading controls firms might need to have in place.

Firms must have processes and controls to be able to check their own trading conduct, but we will continue to conduct spot checks and follow up suspicious trading activity where appropriate. Our aim is that the public and New Zealand's businesses can have confidence in the integrity of these important wholesale markets.

Glossary

Bank Bill	A short-term transferable instrument under which a bank is liable to pay the holder a specified amount on a specified maturity date. The instrument can be on-sold and the maturity date is generally between 30 to 180 days after issue.
Benchmark	The International Organization of Securities Commissions (IOSCO) defines benchmarks in its Principles for Financial Benchmarks report (the IOSCO Principles) as prices, estimates, rates, indices or values that are: <ol style="list-style-type: none"> a) Made available to users, whether free of charge or for payment; b) Calculated periodically, entirely or partially by the application of a formula or another method of calculation to, or an assessment of, the value of one or more underlying interests; and c) Used for reference for purposes that include one or more of the following: <ul style="list-style-type: none"> ● determining the interest payable, or other sums due, under loan agreements or under other financial contracts or instruments; ● determining the price at which a financial instrument may be bought or sold or traded or redeemed, or the value of a financial instrument; and/or ● measuring the performance of a financial instrument.
Benchmark administrator	The person or organisation responsible for determining the methodology, calculating the benchmark and disseminating the results. In New Zealand this is the NZFMA for BKBM and most closing rates.
Closing rates	The market closing price or rate for various government bonds; non-government bonds; interest rate swaps; overnight index swaps periodically calculated and published using a consistent methodology.
Closing Rate Markets	The markets in any of the underlying securities for which the NZFMA administers closing rates.
IOSCO Principles	The principles set out in the Principles for Financial Benchmarks report published by the International Organization of Securities Commissions.
NZFMA	New Zealand Financial Markets Association.
Rate-set window	The period of time during which transactional data is captured to calculate a benchmark, which for BKBM is the two-minute period between 10.20am and 10.22am.



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