INDEX METHODOLOGY
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THE BLOOMBERG AUSBOND AND NZBOND INDEX FAMILY

Chapter 1. Overview

The Bloomberg AusBond and NZBond Indices (“the Indices”) are benchmarks for the Australian and New Zealand debt markets. The indices include 800+ bonds with a total market value over AUD 1.15T. This investment grade index family includes AUD and NZD denominated treasury, semi-government, local government, supranational, sovereign, corporate, FRN, and inflation linked securities with at least 100 million par amount outstanding (50 million for inflation linked securities).

In 1988, UBS created the suite of UBS Australian Bond Indices to serve as a stable, comprehensive, and objective basis for evaluating the performance of Australia’s debt markets. Beginning with indices for bank bills, government bonds, and semi-government bonds, this index family has expanded to cover all the major asset classes in the Australian debt market including credit, supranationals, and inflation-linkers. Today, the Indices are the most widely accepted measures of Australian debt market performance.

In 2014, Bloomberg acquired the UBS Australia Bond Index franchise and rebranded it as the Bloomberg AusBond Indices. Since then, this family of indices has been calculated, maintained, and licensed by Bloomberg. The indices are broadly available to the investment community, and by using Bloomberg’s data, technology, and distribution, they provide robust benchmarks for the bond markets of Australia and New Zealand.

This document describes the Methodology of the Bloomberg AusBond and NZBond Indices and related subindices. The index methodology undergoes a formal review process at least once each year to ensure its design still promotes a representative and accurate measure of the markets the Indices measure. Material changes are reviewed and approved by the Bloomberg Index Oversight Committee. See 1.4 Index Oversight and Governance for more information on index governance at Bloomberg.
1.1 INDEX FAMILY STRUCTURE

The suite of Bloomberg AusBond and NZBond Indices provides investors with an objective measure of Australia and New Zealand’s debt markets. The chart below shows the primary indices that make up the AusBond and NZBond Index Family and their corresponding tickers in the Bloomberg Professional® service.

The Bloomberg AusBond and NZBond Index Family

![Diagram of index family structure]

The Bloomberg AusBond and NZBond Index Family

![Diagram of index family structure]
1.2 SUBINDICES

In addition to the primary indices in the diagram above, the Indices include many subindices which focus on certain maturity bands, ratings, or sectors. Subindices generally available include:

- **Maturity**
  - 30 Buckets for AUD Indices: 0+, 0-1, 0-3, 0-5, 0-8, 0-10, 0-15, 0-20, 1+, 1-2, 1-3, 1-5, 1-10, 1-15, 1-20, 2-5, 2-10, 3+, 3-5, 3-7, 5+, 5-7, 5-8, 5-10, 7+, 7-10, 10+, 10-20, 15+, 20+ years
  - 5 Buckets for NZD Indices: 0+, 0-5, 1+, 5-10, 10+ years
- **Rating**: AAA, AA- to AAA, AA- to AA+, A- to AA+, A- to A+, BBB- to BBB+
- **Sector**: Government, Treasury, Semi-Government, Non-Government, Credit, Credit xMBS, Credit MBS, Supranational/Sovereign

1.3 RETURNS UNIVERSE AND PROJECTED UNIVERSE

Index levels, returns, and characteristics reported on the Indices are drawn from two different views of the index—the "Returns Universe" and the "Projected Universe." The fixed income market is constantly evolving and changing. This is a function of the life cycle of bonds; new issuance increases the size of the debt market while at the same time bonds mature or are removed from the market for other reasons (calls, sinks, etc.) which decreases the size of the debt market.

Providing two views of each index gives more insight into the market the index is designed to measure.

- **Returns Universe**: The Returns Universe is designed to mimic a strict buy-and-hold portfolio with a monthly rebalancing. The membership of the Returns Universe is defined by applying the security eligibility rules at each monthly rebalancing date (the last business day of each month) and holding the resulting list of securities constant over the month. Starting weights for the constituents are based on market values on the rebalancing date. All published return measures are calculated against the Returns Universe.

- **Projected Universe**: The Projected Universe represents the changing risk profile of the market the index is designed to represent. The membership of the Projected Universe is defined by applying the security eligibility rules daily and setting constituent weights based on daily closing prices. The Projected Universe captures new issuance and removes securities that are no longer eligible as soon as information is made publically available. Statistical measures are often cited against the Projected Universe as it describes the changing nature of the market (e.g. the Projected Universe can be used to analyze how a large intra-month new issue – which will be added to the Returns Universe at month end – is expected to change the duration of the index). The Projected Universe is a projection of the next month’s index as it accumulates all changes to the market over the course of the month; then, on the last business day of the month, the Projected Universe becomes the Returns Universe for the following month.
1.4 INDEX OVERSIGHT AND GOVERNANCE

All Bloomberg Indices are governed by an internal Index Oversight Committee (IOC) in accordance with the Principles for Financial Benchmarks as published by the International Organization of Securities Commissions (IOSCO). The committee consists of senior representatives from various Bloomberg business units. The purpose of the IOC is to discuss, review and challenge all aspects of the benchmark process. Additionally, an external Index Advisory Committee (IAC) convenes annually to provide Bloomberg with guidance and feedback from the investment community on index products and processes. The IAC helps set index priorities, discusses potential rules changes and provides ideas for new index products. This concept of shared ownership enables Bloomberg to produce the most relevant benchmarks and ensure responsiveness to user requirements.

On each day the Indices are published a team of Index Managers, with specific knowledge of Australian and New Zealand fixed income instruments, reviews all inputs to the index calculations such as pricing and market data and all outputs before they are disseminated to clients. This ensures the quality of the indices and provides a final sign-off of all data before it reaches our clients.

1.5 ALIGNMENT WITH IOSCO PRINCIPLES

In November 2015, Bloomberg announced that it has successfully completed an independent assessment of its alignment with the International Organization of Securities Commissions Principles for Financial Benchmarks (IOSCO Principles) with respect to the key benchmarks administered by Bloomberg Indices, including Bloomberg Ausbond Index family. For more information, please visit www.bloomberg.com.

1.6 RISKS ASSOCIATED WITH THE BLOOMBERG AUSBOND AND NZBOND INDICES

The following is a summary of certain risks associated with the Indices but is not meant to be an exhaustive list of all risks associated with the Index or an investment in fixed income indices, the Australian or New Zealand debt market or index-linked products generally.

As with all fixed income investing, the Indices are exposed to interest rate risk. The value of bonds fluctuates with the changes in the interest rate policies established by central banks and the natural movement of rates over time. Bonds with optionality will also be impacted by interest rate volatilities.

Most fixed income securities often trade at a spread to the base interest rate curve. The level of the spread reflects the additional premium an investor requires for taking the additional credit risk, liquidity risk, and other risks. The change of the spread, which reflects primarily the change in perceived risk of a security, comes from both common forces, affecting all bonds with similar characteristics, and information specific to a particular issuer.

Though the Indices are designed to be representative of the markets they measure, they may not be representative of every use case. There is inherent, though transparent, judgment in their construction, as outlined in this methodology. They are also designed for general applicability and not to address the individual needs of users.
Chapter 2. Index Design

The Indices comply with international conventions for index construction. In particular:

- **Representativeness:** The Indices use a consistent, systematic process to represent the fixed income markets by geographies, sectors, currencies, and maturities. Investors use indices to measure the performance and risk profile of a market. A balance is necessary between investibility and completeness when determining index membership. For example, the Indices employ additional criteria, such as a minimum amount outstanding, to limit the Indices to the larger bonds which are generally considered more liquid. The Indices cover the investible universe of securities in the Australian and New Zealand bond markets across an array of asset classes. These include:
  - Government debt
  - Investment grade non-government debt
  - Inflation-linked securities
  - Floating rate securities

As the universe of securities changes over time, Bloomberg continually monitors new issuance to screen eligible securities for potential inclusion in the Indices.

- **Timeliness and accessibility:** Index values are available shortly after the market closes from a range of access mechanisms including the Bloomberg Professional® Service, index data files, and 3rd party redistributors.

- **Replicability:** Each of the Indices is a practical index capable of replication in a real-world portfolio.

- **Transparency:** The inputs used in index construction are publicly available, including inclusion rules, rebalancing frequency, and methodologies for the computation of index returns and statistics.

- **Data integrity:** Independent and transparent pricing is an important part of Bloomberg’s index family. Rather than relying on single-dealer pricing or composite pricing across a small number of dealers, bonds in Bloomberg’s indices are priced by BVAL, Bloomberg’s securities valuation services. BVAL provides credible, transparent and defensible valuations across a broad spectrum of financial instruments, including fixed income, derivatives and structured notes. These prices are independent, drawing on contributors relevant to the market. This broad global dataset of market observations is combined with analytics and Bloomberg’s terms and conditions databases to produce objective pricing with transparency into how the prices are derived.

- **Expert Judgment:** Bloomberg may use expert judgment with regards to the following:
  - Index restatements
  - Extraordinary circumstances during a market emergency
  - Pricing or other data interruptions, issues, and closures

When expert judgment is required, Bloomberg undertakes to be consistent in its application, with recourse to written procedures outlined in this methodology and internal procedures manuals. These procedures detail the steps in decision making and the hierarchy of data to be used. Material exercises of expert judgment are reviewed by senior members of the Bloomberg index and compliance teams. Bloomberg also maintains and enforces a code of ethics to prevent conflicts of interest from inappropriately influencing index construction, production, and distribution, including the use of expert judgment.
• **Customization**: The suite of Indices is designed to accommodate specific portfolio objectives and constraints. The Indices offer a wide range of sub-maturities and market sectors allowing the construction of customized indices.

### 2.1 CRITERIA FOR INDEX INCLUSION/EXCLUSION

Following is a summary of the rules that govern the Indices. Please refer to the Index-specific rules that follow in the Appendices.

#### Amount Outstanding

To be considered for the Indices, a fixed rate or floating rate issue tranche must have a minimum outstanding face value of 100 million. For inflation linked bonds, an issue tranche must have a minimum outstanding face value of 50 million. For treasury bonds, a float adjustment is made to the amount outstanding to reduce it by the amount held in central government bank accounts. This ensures that the indices measure the investible universe.

If the outstanding face value of an existing issue increases to the minimum face value required for inclusion in an index by way of a fungible tap, the issue will be immediately added to the Projected Universe and included in the relevant return index at the end of the month in which index qualification occurs. For bonds that already qualify for the indices, if a tap occurs intra-month it will be reflected in the Projected Universe as soon as the information is publically available and will be reflected in the Returns Universe for the following month.

#### Currency

Currency refers to a security’s denomination and is independent of the country of the issuer. The AusBond and NZBond Indices include only AUD-denominated and NZD-denominated bonds.

#### Maturity

The time to maturity is considered to be the maturity date for credit bonds without a call date. For callable credit bonds, the call date is considered the maturity date for index bucketing purposes and for mortgages the expected maturity date (as disclosed in the prospectus) is used.

This index family requires a minimum of 1 month until maturity to be considered for inclusion.

#### Sectors

This index family categorizes each bond by its industry, government affiliation, or a related characteristic of its issuer. The Indices are divided into four main sectors and supplemented by Bloomberg Industry Classification System for Fixed Income (BICS FI). BICS FI is a hierarchical system that classifies fixed income security issuers.

*Australian Treasury securities* are securities issued by the Commonwealth of Australia.
New Zealand Treasury securities are securities issued by the Government of New Zealand.

Australia Semi-Government securities are all securities issued by the Australian state government authorities, specifically:

- New South Wales Treasury Corporation
- Treasury Corporation of Victoria
- Western Australia Treasury Corporation
- Queensland Treasury Corporation
- South Australian Government Financing Authority
- Northern Territory Treasury Corporation
- Tasmanian Public Finance Corporation
- Australian Capital Territory

New Zealand Local Government securities are all securities issued by New Zealand local government authorities along with organisations that are wholly owned and controlled by the local government authorities, specifically

- Auckland City Council
- New Zealand Local Government Funding Agency
- Watercare Services Ltd

Supranational, Sovereign and Agency securities are qualified using the criteria below:

- Supranationals
- Sovereigns, including provincial or state government obligations
- Government agency securities that carry an explicit government guarantee or support from sovereign, principal or state governments.
  Note: for the avoidance of doubt, classification of an entity by a rating agency as “supranational” or “sovereign” or RBA Repurchase Eligibility does not automatically qualify the security for inclusion in the Bloomberg AusBond or NZBond Supranational/Sovereign Index.
- Government Support: The Bloomberg AusBond Indices recognize the German law principles of Anstaltslast and Gewährtragerhaftung as being the provision of explicit government support.

Corporate/credit securities are all other securities which comply with the Index Rules regarding inclusion eligibility

Ratings

To be included in the Indices an issue (not issuer) must have a published rating from at least one of:

- S&P: equal to or higher than BBB-; or
- Moody’s: equal to or higher than Baa3; or
- Fitch: equal to or higher than BBB-; and

The rating must be assigned to the bond by the rating agency prior to the last business day of the month for the bond to be included in the following month. Expected ratings are not taken into consideration for
 inclusion.

None of the issue ratings assigned by any of the three recognized rating agencies can be below BBB, Baa3, or BBB- respectively. If an issue has a published rating from any of the above three ratings agencies that falls to below BBB-/Baa3/BBB-, then the issue will be removed from the Index. Removal from the Index will take place at the end of the month in which the ratings change occurs. The issue will be removed from the Index at the observed market value at the close of the last day of inclusion in the Index.

Legal

To qualify for the Indices, a bond must be governed by Australian or New Zealand Law.

Treatment of Cash

Any cash generated from coupon payments or early repayment of principal is fully reinvested in the index on a daily basis.

Pricing

All bonds in the Indices are priced daily using quotes sourced from the Bloomberg Valuation Service, BVAL. Quotes used in the Indices are Sydney 17:00 mid prices (for NZD securities, quotes are stopped at Auckland 17:00).

Coupon Types

The Indices include fixed rate, floating rate, and inflation linked securities.

Structured Instruments

The Indices will include the following structured securities, providing that the other relevant inclusion criteria are met:

- Residential Mortgage Backed Securities (bullet or soft-bullet)
- Commercial Mortgage Backed Securities (bullet or soft-bullet)
- Asset Backed Securities (bullet or soft-bullet)
- Covered bonds

For the avoidance of doubt, structured securities such as Credit Linked Notes, Total Return Structures, Collateralized Debt and Bond Obligations (CDO, CBO), Collateralized Fund Obligations (CFO) and Synthetic Securitizations will NOT be included in the Indices. Further, hybrid capital securities (defined as securities that have some characteristics of both debt and equity) are not included in the debt indices.

Optionality

For a bond with a step-up call or soft-bullet that meets other inclusion criteria, the following are requirements to being included in the Indices:
• Have an economic call such that the coupon/margin on the note steps by at least 50 basis points from the initial margin to swap
• Have no deferral option regarding the payment of interest or principal
• Do not convert into Ordinary Shares by way of a non-viability trigger or any other mechanism

Step-up callable/soft-bullet issues will be valued on the basis that the call date/soft-bullet maturity is the maturity date. If any issue is not called on the call date/soft-bullet maturity the issue will exit the existing index (as required) on the call date/soft-bullet maturity and be included in the new index (as required) on the basis of the next call date/maturity.

Public offer/private placement

To be included in the Indices, an issue must be widely available for investment within the domestic market.

For an issue to be included in the Bloomberg AusBond Indices it must:
• Be offered to at least 10 persons each of whom was carrying on a business of providing finance, or investing or dealing in securities, in the course of operating in financial markets. Typically, this provision is met by the security not being subject to Australian Withholding Tax and
• Be announced via electronic or other media typical for the announcement of such issues and the provision of an Information Memorandum prior to the pricing of the issue

For an issue to be included in the Bloomberg NZBond Indices it must:
• Be announced via electronic or other media typical for the announcement of such issues and the provision of an Information Memorandum prior to the pricing of the issue

Excluded Security Types

Bonds with the following structures are specifically excluded from the Indices:
• Convertibles
• Zero coupon
• Private placements
• Perpetuals
• Amortizing structures
• Credit-linked notes
• Total return structures
• Collateralized debt, bond and fund obligations (CDOs, CBOs, CFOs)
• Synthetic securitizations
• Hybrid capital securities

2.2 DATA INPUTS FOR INDEX CONSTRUCTION

Bond Pricing

Independent and transparent pricing is a key difference of Bloomberg’s index family. Many other index families, rely on single-dealer pricing or composite pricing across a small number of dealers. Prices of index bonds in Bloomberg’s indices are gathered from BVAL, Bloomberg’s securities valuation services. BVAL
provides credible, transparent and defensible valuations across a broad spectrum of financial instruments, including fixed income, derivatives and structured notes. These prices are completely independent, drawing on contributors relevant to the market. This broad global dataset of market observations is combined with analytics and Bloomberg’s terms and conditions databases to produce objective third-party pricing with transparency into how the prices are derived.

Other Data Inputs

The Australian Financial Markets Association (AFMA) is an industry association promoting efficiency, integrity and professionalism in Australia’s financial markets. The association is made up of member institutions such as Australian and international banks, brokers, and state government treasury corporations. The Indices use AFMA’s short term rates (BBSW) in construction of the AusBond Bank Bill Index.

The AFMA Bank Bill Swap (BBSW) Benchmark Rate Conventions describes this rate as follows: “The AFMA Bank Bill Swap (BBSW) Benchmark Rates represent the midpoint of the nationally observed best bid and best offer (NBBO) for AFMA Prime Bank Eligible Securities. BBSW is representative of a traded and transparent market which expressly does not rely on a submissions process, and therefore is a rate which does not rely on any unfounded or unsupported assessment of any individual organisation’s own borrowing costs. The market for Prime Bank paper typically operates with a high degree of efficiency and integrity. Consistent with other unsecured short term money market benchmarks used globally, BBSW is characterised as an interest rate which includes a credit premium. In the case of BBSW, this represents the market assessment of the premium payable by the AFMA Prime Banks relative to a comparable risk-free interest rate curve.” The BBSW rates are published by AFMA at 10:15 AM Sydney time each business day.

The Reserve Bank of Australia (RBA) is responsible for setting the interest rate on overnight loans in the money market. The RBA Monetary Policy states that “The formulation of monetary policy is the primary responsibility of the Reserve Bank Board. The Board usually meets eleven times each year, on the first Tuesday of the month except in January. Hence, the dates of meetings are well known in advance. For each meeting, the Bank’s staff prepare a detailed account of developments in the Australian and international economies, and in domestic and international financial markets. The papers contain a recommendation for the policy decision. Senior staff attend the meeting and give presentations. Monetary policy decisions by the Reserve Bank Board are communicated publicly shortly after the conclusion of the meeting.

“The Reserve Bank Board’s explanations of its monetary policy decisions are announced in a media release, which is distributed through electronic news services and published on the Reserve Bank’s website at 2.30 pm on the day of each Board meeting. Any change to the cash rate target will take effect from the following day.” The RBA cash rate is used in the calculation of the AusBond Bank Bill Index.

The New Zealand Financial Markets Association (NZFMA) is New Zealand’s professional body promoting efficient markets, advocating sensible regulation, and ensuring best practice in the management of the

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1 More information can be found at: http://www.afma.com.au/data/BBSW
2 More information can be found at: http://www.rba.gov.au/monetary-policy/about.html
financial markets. The Indices use NZFMA’s short term rates (BKBM) in construction of the NZBond Bank Bill Index.

The Reserve Bank of New Zealand sets the official cash rate to maintain price stability and keep inflation within a target range. “The Bank implements monetary policy by setting the Official Cash Rate (OCR), which is reviewed eight times a year.”3 The OCR is used in the calculation of the NZBond Bank Bill Index.

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3 More information can be found at: http://www.rbnz.govt.nz/monetary_policy/ocr/
Chapter 3. Index Calculations

Bloomberg calculates the Indices on all days where the fixed income markets in Australia and/or New Zealand are open; AUD indices are published Monday through Friday excluding Australian holidays and NZD indices are published Monday through Friday excluding New Zealand holidays. The index levels, or since inception returns, are calculated on a total return basis in AUD or NZD depending on the index. In addition to index total returns, Bloomberg also calculates index characteristics such as yields and durations. A list of all characteristics calculated by Bloomberg and their corresponding mnemonics in the Bloomberg Professional® service can be provided upon request.

Settlement Conventions

All bonds in this index family are priced assuming same day settlement, also known as cash settlement or T+0 settlement. All analytics are also calculated on a T+0 basis.

Stress Events

In the event of an unforeseen market event whereby the Australian or New Zealand market is unexpectedly closed, bonds in the Indices will be priced by holding constant the prior day's bond yields. In the event that Australian or New Zealand market data cannot be gathered the prior day's values will be used.

Restatement Policy

If a material error in index values is uncovered following its publication and dissemination, a notification will be sent to index clients with the details of the error and the expected date of any revised publication justified under the totally of the circumstances. Revisions will be promptly published to the market and disseminated to all clients.
Chapter 4. Access to the Indices

Data and analytics

The Indices compile returns and characteristics for over 780 different indices. All indices are calculated daily excluding weekends and holidays and results are available at the end of the day.

Bloomberg Professional® service

Bloomberg AusBond and NZBond Indices are available for analysis in many functions on the Bloomberg Professional® service. Some of the functions available include:

- Comprehensive benchmark and portfolio analysis in PORT <GO>
  - Characteristics & exposures through time
  - Tracking error
  - Scenario analysis
  - Performance attribution
  - Projected cash flows
  - Optimization
  - What-if analysis
  - Intraday performance
- Detailed description pages with terms and conditions
- API for downloading data into Excel
- News stories linked to a security, asset class, or index
- Single security calculators
- Relative value analytics
- BVAL prices and transparency screens

PORTFOLIO & RISK ANALYTICS

PORT <GO> is Bloomberg’s flagship portfolio and risk application. With PORT, clients benchmarked to the Indices can compare their portfolio versus its benchmark using consistent pricing and methodology. PORT provides access to additional characteristics, aggregations, and models for return attribution and risk. The wide breadth of coverage and depth of models in PORT is available to all terminal subscribers.

Internet Access

The Bloomberg AusBond Indices home page: www.bloombergindices.com/fixed-income/ausbond/

SFTP

End of day Bloomberg AusBond and NZBond Index files are available for delivery via SFTP

Redistributors

Bloomberg AusBond and NZBond Index files are available via many third party channels.
Chapter 5. Financial Products

Exchange Traded Funds (ETFs)

ETFs typically allow investors to access a passive indexed fund in smaller unit increments than may be available through traditional fund managers. The Indices, including the Bloomberg AusBond Composite Bond index as the primary benchmark used by fund managers of Australian bonds, may be used as the benchmark for ETFs in the Australian market (subject to execution of appropriate licensing agreements).

ETF providers should contact Bloomberg Indices to discuss licensing requirements when referencing the Bloomberg AusBond or NZBond Indices in any product, marketing material or descriptions.

Index swaps and total return swaps

Investors may wish to receive passive bond index returns by entering into a total return swap on the Bloomberg AusBond or NZBond Indices. Total return swaps are derivative products, so will typically be subject to ISDAs being in place between the two parties.

Price makers will quote a spread to a market floating interest rate, most commonly the three-month BBSW rate set, to be paid in exchange for the return of the relevant Bloomberg Index, for a specified maturity with payment dates agreed prior to the trade. Investors can opt to pay or receive the index return against the floating rate. Investors will enter an agreement to make payments to the total return swap provider based on the direction of the trade, the notional amount and the floating rate reset (plus or minus the spread). The total return swap may be fully funded or an unfunded trade.

Investors should ensure that all price makers of total return swaps or other derivative products which reference any of the Bloomberg Indices hold the appropriate licenses from Bloomberg to make such transactions. Price makers wishing to offer total return swaps or index swaps on any of the Indices should contact Bloomberg Indices to discuss product license agreements.

Index linked funds

Index linked funds provide exposure to the performance of the Bloomberg Indices by generating returns equal to index returns for investors. Index linked fund providers should contact Bloomberg Indices to discuss licensing requirements.

Custom Indices

The technology and deep dataset underlying Bloomberg’s global index family provide a foundation for custom index creation. Variables for customization include:

- Traditional selection criteria such as currency, country of risk, sectors, ratings or amount outstanding.
- Bloomberg’s proprietary variables such BVAL scores related to pricing quality and depth or calculated variables such as option-adjusted spreads.
- Caps on issuers or sectors to satisfy diversification or regulatory requirements such as those of the UCITS or IRS.
- Enhanced index weighting based on issuer-specific or algorithmic variables.
## Appendix A: Primary Index Base Dates

### Bloomberg AusBond Index Family

<table>
<thead>
<tr>
<th>Index Type</th>
<th>Base Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite Bond Index</td>
<td>30 September 1989</td>
</tr>
<tr>
<td>Government Index</td>
<td>30 June 1998</td>
</tr>
<tr>
<td>Treasury Index</td>
<td>31 March 1988</td>
</tr>
<tr>
<td>Semi-Government Index</td>
<td>30 September 1989</td>
</tr>
<tr>
<td>Non-Government Index</td>
<td>31 December 1998</td>
</tr>
<tr>
<td>Supra/Sov Index</td>
<td>31 January 2005</td>
</tr>
<tr>
<td>Credit Index</td>
<td>30 September 1989</td>
</tr>
<tr>
<td>Inflation Index</td>
<td>31 December 1998</td>
</tr>
<tr>
<td>Government Inflation Index</td>
<td>31 March 1991</td>
</tr>
<tr>
<td>Treasury Inflation Index</td>
<td>30 June 2014</td>
</tr>
<tr>
<td>Semi Government Inflation Index</td>
<td>30 June 2014</td>
</tr>
<tr>
<td>Credit Inflation Index</td>
<td>31 December 1998</td>
</tr>
<tr>
<td>Credit FRN Index</td>
<td>31 December 1998</td>
</tr>
<tr>
<td>AUD Bank Bill Index</td>
<td>31 March 1997</td>
</tr>
<tr>
<td>AUD Swap Indices (1-30 Year)</td>
<td>30 April 2005</td>
</tr>
</tbody>
</table>

### Bloomberg NZBond Index Family

<table>
<thead>
<tr>
<th>Index Type</th>
<th>Base Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Composite Bond Index</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Government Index</td>
<td>31 December 1995</td>
</tr>
<tr>
<td>Treasury Index</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Local Government Index</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Non-Government Index</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Supra/Sov Index</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Credit Index</td>
<td>31 December 2010</td>
</tr>
<tr>
<td>Government Inflation Index</td>
<td>31 December 1995</td>
</tr>
<tr>
<td>NZD Bank Bill Index</td>
<td>31 December 1999</td>
</tr>
</tbody>
</table>
Appendix B: Bloomberg AusBond and NZBond Index Methodology

Revaluation

The Indices are capital accumulation indices, designed to measure the total return from investing in a particular sector. The Indices are market value weighted. In the absence of any new issue, maturities, or other changes in the index portfolio, the accumulation index may be written as:

\[
INDEX = \frac{\sum_{j=1}^{n} (P_{j,t} + C_{j,t}) F_{j,t}}{\sum_{j=1}^{n} P_{j,0} F_{j,0}}
\]

- \(P_{j,t}\) is the gross price per $1.00 of face value for the j bond at time t, which includes an accrued interest component that increases linearly from the time that a coupon was last paid until the bond next turns ex-interest
- \(C_{j,t}\) is the coupon payable per $1.00 face value for the j bond if the date t falls in the time period from the ex-interest date to the interest payment date, discounted to reflect the fact that this coupon will not actually be received until the payment date
- \(F_{j,t}\) is the face value on issue for the j bond at time t
- \(n\) is the number of bonds in the index portfolio
- \(m\) is the number of bonds in the index portfolio at inception

Daily Index Calculation

Index returns and characteristics are calculated every business day. Adhering to the principle of incorporating the most accurate and recent data available, when a local holiday precludes employing same-day pricing, then the index will use the previous day’s pricing but maintain same-day settlement.

Rebalancing

All Indices are rebalanced monthly unless otherwise noted. The rebalancing day is the last business day of the month.

Reinvestment

Received coupon and principal are reinvested in the universe of securities comprising the index. Rebalancing is performed in market value proportions at the day’s closing prices.
Appendix C: Risk Parameters

The following risk parameters are applied to the individual bonds comprising an index and the index as a whole.

Duration

Calculated as the weighted average term of all cash flows relating to a bond, including coupon receipts and maturity payment, using as weights the cash flows expressed as present values. For bonds which observe an ex-dividend period, while in the ex-dividend period, duration calculations assume the coupon has been paid effective on the ex-dividend date.

Modified Duration

Measures bond price sensitivity to interest rate changes. Modified duration is a linear approximation to price changes. For bonds which observe an ex-dividend period, while in the ex-dividend period, modified duration calculations assume the coupon has been paid effective on the ex-dividend date.

Convexity

Measures a bond’s price / yield curve deviation from linearity. It explains the discrepancy between actual price changes and those predicted using modified duration alone. Thus, convexity measures the second derivative of price with respect to interest rates, and indicates how sensitive modified duration is to changes in interest rates. For bonds which observe an ex-dividend period, while in the ex-dividend period, convexity calculations assume the coupon has been paid effective on the ex-dividend date.
### Appendix D: Bank Bill Index Calculations

**Interpretation of yields for Bank Bills**

<table>
<thead>
<tr>
<th>Calendar days until maturity</th>
<th>Interpolated Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-7</td>
<td>R1</td>
</tr>
<tr>
<td>8-14</td>
<td>2/3R1 + 1/3R2</td>
</tr>
<tr>
<td>15-21</td>
<td>1/3R1 + 2/3R2</td>
</tr>
<tr>
<td>22-28</td>
<td>R2</td>
</tr>
<tr>
<td>29-35</td>
<td>8/9R2 + 1/9R3</td>
</tr>
<tr>
<td>36-42</td>
<td>7/9R2 + 2/9R3</td>
</tr>
<tr>
<td>43-49</td>
<td>6/9R2 + 3/9R3</td>
</tr>
<tr>
<td>50-56</td>
<td>5/9R2 + 4/9R3</td>
</tr>
<tr>
<td>57-63</td>
<td>4/9R2 + 5/9R3</td>
</tr>
<tr>
<td>64-70</td>
<td>3/9R2 + 6/9R3</td>
</tr>
<tr>
<td>71-77</td>
<td>2/9R2 + 7/9R3</td>
</tr>
<tr>
<td>78-84</td>
<td>1/9R2 + 8/9R3</td>
</tr>
<tr>
<td>88-91</td>
<td>R3</td>
</tr>
</tbody>
</table>

Where:

- **R1**  RBA 24 hour cash rate (AUD) or RBNZ 24 hour cash rate (NZD)
- **R2**  1M BBSW rate (AUD) or 1M NZFMA rate (NZD)
- **R3**  3M BBSW rate (AUD) or 3M NZFMA rate (NZD)
Appendix E: Swap Indices

The AusBond Swap Indices measure the performance of AUD and NZD swap rates. These indices are characterised by the following:

- Each AUD swap index and most NZD swap indices contain only a single security on each valuation date (there are additional NZD swap indices spanning a maturity range which include multiple securities)
- The underlying security is a notional bond paying quarterly or semi-annual coupons
- The bond’s coupon rate is based on the par swap rate at the bond’s maturity date
- The bond is priced according to the prevailing par swap rate at the bond’s maturity using the standard bond pricing formula provided below.

Index Composition – Defining the Dummy Instruments

There are 15 AUD Swap Indices, with notional maturities of 1 to 10 years in 1 year increments, 12, 15, 20, 25, and 30 years. Each index comprises a single holding in a dummy instrument on each valuation date. The dummy instrument changes each day and is therefore only held in the index for a single day. There are 9 NZD Swap Indices, with notional maturities of 1, 2, 3, 4, 5, 7, 10 and 12 years each holding a single dummy instrument as described above. There are also 6 NZD swap indices which include the dummy instruments for a range of maturities: 1-3 year, 1-5 year, 1-10 year, 3-7 year, 5-10 year, 7-10 year.

Static Data

The dummy instrument held by each index will have the following characteristics:

- **Issue Date**: Date purchased into the index (i.e. Index Valuation Date – 1)
- **Maturity Date**: Issue Date + N years, where N = the notional maturity of the index holding the instrument (i.e. N = 2 year for the “2 Year Swap Index”).
- **Coupon Rate**: The par swap rate, quoted “quarterly” for 1, 2, and 3 year AUD indices following market convention in Australia and “semiannually” for all others. This rate is always rounded to 3 decimal places.

Yields

The yield used to price the dummy instrument is the par yield taken from the appropriate swap curve (quarterly or semi-annual) for T-1 and T dates. The rate is linearly interpolated from the swap curve at the maturity date of the bond and rounded to 3 decimal places.

Pricing

The dummy instruments are priced using the standard bond pricing formula. The instrument is priced on the day prior to the current Index Date (i.e. T-1) and on the current Index Date (i.e. T). On T-1 there will be 1 year to maturity. On T there will be (1 year – 1 day) to maturity. Prices are rounded to the 3rd decimal place.
Non-Trading Days

These indices are published only on trading days as defined by a Sydney or Auckland calendar. If the issue date falls on a non-trading day, there is no adjustment to the date; however, the swap rate from the previous working day is used. If the maturity date falls on a non-trading day, there will be no adjustment to the date; however, the swap rate will be interpolated for that date.

Valuation Formula

\[
I_1 = I_0 \times \frac{GV_1}{GV_0} \\
GV_i = \frac{FV_i \times GP_i}{100}
\]

where

- \(I\) = Index Value on Day \(i\)
- \(GV\) = Gross Market Value of bond on Day \(i\)
- \(GP\) = Gross Price per $100 Face Value of bond on Day \(i\)
- \(FV\) = Market Issuance Face Value of bond on Day \(i\)

**Note:** The security will always price at par on issue date, so the above formula simplifies to: \(I_1 = I_0 \times \frac{GP_i}{100}\)
Appendix F: Index-Specific Rules

a. Bloomberg AusBond Composite Index (BACM0)

**Index description:**
The Bloomberg AusBond Composite Bond Index includes investment grade fixed interest bonds with a minimum of 1 month to maturity issued in the Australian debt market under Australian law.

**Sectors included:**
- Treasuries
- Semi-Governments
- Credit
- Supranational/Sovereign

**Bond types included:**
- Bullet fixed rate securities
- Fixed rate, soft bullet, ABS (CMBS/RMBS)
- Fixed rate, step-up callable debt

**Bond types excluded:** Please refer to [2.1 Criteria for Index Inclusion/Exclusion](#)

**Minimum issue size:** A$100 million

b. Bloomberg AusBond Inflation Index (BAIL0)

**Index description:**
The Bloomberg AusBond Inflation Index includes inflation-linked securities with a minimum of 1 month to maturity issued in the Australian debt market under Australian law.

**Bond types included:**
- Capital Indexed Bonds
- Scheduled Indexed Bonds
- Inflation Indexed Annuities

**Bond types excluded:** Please refer to [2.1 Criteria for Index Inclusion/Exclusion](#)

**Minimum issue size:** A$50 million

**Indexation method:** Full inflation indexation of all cash flows

**Indexation basis:** Consumer Price Index (all groups)
c.  **Bloomberg AusBond Credit FRN Index (BAFRN0)**

**Index description:**
The Bloomberg AusBond Credit FRN Index covers floating rate credit securities with a minimum of 1 month to maturity issued in the Australian debt market under Australian law.

**Bond types included:**
- Floating rate bullet securities
- Floating rate, soft bullet, ABS (CMBS/RMBS)
- Floating rate, step-up callable debt

**Bond types excluded:** Please refer to [2.1 Criteria for Index Inclusion/Exclusion](#)

**Minimum issue size:** A$100m

d.  **Bloomberg AusBond Supranational/Sovereign Index (BASS0)**

**Sectors:**
- Supranational
- Sovereigns, including provincial or state government obligations
- Government agency securities that carry an explicit government guarantee or support from sovereign, principal or state governments

**Note:** For the avoidance of doubt, classification of an entity by a rating agency as “supranational” or “sovereign” or RBA Repurchase Eligibility does not automatically qualify the security for inclusion in the Bloomberg AusBond Supranational/Sovereign Index.

**Government Support:**
The Bloomberg AusBond Indices recognize the German law principles of Anstaltslast and Gewährtragerhaftung as being the provision of explicit government support.

e.  **Bloomberg AusBond Bank Bill Index (BAUBIL)**

**Capital changes:** Amounts outstanding updated each Tuesday on maturity of the shortest dated bill.

**Reinvestment:** Maturing bills are reinvested in the discounted value of a new 91-day bill on the day the cash is received (each Tuesday).

**Pricing:** Index valuation is based on the following three rates, obtained from Bloomberg (page BTMM AU <Go>) at end of business day: RBA 24-hour cash rate; 1M BBSW rate; and 3M BBSW rate. Using the three rates, thirteen interpolated rates are calculated and applied to each of the bills.

**Index methodology:** Each day the term to maturity of each bill, and hence the index as a whole, reduces by one day until the shortest bill matures. The face value of the maturing bill is then reinvested in a new bill with a term to maturity of 13 weeks and the term to maturity of the index as a whole lengthens by approximately seven days.
f. Bloomberg NZBond Composite Index (BNZCM0)

Index description:
The Bloomberg NZBond Composite Index includes investment grade fixed interest bonds with a minimum of 1 month to maturity issued in the New Zealand debt market under New Zealand law.

Sectors included:
- Treasuries
- Local Governments
- Credit
- Supranational/Sovereign

Bond types included:
- Bullet fixed rate securities
- Fixed rate, step-up callable debt

Bond types excluded: Please refer to 2.1 Criteria for Index Inclusion/Exclusion

Minimum issue size: NZ$100 million

---

g. Bloomberg NZBond Inflation Index (BNZI0)

Index description:
The Bloomberg NZBond Government Index includes inflation-linked securities with a minimum of 1 month to maturity issued in the New Zealand debt market by the Government of New Zealand.

Bond types included:
- Capital Indexed Bonds
- Scheduled Indexed Bonds
- Inflation Indexed Annuities

Minimum issue size: NZ$50 million

Indexation method: Full inflation indexation of all cash flows

Indexation basis: Consumer Price Index (all groups)
h. **Bloomberg NZBond Bank Bill Index (BNZBIL)**

**Frequency:** Daily index values available back to base date.

**Capital changes:** Amounts outstanding updated each Tuesday on maturity of the shortest dated bill.

**Reinvestment:** Maturing bills are reinvested in the discounted value of a new 91-day bill on the day the cash is received (each Tuesday).

**Pricing:** Index valuation is based on the following three rates, obtained from Bloomberg (page BTMM NZ <Go>) at end of business day: RBNZ 24-hour cash rate; 1M NZFMA rate; and 3M NZFMA rate. Using the three rates, thirteen interpolated rates are calculated and applied to each of the bills.

**Index methodology:** Each day the term to maturity of each bill, and hence the index as a whole, reduces by one day until the shortest bill matures. The face value of the maturing bill is then reinvested in a new bill with a term to maturity of 13 weeks and the term to maturity of the index as a whole lengthens by approximately seven days.
Appendix G: Glossary

- **Accrued interest**: The interest that has accumulated on a bond since the last interest payment up to, but not including, the settlement date.

- **Amount Outstanding**: The total current amount of the bond issue that is outstanding in the market. Initial Reserve Bank of Australia take-up of AOFM issued Treasury securities is excluded from the Indices. Reserve Bank of New Zealand take-up of NZGB issued securities is excluded from the indices.

- **BVAL**: The BVAL service algorithmically combines a wealth of market data, sophisticated analytics and asset class specific relative value models to produce credible and defendable valuations.

- **Coupon**: The interest rate stated on a bond when it's issued. The coupon is typically paid semiannually. This is also referred to as the "coupon rate" or "coupon percent rate. For fixed-income indices, this is the par-weighted average coupon of the index members.

- **Country of Risk**: The International Organization for Standardization (ISO) country code of the issuer's country of risk. Methodology consists of four factors listed in order of importance: management location, country of primary listing, country of revenue and reporting currency of the issuer.

- **Currency**: A security's currency of denomination as described in the prospectus.

- **Ratings**: A grade given to bonds that indicates their credit quality. The Indices use the lowest rating among Moody's, S&P, and Fitch to qualify bonds for the indices.

- **Maturity Date**: This is the date on which the principal amount of the bond becomes due and is repaid to the investor. The Indices supplement maturity dates with call dates for callable bonds and the expected maturity date for mortgages in the indices.

- **Sector Classification**: This is a categorization of a bond by its industry, government affiliation, or related characteristic of its issuer. The Indices are divided into four main and supplemented by Bloomberg Industry Classification System for Fixed Income (BICS FI). BICS FI is a hierarchical system that classifies fixed income issuers.

- **Returns Universe**: The Returns Universe membership is defined by applying the security eligibility rules at each monthly rebalancing date and holding the resulting list of securities constant over the month.

- **Projected Universe**: The Projected Universe membership is defined by applying the security eligibility rules daily and setting constituent weights based on daily closing prices.

- **Legal**: Country, state, province or other (English, EEA, etc) under which a security agreement is regulated.

- **Face value**: The value of a financial instrument, as stated on the instrument. Interest is calculated on face value. Also called Par Value or Nominal Value.

- **Duration**: This is the Macaulay duration of a bond or index. The weighted average maturity of the security's cash flows, where the present values of the cash flows serve as the weights. The greater the duration of a security, the greater its percentage price volatility.

- **Modified duration**: The percentage price change of a security for a given change in yield. The higher the modified duration of a security, the higher its risk.

- **Convexity**: The second derivative of a security's price with respect to its yield, divided by the security's price. A security exhibits positive convexity when its price rises more for a downward move in its yield than its price declines for an equal upward move in its yield.
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