AFMA

AUSTRALIAN FINANCIAL MARKETS ASSOCIATION

AFMA BBSW
A Guide to the Bank Bill Swap Reference Rate

February 2013

Australian Financial Markets Association

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AFMA

high standards of conduct through professional development and accreditation programs.

AFMA also provides market data services including the bank bill swap reference rate ("BBSW") and a range of revaluation rates. The annual AFMA Australian Financial Markets Report provides data on activity in the major OTC and on-exchange markets, including those relevant to BBSW.

BBSW is the central benchmark rate in the financial markets in Australia. AFMA's work in relation to the BBSW includes provision of the supporting industry governance and market conventions, codes of conduct, industry representation and policy advocacy, education, data services and market data analysis.

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Contents

Foreword 6
What this Guide is About 7
1. BBSW Methodology and its Key Features 8
1.1. The definition of BBSW 8
1.2. The published rates 8
1.3. The BBSW rate survey process 10
1.4. BBSW survey panellists 10
1.5. The Prime Bank concept and its application 11
1.6. The market for trading Prime Bank paper 13
Operational aspects of the market 13
Size of the market 14
Pricing influences 15
2. Checks and Balances to Ensure BBSW Integrity 17
2.1. Structural design of BBSW 17
2.2. Prime Bank concept 17
Observable transactions 19
2.3. Administrator oversight 20
Statistical analysis to identify outliers and missed contributions 20
Monitoring the rate submission process for errors 21
Compliance reporting to members 22
Statistical analysis to compare the BBSW rate movements to other interest rate indicators 23
2.4. Official regulation 24
2.5. Industry governance 26
Internal organisational structure 26
Industry conventions and standards 27
Regular qualitative review of the efficiency and integrity of the market for Prime Bank paper 29
Procedure to review a BBSW rate set 30
Procedures for handling BBSW complaints 30
General procedures for handling inappropriate market behaviours 30
2.6. Operational risk management 31
Abbreviations 32
Annex - Summary of Differences to Libor 33

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Foreword

AFMA's benchmark bank bill swap reference rate, BBSW, plays a prominent role in Australia's financial infrastructure. It finds extensive application in both lending transactions and interest rate derivative products and is critical for the good operation and stability of Australia's financial markets.

BBSW is based on observations provided by participants in a traded market and its integrity is supported by both industry standards and regulation. Its structural features have contributed to its ongoing utility and relevance.

All benchmark rate sets encounter risks to their integrity. Recent international experience highlights the heavy cost of failure to deal with these risks effectively through the design or operation of the rate set process. In Australia, BBSW has performed well as a benchmark for many years, in large part reflecting its substantive base in market transactions.

AFMA continuously monitors BBSW to ensure it remains current and responsive to changing market conditions and to its users' expectations. Given its systemic importance, it is important for the health of the financial markets that confidence in BBSW is maintained and enhanced where possible. In addition, BBSW panellists want to ensure that AFMA maintains a vigilant and vigorous approach to minimising the risks to BBSW integrity and by association to their reputation.

Against this backdrop, AFMA has completed an in depth review of BBSW and its associated processes and governance procedures. Consequently, AFMA is introducing supplementary measures to improve the governance, transparency and operational elements of BBSW.

I hope that this Guide is helpful to regulators, market users and other persons who wish to improve their understanding of the BBSW rate set process.

David Lynch
Executive Director
Australian Financial Markets Association

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What this Guide is About

AFMA administers the BBSW rate set process and publishes the BBSW rates.

AFMA has identified a growing interest in BBSW and its associated processes from, amongst others, member firms, market participants, other users of BBSW and domestic and international regulators. This stems from the problems encountered with some key international financial benchmark rates and a greater awareness of the need for sound management of rate set processes in order to maintain public confidence.

The purpose of this *Guide* is to provide details of the nature of BBSW and the effectiveness of the checks and balances that maintain its integrity. It also serves as an educational tool, providing an accessible, comprehensive overview of BBSW and its associated markets and its governance and procedures.

Recent international regulatory focus on benchmark rates is expected to result in revised and more stringent standards for them. In particular, the International Organisation of Securities Commissions (IOSCO) has established a board level taskforce on financial benchmarks that is expected to publish global policy guidance and principles relating to financial market benchmarks in March 2013. It will take into account work being undertaken by the European Commission, the UK Treasury (the *Wheatley Review*), and the Bank for International Settlements.

While AFMA has reviewed and revised the design, procedures and structure of BBSW on an ongoing basis since the rate was first published some twenty years ago, it has recently undertaken a more substantial review that is focussed on ensuring that BBSW is already fully compliant or close to fully compliant with the new international standards when they are published in March 2013.

It is divided in two parts:

Part 1 – BBSW Methodology and its Key Features;

Part 2 – Checks and Balances to Ensure BBSW Integrity;

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1. *BBSW Methodology and its Key Features*

The key elements in the BBSW process are:

i. The definition of BBSW
ii. The published rates
iii. The BBSW rate survey process
iv. BBSW survey panellists
v. The Prime Bank concept and its application
vi. The market for trading Prime Bank paper

The following sections explain these in more detail.

1.1. The definition of BBSW

The AFMA BBSW rate is the trimmed average of mid-rates observed by 14 survey panellists at exactly 10.00am on a Business Day[1] for AFMA Prime Bank paper that has a remaining maturity of between one and six months.

Prime Bank paper comprises bank accepted bills (BABs) and negotiable certificates of deposit (NCDs) issued by banks that, having met the eligibility criteria and conditions, are designated AFMA 'Prime Banks'. Prime Banks are elected by the wider market on an annual basis and, as at January 2013, there are four Prime Banks. Paper issued by Prime Banks is traded on a homogeneous basis and is recognised as being of the highest quality with regard to liquidity, credit and consistency of relative yield.

The BBSW process expressly does not survey panellists' own borrowing costs[2].

1.2. The published rates

AFMA calculates BBSW mid-rates for one, two, three, four, five and six month tenors.

Bid and offer rates are also published (on page BBSY) using a set spread of five basis points respectively above and below the mid rates.

Subscribers to the BBSW service have access to rates and individual panellists' submissions via information vendors such as Bloomberg and Thomson Reuters by 10.10am DST/EST on the day of calculation. Sample Thomson Reuters pages BBSW, BBSWCONT and BBSY are shown in Figure 1.

[1] 'Business Day' is broadly defined as a day on which banks are open in Sydney. For further information, see Business Day Conventions.

[2] It should be noted that when a panellist is a Prime Bank, its borrowing costs in the BAB/NCD market will be aligned (in a homogenously traded market) with the rate they are reporting. However, as at January 2013, only four out of the 14 BBSW panellists are a Prime Bank.

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Figure 1

Quote: BBSW

```
10:06 29JAN13     AUSTRALIAN BANK BILL SWAP REF RATES    AU33112              BBSW
          AUSTRALIAN BANK BILL SWAP REFERENCE RATES (BBSW)
      1MTH       2MTH       3MTH       4MTH       5MTH       6MTH
      28/02      28/03      29/04      29/05      28/06      29/07
    3.070/970 3.060/960 3.040/940 3.030/930 3.020/920 3.020/920
    3.070/970 3.060/960 3.040/940 3.030/930 3.020/920 3.015/915
    3.070/970 3.055/955 3.040/940 3.030/930 3.020/920 3.015/915
    3.070/970 3.055/955 3.040/940 3.030/930 3.020/920 3.015/915
    3.070/970 3.055/955 3.035/935 3.030/930 3.020/920 3.015/915
    3.070/970 3.050/950 3.035/935 3.030/930 3.020/920 3.015/915
    3.070/970 3.050/950 3.035/935 3.030/930 3.020/920 3.015/915
    3.070/970 3.050/950 3.035/935 3.030/930 3.020/920 3.010/910

AVG 3.0200     3.0042     2.9875     2.9800     2.9700     2.9650
MID
                RATE SET DATE 29-Jan-2013
 * Denotes insufficient contributions to calculate fixing
--------------------------------------------------------------------------------

(1) AFMA indicative 1YR mid discount reference rate        % p.a.(10.13am calc)
Note: This rate is derived by annualising the 10:00a.m. mid one year
(quarterly) interest rate swap reference rate, as published daily by AFMAdata

(2) AFMA 1 Day Reference Rate                          3.00  % p.a.
...
```

Quote: BBSWCONT

```
10:06 29JAN13     AUSTRALIAN BANK BILL SWAP REF RATES    AU33112              BBSWCONT
                          (CUT OFF TIME 10:05)
                1MTH       2MTH       3MTH       4MTH       5MTH       6MTH
                28/02      28/03      29/04      29/05      28/06      29/07
ANZ SYD       3.070/970 3.050/950 3.040/940 3.030/930 3.020/920 3.020/920
BNP SYD       3.070/970 3.055/955 3.040/940 3.030/930 3.020/920 3.015/915
CITI SYD      3.060/960 3.050/950 3.040/940 3.030/930 3.020/920 3.010/910
CBA SYD       3.075/975 3.055/955 3.035/935 3.030/930 3.020/920 3.015/915
DB SYD        3.080/980 3.060/960 3.035/935 3.030/930 3.020/920 3.015/915
HSBC AUS      3.070/970 3.050/950 3.040/940 3.030/930 3.030/930 3.020/920
JPM SYD       3.070/970 3.050/950 3.035/935 3.025/925 3.020/920 3.015/915
LOYD AUS      3.070/970 3.060/960 3.040/940 3.030/930 3.020/920 3.010/910
MBL SYD       3.070/970 3.060/960 3.040/940 3.030/930 3.030/930 3.020/920
NAB SYD       3.070/970 3.050/950 3.040/940 3.030/930 3.020/920 3.010/910
RBC SYD       3.070/970 3.060/960 3.030/930 3.020/920 3.020/920 3.010/910
SUNCORP BR    3.070/970 3.060/960 3.030/930 3.030/930 3.020/920 3.020/920
UBS SYD       3.075/975 3.055/955 3.035/935 3.030/930 3.020/920 3.015/915
WBC SYD       3.070/970 3.050/950 3.035/935 3.030/930 3.020/920 3.015/915

                RATE SET DATE 29/01/2013

 For further information in relation to the AFMA BBSW market, please see
 http://www.afma.com.au/data/bbsw/bbswexplained.html
```

Quote: BBSY

```
10:06 29JAN13     AUSTRALIAN BANK BILL SWAP REF RATES    AU33112              BBSY
        AVERAGE MID RATE - AVERAGE BID RATE - AVERAGE ASK RATE
         1MTH       2MTH       3MTH       4MTH       5MTH       6MTH
         28/02      28/03      29/04      29/05      28/06      29/07

MID      3.0200     3.0042     2.9875     2.9800     2.9700     2.9650

BID      3.0700     3.0542     3.0375     3.0300     3.0200     3.0150

ASK      2.9700     2.9542     2.9375     2.9300     2.9200     2.9150


                RATE SET DATE 29-Jan-2013


* For further information in relation to the AFMA BBSW market, please see
  http://www.afma.com.au/data/bbsw/bbswexplained.html
```

BBSW mid rates are published on the AFMA website on the following Business Day, thus making them available to the general public.

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Financial news media outlets regularly report on BBSW rates, both in tabular form and in commentary.

1.3. The BBSW rate survey process

In accordance with the BBSW Procedures panellists submit their rate observations to three decimal places[3] by 10.05am on each Business Day.[4]

A panellist must submit observations for all published tenors to be included in the rate set.

If any of the expected submissions are not received, an AFMA operations staff member will contact the relevant panellist to seek one. It is rare for contributors to miss a submission.

Submitted rates are checked by AFMA staff for implausible contributions and if any are identified, the relevant panellist is asked to confirm the rate[5]. This is rarely necessary in practice.

To produce the trimmed arithmetic mean the highest and then lowest rates for each tenor are sequentially eliminated ('topping and tailing') until six rates remain. See **Table 1**.

Table 1

Contributions received	Methodology	Submissions averaged
14	top 4 highest, tail 4 lowest	6
13	top 4 highest, tail 3 lowest	6
12	top 3 highest, tail 3 lowest	6

These six rates are then averaged to four decimal places for each tenor to produce the BBSW rates.

1.4. BBSW survey panellists

Existing Prime Banks, having given an undertaking to actively support the market for Prime Bank paper, are automatically made members of the BBSW panel.[6] The remaining BBSW panellists are elected on a periodic basis by the Financial Markets Member firms (this includes asset managers who are investors in Prime Bank paper) that nominate for the

[3] Although Prime Bank paper trades on a yield basis to two decimal places, the third decimal place (which is either zero or five) was introduced to enable contributors to submit an accurate mid-point in a one tick spread market.
[4] AFMA can pause the system for a period to respond to technical or other difficulties that might arise.
[5] No other information is given. Contributors are given the option to resubmit or proceed with the existing submission.
[6] If a bank is removed from the Prime Bank list, it continues as a panellist until the following election.

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panel. Panellists generally receive support in the election process based on the perceived level of their activity in the Prime Bank paper market.

The number of panellists is determined by AFMA through a senior committee, the Market Governance Committee (MGC), which considers the advice of the BBSW Committee, having regard to the integrity objective for BBSW. The BBSW Committee has first level oversight of the application of the BBSW Procedures. The current panel size of 14 (which has been the number for many years) is considered an appropriate and robust number.

Panel elections are conducted at AFMA's discretion. The BBSW Committee, with approval from the MGC, may call an election at any time; for example, if a panellist resigns or if there are proven concerns about the quality of rate contributions.

Failure to contribute rates on three consecutive occasions without an explanation satisfactory to the MGC may result in the organisation being replaced as a panellist.

Panellists are also required to satisfy various regulatory requirements, as outlined in section 2.3 below.

1.5. The Prime Bank concept and its application

AFMA Prime Banks are a designated sub-set of the banks operating in Australia. Their short-term securities by convention trade as a homogeneous group and are recognised as being of the highest quality with regard to liquidity, credit and consistency of relative yield. This homogeneity promotes market liquidity and provides significant protection to the integrity of BBSW.

All Prime Banks are subject to an annual test of their ongoing eligibility as a Prime Bank. Banks that meet a set of *eligibility criteria* may nominate to be considered a Prime Bank. They then must achieve a minimum level of support from significant investors in bank short term paper for their inclusion on the Prime Bank list, as measured in a survey conducted by AFMA.

Regarding the e*ligibility criteria* for Prime Banks, a bank must:

- Be an authorised deposit-taking institution (ADI) and be classified as a bank by the Australian Prudential Regulation Authority (APRA);
- Satisfy a credit rating benchmark, that is recommended by the AFMA NTI Committee and ratified by MGC – at January 2013, it is a Standard & Poor's short term rating of A1+ and a long term rating for senior unsecured debt obligations of at least AA-; and
- Have securities eligible for use in the Reserve Bank's open market operations and standing liquidity facilities.

The rules do not specify a minimum level of issuance but the NTI Conventions state that Prime Banks should show a commitment to the market by endeavouring to maintain a

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minimum issuance level of $5 billion and be prepared to support the market for all Prime Bank paper on issue.

As at February 2013, the Prime Banks were:

- Australia and New Zealand Banking Group;
- Commonwealth Bank of Australia;
- National Australia Bank; and
- Westpac Banking Corporation.

The Prime Bank survey to determine which banks are considered prime by the market is conducted annually. The survey is designed to strike a balance between maintaining the quality of Prime Bank status and promoting market effectiveness and development by supporting a reasonably diverse range of Prime Banks:

- The hurdle to become a new Prime Bank is 80 per cent of the weighted survey vote.
- The hurdle for existing Prime Banks is 70 per cent of the weighted survey vote.
- If this process results in less than six Prime Banks being selected, then the 80 per cent hurdle for new Prime Banks would be progressively lowered until six Prime Banks are elected, provided a minimum hurdle rate of 70 per cent is maintained.
- If a uniform hurdle rate of 70 per cent results in less than six Prime Banks the matter would be referred to MGC for a recommended course of action to then be considered by the AFMA Board.

A Prime Bank will automatically lose its status should it fail to meet any of the *eligibility criteria* (e.g. through a credit rating downgrade) or it requests in writing to AFMA that it be removed from the list of Prime Banks.

The expectation that a Prime Bank should have a minimum level of issuance would not exclude a bank from Prime Bank status, though it would likely affect its acceptance by the market in the annual survey.

AFMA's BBSW Conventions include contingency plans to respond to unexpected market developments, for example, in the event that Prime Bank paper begins to trade on a non-homogenous basis. A scheduled survey may be brought forward provided that there is approval by both the MGC and the AFMA Board.[7] Measures are in place to facilitate market continuity in the situation in which a major Prime Bank were to fail to meet the eligibility criteria (e.g. due to a credit downgrade).

[7] If a survey is brought forward, subsequent surveys are conducted annually from the date the new Prime Bank list is promulgated.

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1.6. The market for trading Prime Bank paper

Banks trade funds between themselves on the interbank market, which facilitates the daily allocation of available liquidity across the banking system. The BAB/NCD market is an important facility (along with banks' operations in the cash and repo markets) through which banks can manage their liquidity. Activity in the market is regulated under Australian law, as outlined in section 2.3.

The most popular tenor for paper issued into the Australian interbank market is three months, although paper is also issued regularly for six months and for terms as short as one month and as long as 12 months. Activity in the market is related to issuance patterns of the Prime Banks, which need to continually issue in sufficient volume in the range of traded tenors to sustain a liquid market.

Operational aspects of the market

The structure, depth and efficiency of the BAB/NCD market are pertinent factors when it comes to design of the BBSW benchmarking process. For instance, BBSW reflects the rate at which paper trades between banks (the 'interbank' market). It takes this focus because bank client trades are more heterogeneous as they may include a margin that varies depending on the client and the nature of the client relationship.

The BAB/NCD market, including Prime Bank paper, generally trades from 8:00am to 5:00pm DST/EST on Sydney Business Days; however it may operate in a reduced capacity where there is not a similarly gazetted holiday in Melbourne.

Trading in the BAB/NCD market is primarily facilitated by two voice brokers that post firm bids and offers on screens available to market participants. Orders are executed over the phone, trades time-stamped and confirmations sent to the counterparties. The broker screens enhance market transparency by updating with live prices and are widely used by market participants.

An electronic market has previously been used successfully to trade the BAB/NCD market and it is expected that there will be additional such markets coming online in the future.

The most actively traded BABs/NCDs are those of one, three and six months maturity. Tenors may trade differently depending on the supply of paper.

Many trades, particularly with clients, are agreed prior to 10:00am at a price that references the yet-to-be-determined BBSW rate for the day. For example, a trade might be agreed at 9:00am with an interest rate of 'BBSW plus 10 basis points'. The actual rate would only be known to the parties once the relevant BBSW rate had been published for the day.

The BAB/NCD market is physically settled; there is no net cash settlement. Unless mutually agreed otherwise, transactions negotiated before noon are for settlement on the same day and transactions negotiated after then are for settlement on the following Business Day.

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Market trading activity in Prime Bank paper is concentrated around 10.00am, when the BBSW rates are set. The rate-set itself creates a liquidity event and leads to a concentration of trading within a short period (which is a feature of many markets).

When trading in the markets for Prime Bank paper, the particular type of paper is generally not specified, i.e. in line with the market conventions, paper from any AFMA Prime Bank should be accepted for delivery (with limited credit-based exceptions). The conventions also specify the maximum lines of stock per parcel size and the standard (or default) transaction size.

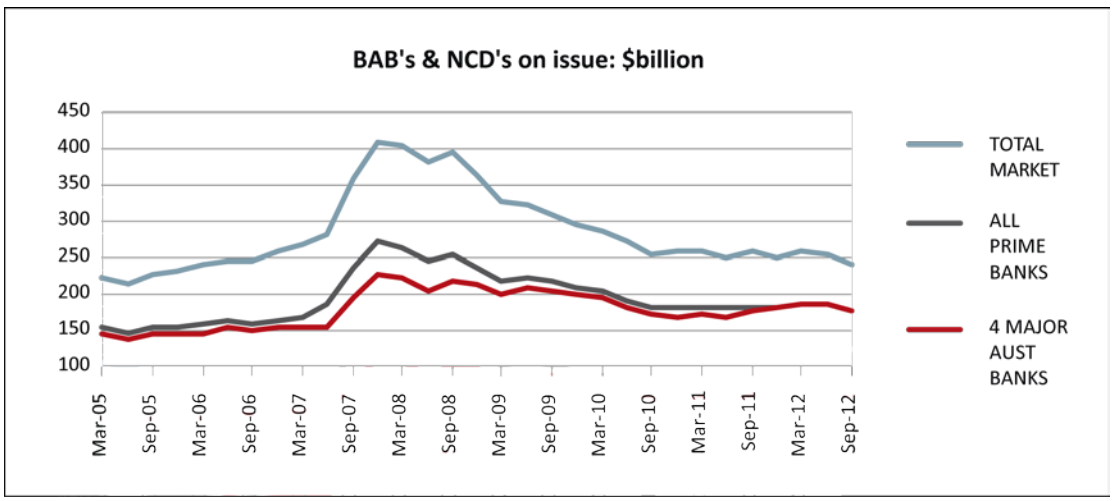
AFMA Prime Banks can issue their own paper into the market including (subject to settlement timing requirements) to deliver against their sales.

Size of the market

As at December 2012, the stock of BABs/NCDs issued by Prime Banks (Prime Bank paper) was approximately $180 billion. A part of this stock would have been issued for maturities beyond six months and, hence, would not become relevant to the BBSW rate set until the outstanding maturity falls to six months.

The volume of BABs/NCDs on issue increased significantly between 2006 and 2008, in part due to the growth of foreign bank balance sheets – see Figure 2. Since then it has fallen back to its 2006 level for a variety of reasons, including the impact of the Basel III liquidity measures and industry consolidation post the Global Financial Crisis (GFC).

Figure 2



Source: APRA Monthly Back Series

The market for BABs and NCDs has recorded a high level of turnover for many years. Table 2 presents data published in AFMA's *2012 Australian Financial Markets Report* that illustrates the significant ongoing depth of the market - turnover is in excess of $2 trillion per annum (excluding in-house deals). The level of activity in the market can vary significantly from day to day, depending on economic news and market conditions. In

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recent years, turnover declined as banks began to extend the maturity profile of their funding as required to meet the Basel III liquidity requirements.

Table 2

Annual Turnover Summary (AUD million) - Bank Issued Paper										
Survey Year	Survey Respondents	Other Banks	Traditional Fund Managers	Hedge Funds / CTA's	Government	Offshore Central Banks	Other Counter-parties	Sub-Total	Inhouse Transactions	Total
2007-08	634,129	430,339	631,004	0	131,478	238,147	1,708,790	3,773,887	861,192	4,635,080
2008-09	471,450	260,610	553,504	0	107,574	3,905	1,234,146	2,631,189	1,887,312	4,518,501
2009-10	449,519	223,430	609,678	29,252	167,336	11,701	575,495	2,066,411	1,347,595	3,414,006
2010-11	533,669	202,998	501,197	24,761	200,400	9,946	487,599	1,960,570	1,243,709	3,204,279
2011-12	503,618	260,752	579,088	27,641	185,218	11,315	526,215	2,093,847	1,211,224	3,305,071

A number of foreign banks have been Prime Banks at various times between 2006 and early 2012. However, while in aggregate foreign banks accounted for nearly 20 per cent of total paper on issue for a short period prior to the GFC, they generally accounted for only a modest proportion of Prime Bank paper on issue. Since February 2012, the four major Australian banks have been the only Prime Banks and accounted for 73 per cent of the total BABs/NCDs on issue in September 2012 (see

2).

Pricing influences

Pricing of BABs and NCDs depends on the Reserve Bank's expected cash rate between purchase date and maturity of the security. The market also prices in a risk premium for credit for the Prime Banks and takes account of the term to maturity of the BAB/NCD. Another important factor is the demand and supply factors specific to the market; for example, the stock of BABs/NCDs, the liquidity preference of investment funds, cost and availability of alternatives through deposits or overseas borrowing etc.

Technical aspects of the market also affect BBSW pricing, as explained in Box 1 in relation to so called 'Early' and 'Late' maturity buckets. These technical features of the market can increase the challenge for entities that are less familiar with the market in interpreting the patterns of price movements, especially around mid-month periods. While the impact is typically by its nature transient, it is nonetheless a relevant feature to users of BBSW rates.

In common with other interest rates, lead economic indicators affect market expectations about the forward funding environment and this will also be reflected in market pricing. The Basel III liquidity reforms are a good example of regulatory measures that have had an influence on the market.

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BOX 1 - The Influence of 'Early' and 'Late' Maturity Buckets on BBSW Rates

To promote liquidity in Prime Bank debt instruments, BBSW maturities are concentrated and traded in half-month periods. 'Early' instruments mature from the 1st to the 15th, with maturities from the 16th to the last day of a month designated 'Late'. To illustrate, on 3 December 2012 an investor purchasing BABs/NCDs with a notional three month maturity could receive paper maturing from 1 March to 15 March 2013.

These measures to promote an active and liquid market can influence the pricing of BABs/NCDs on two fronts:

- Sellers will generally deliver securities which are the cheapest to deliver within the particular half-month and buyers will factor this into the interest rate at which they are prepared to deal. While the effect is less pronounced when the short term yield curve is flat, it nonetheless is a subtlety reflected in the rates provided by BBSW panellists and, therefore, is present in the BBSW benchmark rates; and
- Intra-month liquidity is largely aligned to the pool that represents the current maturity period; ie the pool against which the BBSW rates are set. Once trading moves into the new period the stock purchased in the prior period generally becomes less liquid. For example, BABs/NCDs purchased on the 15th of a month would be less liquid the following day, due to the market focus on the late-month maturity pool.

Since many market participants hold BABs/NCDs to manage their liquidity positions, these participants will hold stock that is of highest liquidity, and will manage their book in a manner which optimises their liquidity position within the parameters of the two maturity bands. Towards the end of either an early or late period (ie the 14th/15th and 30th/31st) participants may sell the stock they have accumulated to avoid holding illiquid stock, and this increased selling can put upward pressure on the traded rates and consequently the rate-set. In contrast, on the initial trading days of a new period (i.e. 1st/2nd and 16th/17th) participants may be inclined to purchase additional stock to hold over the coming period to manage their liquidity, which carries with it the potential to put downward pressure on the traded rates and the rate-set.

However, this behaviour is not the case for all participants. Some investors do not require utmost liquidity for all their holdings, and may buy at the end of periods to take advantage of any potential increase in yields. Similarly, at the start of any half month period the Prime Banks may take advantage of any increased buying interest and the potentially lower rates accompanying this to generate lower cost funding. This market interaction between issuers and investors generally serves to reduce the volatility between periods.

While these patterns of buying and selling may be likely to continue to be a feature of the Prime Bank paper market it is important to note that this pattern does not occur every period or always to the same extent.

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2. *Checks and Balances to Ensure BBSW Integrity*

In common with other financial benchmarks which have an important role in the financial system, the integrity of BBSW must be protected. The main concern is that individuals may seek to gain advantage by inappropriately influencing the setting of BBSW rates but there are other significant risks such as that of an operational failure that leads to an error in the published rate. These risks must be effectively managed to ensure the continuous provision of an accurate guide to the economic price of Prime Bank paper in an impartial and efficient market.

Risk management of this type is as much an art as it is a science, as it depends on behavioural factors as well as technical operational matters. In practice, for BBSW this is achieved through a range of mechanisms that are individually effective, but in combination, are highly potent in managing the risks around BBSW.

The following are the most important checks and balances that protect the integrity of the BBSW process. They should not be viewed as a fixed set of measures, as environmental changes over time also impact the risk profile of BBSW and may require refinement to its integrity protections.

i. Structural design of BBSW
ii. BBSW administrator oversight
iii. Official regulation
iv. Industry governance
v. Operational risk management

2.1. Structural design of BBSW

The structural design of BBSW provides it with a number of strengths relative to some other benchmark rate set processes. The relevant features include:

- The concept of Prime Banks and homogeneity of trading;
- Reliance on observations from a traded market, rather than estimates of 'own rate' funding.

The BBSW Conventions set the structure for BBSW by determining standard practices for the conduct of business in the markets underlying BBSW, setting the process for the election of Prime Banks and panellists and determining how the rate will be calculated, reviewed and disseminated.

2.2. Prime Bank concept

The concept of Prime Bank promotes efficiency and integrity in the BBSW rate set through several means, the most important of which is by reducing market fragmentation. Prime Bank paper trades homogeneously providing scale and depth to the market. Thus, rather

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than the four current[8] Prime Banks each having of $30 to $40 billion of BAB/NCD on issue in their own specific 'market', there is one single market of between $120 billion and $160 billion. This increased liquidity expands the range of observable transactions available to BBSW panellists and supports the accuracy of their rate contributions.

Further, homogeneity reduces the number of rates that the market needs to determine as for each tenor, BBSW is 14 observations of one rate. This leads to very small variances in both the submitted rate and those accepted to calculate the average rate after trimming – see the analysis in Box 2.

Because the Prime Bank concept operates by providing a single price target for submissions, there is less predictability about other rate contributors' actions and, in addition, there is much more effective market scrutiny of the contributed rates, both of which provide greater protection against manipulation through the rate contribution process.

[8] As at January 2013.

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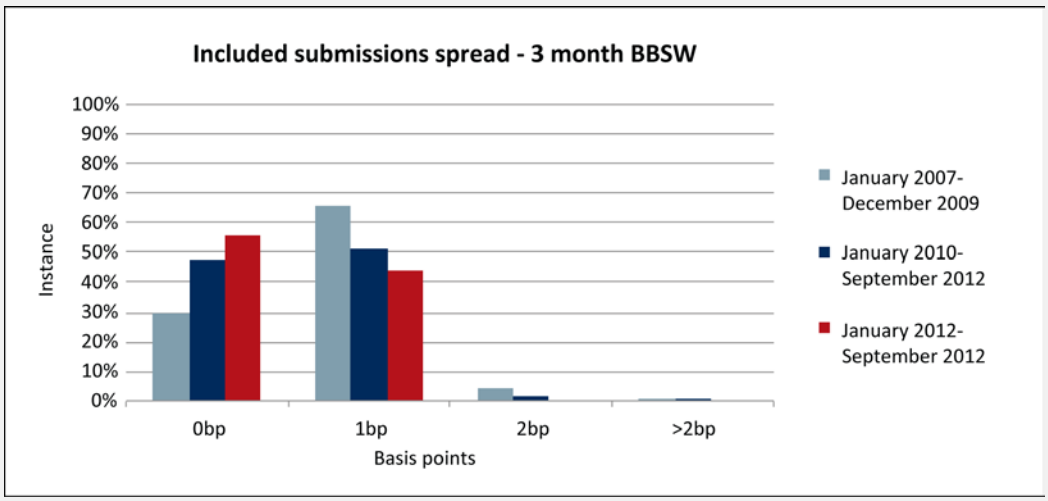
Box 2 – Variation in BBSW Rate Contributions

Different benchmark rate set contribution management methodologies may appear similar, but they can provide very different statistical outcomes that go to the heart of the integrity risks that must be managed. As each of the 14 submissions to BBSW is based on one rate, there is very little spread (or variation) in the submissions accepted into the final calculation (those that are not trimmed out).

The graph below shows the spread from high to low in the accepted BBSW submissions for each publication date over three periods for three month BBSW. It is evident that the spread in BBSW panellist contributions used after trimming is very small. For the first nine months of 2012, 100 per cent of days had accepted submissions were within 1 basis point. Even for the years of the GFC over 95 per cent of days had the accepted submissions within 1 basis point and 99 per cent were within 2 basis points



In contrast, Libor has a spread that is naturally tens of times higher than BBSW, due to the different credit and market standing of its contributor banks. At times during the GFC, the spread between the highest and lowest Libor contributions increased to over 40 basis points. Even when markets are not dislocated there is typically significantly more spread in accepted submissions in Libor.

The narrow spreads of accepted submissions in BBSW contributes to confidence that the rates are accurate and unlikely to be influenced by manipulation.

Observable transactions

One of the key strengths of BBSW is that it is based on observed market pricing and transactions which gives transparency and accountability to the process. This transparency and tightness in observed pricing makes it very difficult for a panellist to influence a BBSW rate though a submission.

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There is a risk that an individual may attempt to manipulate the underlying market by transacting in a manner that inappropriately pushes market pricing in a particular direction – thus, influencing the rates observed and hence submitted by panellists. As discussed in section 2.3, any manipulation in a regulated market place is illegal under Australian law, falling under the market supervisory powers of the Australian Securities and Investments Commission (ASIC) and carrying substantial penalties for firms and individuals convicted of manipulation.

The nature of the BAB/NCD market would make it difficult and expensive for a trader to disturb equilibrium market pricing on a sustained basis. If the market was observed to be moving to unrepresentative rates there would be an inbuilt financial incentive for traders to execute transactions against that movement and give market pricing that more accurately reflects the equilibrium value of Prime Bank paper.

2.3. Administrator oversight

AFMA, as the administrator of BBSW, takes a number of steps to monitor the ongoing quality of the BBSW rate set process. They include:

1. Statistical analysis to identify outliers and missed contributions;
2. Statistical analysis to compare the BBSW rate movements to other interest rate indicators;
3. Regular qualitative review of the efficiency and integrity of the market for Prime Bank paper.

This rigor and discipline applied to the process has been significantly improved in recent years. The following paragraphs provide an insight into these processes and the reports generated.

Statistical analysis to identify outliers and missed contributions

As part of review of BBSW, AFMA's secretariat analysed individual panellists' contributions covering the period from 1 January 2007 to identify instances where a panellist submitted rates that were outliers when compared to the relevant BBSW rate-set and to determine the frequency of missed contributions.

Figure 3 summarises the findings when a 2.5 basis points filter is applied to determine contributions that are deemed to be outliers and shows a very small number of multiple outliers over an extended period.[9]

[9] That is, rates more than 2.5 basis points away from the calculated BBSW rate for the relevant tenor on a given day are treated as outliers.

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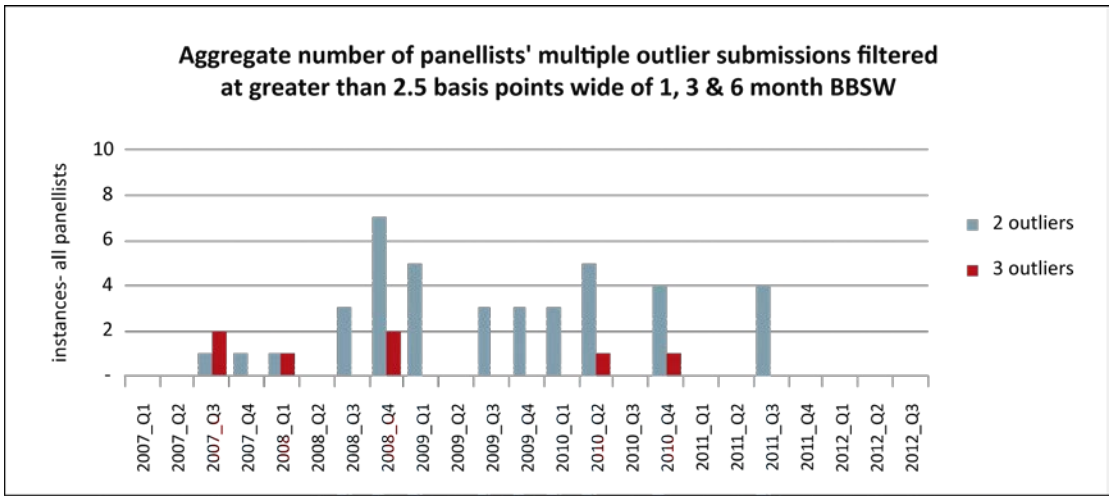
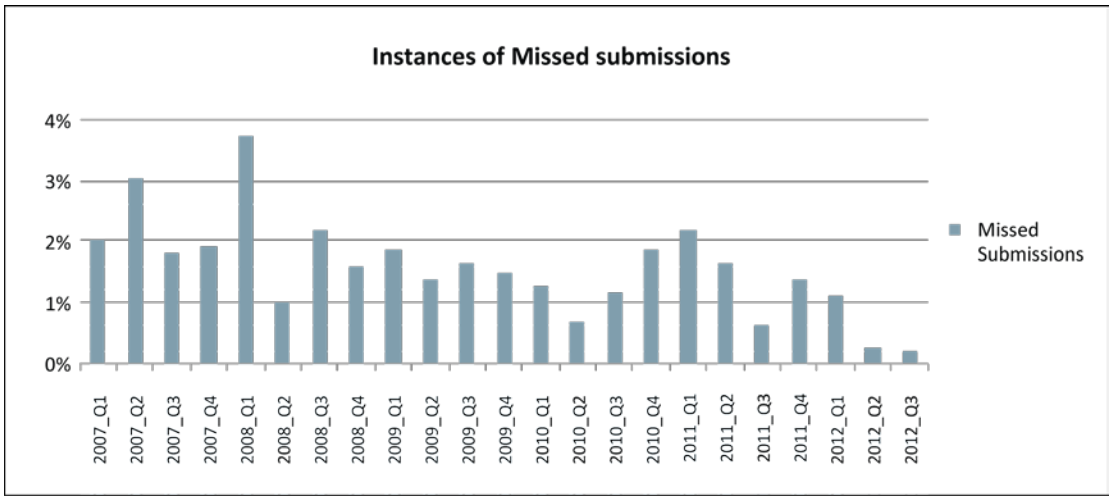
Figure 3



Analysis of Prime Banks' contributions shows they tend to submit fewer outliers.

In addition, related analysis shows that missed contributions have generally been rare, and increasingly continue to be so in recent years. See figure 4.

Figure 4



As an input to the ongoing effective governance of BBSW, AFMA regularly reports the results of analysis of contributions for recent periods to the BBSW Committee for its review and action.

Monitoring the rate submission process for errors

AFMA monitors BBSW submissions detecting those that are implausible and looks for any patterns of outlying submissions from individual contributors.

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It is also common practice for market participants to report to AFMA any submissions that they believe to be erroneous. Again, given the structure of BBSW and the inherent tightness of contributions, this has been a rare event.

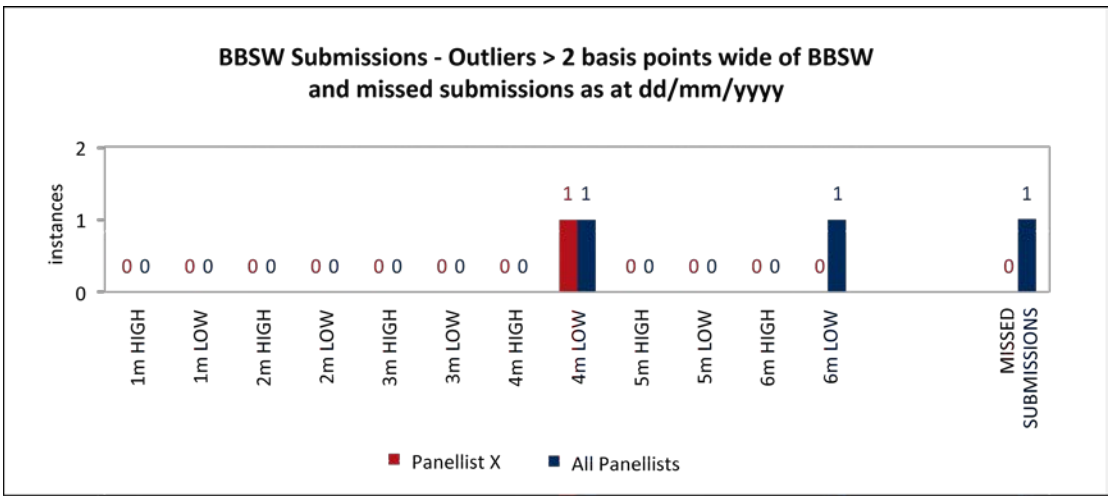
Compliance reporting to members

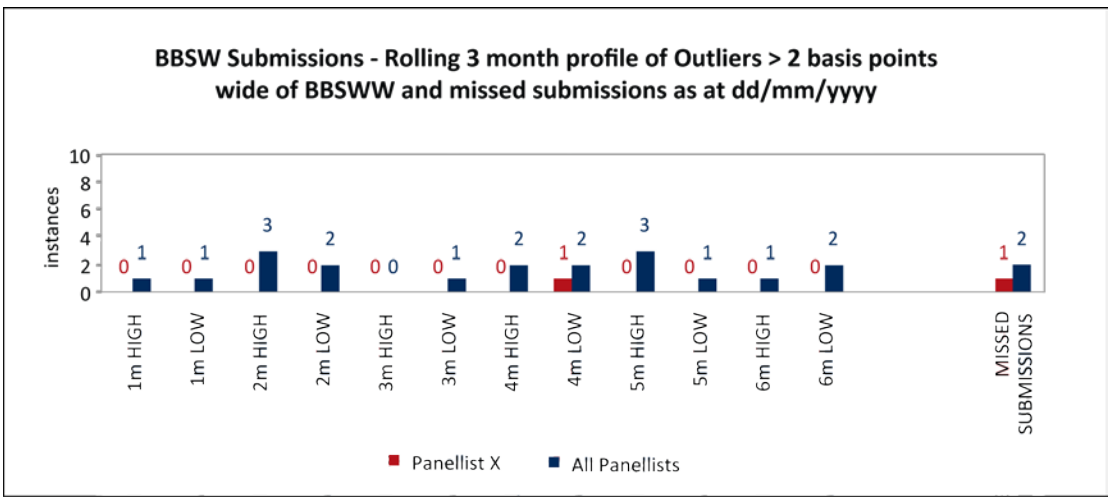
To assist in ensuring consistent alerting across BBSW contributors AFMA provides a standardised report that highlights a firm's variance from the published benchmark rate on a daily and rolling three month basis.

Figure 5 illustrates the nature of the reports generated for each firm using data on their contributions and the contributions of the entire market each day for that day and the previous three months.

These charts are provided to each BBSW panellist firm to assist it to monitor its contributions and determine the accuracy of its contributions relative to other panellists.

Figure 5





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Statistical analysis to compare the BBSW rate movements to other interest rate indicators

The infrequency of outliers is consistent with the expectation that submissions will be an accurate reflection of the rates at which Prime Bank paper is traded at 10.00am. However, there is a separate question about the reliability of those traded rates as a fair reflection of underlying market conditions, such that they are not impacted by attempts by any trader to influence rate outcomes.

AFMA has developed a number of objective tests using other interest rate measurements that should be highly correlated with BBSW movements. This is illustrated here by reference to the Overnight Index Swaps (OIS) rate. By its nature, this analysis is necessarily indicative, as there are valid reasons for differences between different interest rates.

BBSW contains an element of credit risk, whereas OIS (being an overnight rate) contains minimal credit risk as the period between opportunities to reset is overnight. However, day-to-day movements between the BBSW and OIS rates should be correlated, unless there is a change in the market's credit assessment of banks. Thus, comparing daily changes in the OIS and BBSW rates is another means to help identify any aberrant movements in BBSW.

Of most interest to the analysis, because of its greater information content, is the differential in the daily movement that each rate exhibits. Most economic statistics and regulatory statements (eg announcements of RBA cash rate changes) impacting interest rates in Australia are released after the 10:00am BBSW rate set, which means that expectations around these releases are embedded in the BBSW contributed rates, whereas end-of-day (EOD) BABs and OIS rates have factored in the actual outcome. Accordingly, movements in BBSW that are apparently aberrant by comparison to other rates that are calculated in the evening may be explained by the release of new information to the market during the trading day. Considering these issues, the daily movement and OIS (T) relative to the average two day movement of BBSW (T plus T+1) is used as this may present a better reflection of the relative daily movement in BBSW.

In Figure 6, the differential between the daily movement in both BBSW and OIS for the period between January 2007 and September 2012 is presented using a 7.5 basis points filter. There are relatively few instances where BBSW daily movements were uncorrelated to daily OIS movements at this level. Where deviations did occur, again these were either generally the result of market responses to the announcement of RBA interest rate decisions or in periods of market stress as evidenced during the GFC and in 2011 with the Euro zone crisis.

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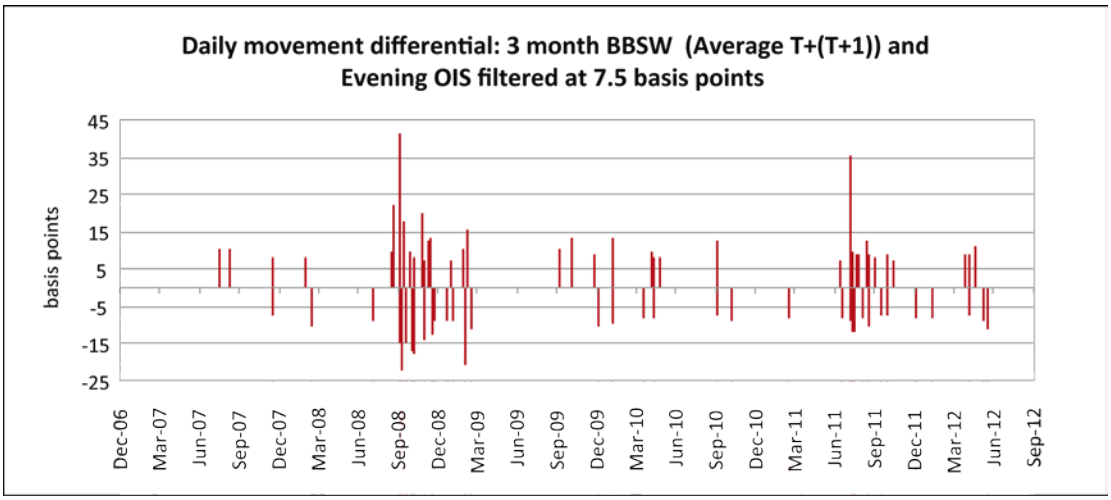
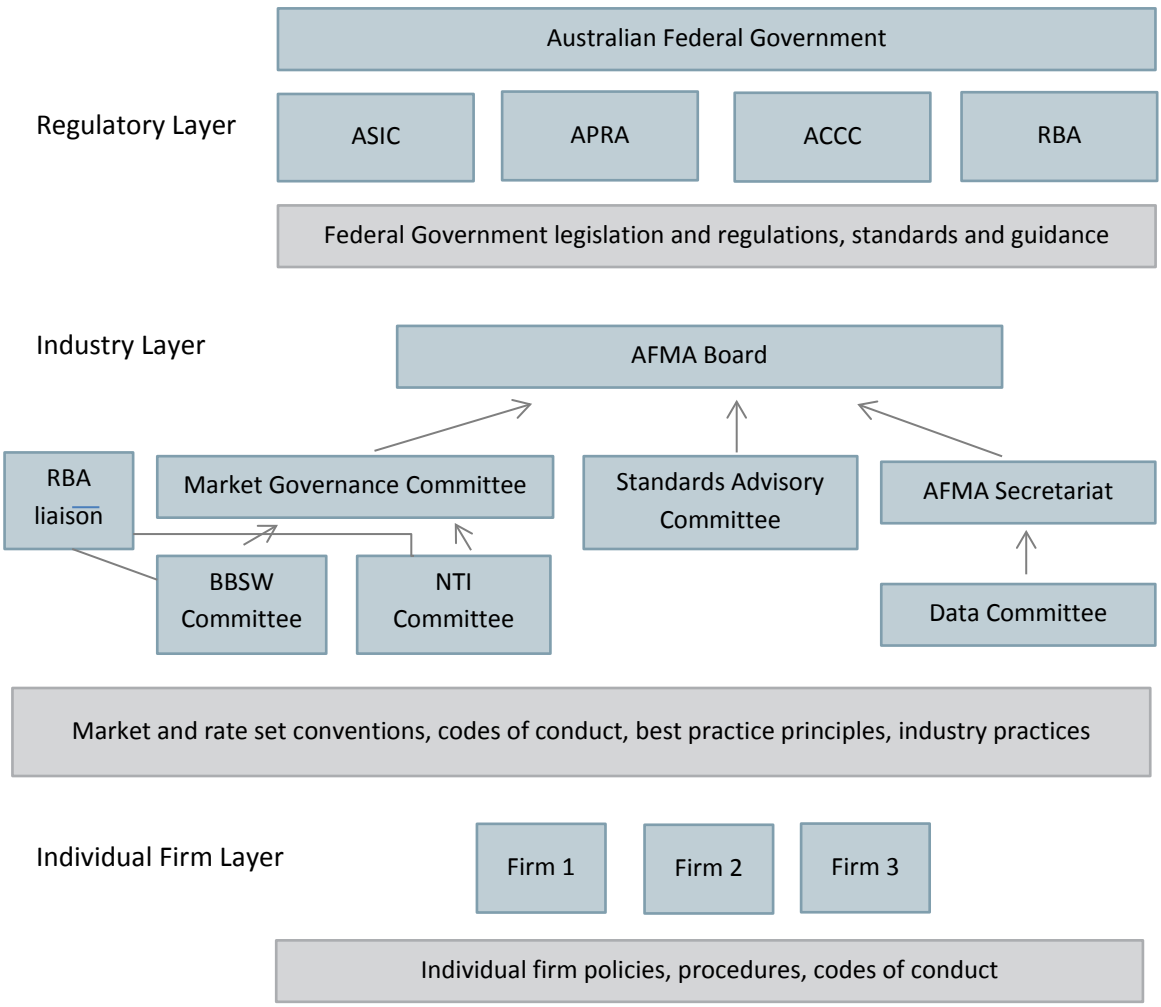
Figure 6



2.4. Official regulation

The regulation and governance arrangements for BBSW comprise a multi-layered structure, as summarised in Figure 7.

Figure 7



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The first layer is the regulatory layer covering Federal Government regulation and legislation. This is administered by the government bodies ASIC, the Australian Prudential Regulation Authority (APRA), the Australian Competition and Consumer Commission (ACCC) and the Reserve Bank.

The second layer is the industry self-management layer consisting of industry conventions, codes of conduct and best practice principles. This layer is coordinated through AFMA and brings industry knowledge and pressure to bear on the market itself and participants in the rate set process.

The final layer is individual firms applying their internal policies, procedures and codes of conduct with associated compliance and monitoring functions.

With regard to official regulation, BBSW contributions generate outcomes that are capable of falling within the ambit of the prohibitions in Division 2 of Part 7.10 of the Corporations Act. These provisions cover false or misleading statements, false trading and market rigging, and dishonest conduct and are administered by ASIC.

ASIC has an active oversight role under the Corporations Act as the regulator of market manipulation, false or misleading statements, inducement, dishonest conduct, and misleading and deceptive conduct.

While generally not applicable to the supply of financial services, the consumer protection provisions of the *Competition and Consumer Act 2010* administered by the ACCC may cover contributions to BBSW.[10]

Consequently, BBSW panellists must manage regulatory risk in relation to their rate contributions, which they do by ensuring that they endeavour to make contributions that are accurate reflections of pricing on the market. In addition panellists and other market participants must ensure that their trading activity in Prime Bank does not breach the conduct provisions, such as the market manipulation prohibition.

The result is three levels of supervision for firms in the BBSW market with banks that are contributors to the rate set process as well as market participants being the most regulated.

The Reserve Bank is a significant participant in the money market and is a Financial Markets Member of AFMA. During 2012, the Reserve Bank was appointed a Regulatory Observer on the NTI and BBSW Committees and there is regular liaison with the Bank on OTC matters. The Bank closely follows the BBSW markets and periodically produces analyses on the state of the market and its various aspects.

[10] Other regulators may also potentially have a role. If BBSW related activities were to affect risk in Australia's financial system or the efficiency or competition in the market for payment systems or services, the Reserve Bank could use its powers under the *Reserve Bank Act 1959* to have a direct role in regulating the market. In these circumstances APRA may similarly have an additional direct co-existent jurisdiction over the market.

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The Bank is also a Regulatory Observer on AFMA's Debt Securities, Cash and Repo Committees, and is a Member of the Debt Market Operations Committee and the Bank Treasurer's Forum.

2.5. Industry governance

AFMA coordinates industry self-management of the institutional OTC markets and brings peer pressure to bear to promote consistent practice and compliance in them. This activity is founded on the interest common amongst industry participants in the efficient and fair operation of the markets. AFMA is not in a position to enforce compliance with the industry standards and conventions, however, peer pressure, a common economic interest, reputation risk and a backdrop of official regulation of the markets provide strong incentives for traders to comply. AFMA is not a self-regulatory organisation but the effect of its industry led process is a high degree of common practice and discipline being exhibited in the institutional OTC markets.

In relation to BBSW, this translates into effective industry self-management of the benchmark methodology and the market practices that apply to trading in Prime Bank paper. This approach facilitates flexibility and timeliness in responding to industry issues. Industry pressure, particularly in institutional OTC markets, can be very effective and experience over many years has shown it ensures the appropriate outcomes in the context of a regulated marketplace.

Internal organisational structure

AFMA industry governance is coordinated through its Board and committee structure.

The **AFMA Board** is elected at the annual general meeting and comprises the CEOs or heads of institutional banking of the leading financial institutions in Australia, state government treasury corporations and energy market participants. The Board provides strategic direction to AFMA and has ultimate oversight of all policy and commercial decisions. Under the AFMA Constitution, the Chair of the MGC is appointed to the Board and regularly briefs members on relevant BBSW matters.

The **Market Governance Committee** (MGC) is elected at the annual general meeting and has responsibility for the effective operation of the Australian OTC financial markets including those markets that relate to BBSW. MGC membership comprises senior staff from a cross-section of AFMA member firms.

Recognising the importance of the BBSW rate process to the wider market, the MGC places a high priority on its role in its governance. In this capacity, the MGC:

- Regularly reviews the management of BBSW conventions and processes by the relevant Market Committees to ensure market integrity and efficiency are best served;

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- Determines and approves changes to the OTC Market Conventions that support BBSW, to ensure they remain relevant and effective in the context of a changing market environment;
- Considers quarterly reports by the relevant Market Committees on matters pertaining to the operation of BBSW and developments in related markets;
- Ensures internal AFMA processes and policies are in place to promote the widespread adoption of the AFMA conventions by market participants (including Market Committee Rules, transparency of convention changes etc); and
- From time to time establishes working groups to oversee reviews of BBSW processes.

The **Negotiable Transferable Instruments Committee** (NTI) manages the conventions for trading in money market instruments (principally BABs/NCDs). As part of its remit, NTI is responsible for maintenance and implementation of the rules governing the AFMA Prime Banks. The RBA joined the Committee as a Regulatory Observer in 2012.

The **BBSW Committee** has first line governance oversight of the BBSW procedures and the rate set process. The Committee includes two representatives from each of the NTI, Swaps and Interest Rate Options Committees. In recognition of the broader stakeholder interest in BBSW, the Committee includes two representatives from the buy-side and a BAB/NCD broker representative. The Reserve Bank joined the Committee as a Regulatory Observer in 2012.

Proposals involving material changes to all OTC conventions are communicated to member firms for their comment, with a grace period for member feedback prior to being promulgated.

Buy-side participation in the Market Committees has been actively encouraged in recent years, as these firms are significant users of the OTC markets.

Industry conventions and standards

AFMA has developed a range of industry conventions to support the BBSW process, including the BBSW contribution and calculation methodology and trading in Prime Bank paper.

These conventions have evolved over the last twenty years as the market has developed. In light of the developments internationally in relation to benchmark rates, AFMA has reviewed and enhanced the conventions framework that supports the BBSW rate set process.

Market Committees for each of the main institutional OTC markets (for example, debt securities, swaps and electricity) are elected by market participants. They operate in accordance with defined procedural rules and have direct responsibility for the development and implementation of trading and operational protocols for their respective markets. Market committees follow a defined process when they wish to introduce or materially change a convention. This includes both consultation with members and a

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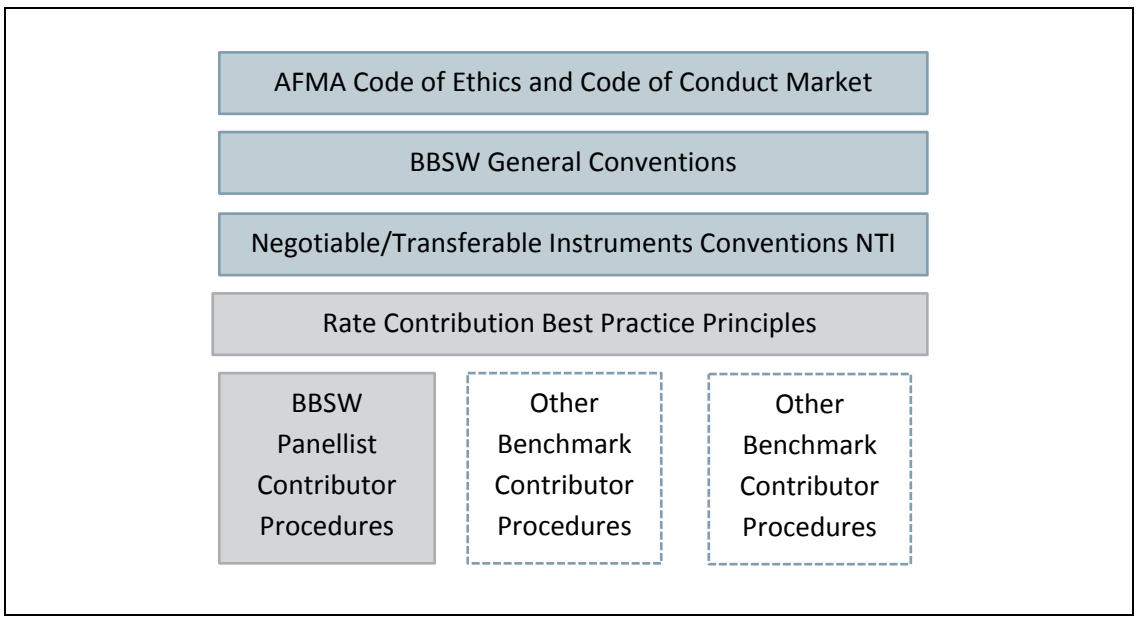
requirement that MGC must approve all of the convention changes agreed by the committee. Major changes to conventions or significant procedural matters (such as calling an out-of-schedule Prime Bank election) receive greater attention from MGC and in the important cases may also be notified to the Board.

The preferred outcome is that matters are decided by the committees on a consensus basis; however the AFMA Constitution and Market Committee Rules provide for matters to be resolved by ballot – typically requiring 75 per cent of those eligible to vote being in favour for a motion to be carried. Where it is not specified a greater than 50 per cent rule generally applies.

The codes of conduct and conventions that apply to the BBSW rate set process are listed in Figure 9 in blue. Members attach a high priority to the effective industry management of risk associated with BBSW and, consequently, MGC is preparing a new *Rate Contribution Best Practice Principles* for firms to benchmark their internal processes for all benchmark rate contributions and an additional convention *BBSW Panellist Contributor Procedures* that gives much more detailed guidance as to how contributors should form their view of the market as represented in the BBSW contributions.

Figure 9



The BBSW General Conventions[11] outline the procedures for the AFMA Secretariat in the production of the BBSW rates. They cover procedures for the election of panellists, the calculation methodology, timings for eligible inclusion, appointment of the BBSW Committee, contingency arrangements, corrections, request for review, and complaint arrangements.

[11] Formerly called the Bank Bill Swap Reference Rate BBSW Procedures.

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The NTI Conventions define the products of the NTI market which include those relevant to the BBSW rate set, dealing conventions including business days, market parcel size etc, and confirmation conventions.

Member firms are required to observe the AFMA Code of Ethics and Code of Conduct as a condition of AFMA membership. The Codes cover respect for rules and persons, confidentiality, honesty, fairness, managing conflicts of interest, competency and responsibility.

In addition, development of new Rate Contribution Best Practice Principles and BBSW Panellist Contribution Procedures, that will provide additional guidance, is well advanced at the time of writing.

While BBSW benefits from an appropriate regulatory environment and sound industry governance structures and conventions, individual firms' policies are essential to ensuring appropriate outcomes in trading and rate reporting. AFMA coordinates discussion of related issues through its Heads of Compliance Committee.

Regular qualitative review of the efficiency and integrity of the market for Prime Bank paper

AFMA's Market Committees monitor their respective OTC markets and report regularly to the MGC on observed efficiency and integrity. Both the BBSW Committee, that provides direct oversight of the BBSW process, and NTI Committee, that maintains the conventions for trading BABs/NCDs and the Prime Bank process, provide feedback to the MGC in relation to the ongoing effectiveness of BBSW and the quality of the market for BABs and NCDs. The responses indicate that the market for Prime Bank paper typically operates with a high degree of efficiency and integrity.

The framework for assessing market conditions each quarter was placed within a more structured framework in 2010, under which matters specifically considered by the committees include:

- Market liquidity
- Market transparency
- Market professionalism of the buy/sell side
- Trade confirmation process

This process helps the committees to identify at an early stage cyclical and structural matters that may need to be managed by the market and provides an ongoing assessment of professionalism exhibited by traders in the market as a whole. Thus, both the committees and MGC are better placed to assess the quality of the market on an ongoing basis and then respond to any matters that require attention.

The MGC advises the Board of material developments in relation to the quarterly reports covering the various markets, including BBSW. In addition, any issues ranked as being of

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significant concerns would be identified to the Reserve Bank as part of ongoing liaison with the bank.

Procedure to review a BBSW rate set

The BBSW Market Conventions includes procedures to determine the relevant BBSW rate for any day, should that BBSW rate set be materially incorrect for reasons other than contribution variances.

Any AFMA Financial Markets Member can request a review of a BBSW rate set if it believes that the rate set is materially incorrect for reasons other than contribution variances. The reasons for a perceived error may include, but are not restricted to, errors such as a failure/error in the BBSW calculation mechanism and the publication and display of incorrect maturity dates.

A request to review a BBSW rate set must be lodged by telephone to the offices of AFMA by 10:30am Sydney time on the day of the disputed rate set and evidenced by a following email together with any supporting documentation. Two or more requests to review must be received by AFMA before an investigation is initiated.

AFMA's Secretariat will investigate the accuracy of the rate set republish and display the modified BBSW rate by 11:10am on that day and that republished rate will be the relevant BBSW rate for that day.

Procedures for handling BBSW complaints

The BBSW Convention includes a process to receive and manage complaints about a BBSW rate set. All complaints are to be in writing and preferably with rate evidence. Complaints should be received by AFMA within two business days of the event. Complaints where the complainant is anonymous or where a reported organisation is not named cannot be effectively processed.

AFMA will normally contact the reported organisation and request that the organisation investigate the report and submit a written response to the BBSW Committee within seven days. The BBSW Committee will discuss and evaluate data and relevant information to determine what further action, if any, is to be taken.

Should no response be received in the time requested, or the BBSW Committee believe further action is warranted, then all relevant information will be forwarded to the AFMA Market Governance Committee for its consideration.

General procedures for handling inappropriate market behaviours

The institutional OTC markets work efficiently because industry participants generally observe the market conventions and trading protocols developed by the market through AFMA. Firms and individuals may from time to time raise matters of concern in relation to

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behaviours in the OTC market (including those related to BBSW) or a matter related to a benchmark rate compilation. While AFMA's OTC conventions are adopted voluntarily by market participants, the market expects firms to trade in accordance with them for normal business and applies peer pressure to promote this outcome.

AFMA has adopted a procedure to guide its management of concerns raised by members in this regard. For example, if a market participant fails to observe the market settlement protocols in relation to transactions in Prime Bank paper, there is a defined process through which this matter will be dealt with by AFMA, including by contact with the firm, its compliance officers and senior management.

This is complementary but separate to the process outlined above to deal with a request for a recalculation of BBSW rates on a given day, which has its own procedures given the significance of any recalculation to the market and the associated time constraints.

It is relevant to note that in relation to matters that may involve a breach of the law, firms who identify an issue in the OTC markets may have reporting obligations under the *Anti-Money Laundering and Counter-Terrorism Financing Act 2006* (AML/CTF Act) and *the Financial Transaction Reports Act 1988* (FTR Act) which require reporting of matters directly to AUSTRAC which is the Australian Government's anti-money laundering and counter-terrorism financing regulator and specialist financial intelligence unit. AUSTRAC in turn has a statutory obligation to report information to the market regulator, ASIC.

2.6. Operational risk management

There are two key areas of operational risk in the production of BBSW – the non-delivery of BBSW rates at the specified time and incorrect rates being published. These risks are recognised in the AFMA management process for data services and are mitigated as follows:

- A disaster recovery plan is in place and is tested twice a year and after any network or development changes take place on the host's operating systems. A summary of incidents and the reviewed plan is presented annually to the Audit & Risk Committee;
- A full Disaster Recovery Site backup is available for all relevant systems;
- Help desk support is available 24 hours via the hosting service's Singapore office and local IT support out of their Sydney office;
- An internal AFMAdata Committee meets monthly to consider operational issues relating to the production of AFMAdata, including the BBSW rates;
- A log of all issues that arise in the administration and publication of BBSW is maintained. It is reviewed by the AFMAdata Committee to determine whether any remedial/preventative actions are required. These are reported to the BBSW Committee and, if the event is significant, to MGC.

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Abbreviations

ACCC	The Australian Competition and Consumer Commission.
BBSW	The AFMA published bank bill swap rate.
ASIC	The Australian Securities and Investments Commission.
AUSTRAC	The Australian Transaction Reports and Analysis Centre. The Australian Government's anti-money laundering and counter-terrorism financing regulator and specialist financial intelligence unit.
BABs	Bank Accepted Bills. These are one of the two instruments traded in the interbank market that underpin BBSW (see also NCD).
EBF	European Banking Federation.
GFC	Global Financial Crisis.
IOSCO	International Organisation of Securities Commissions.
Libor	The London Interbank Offered Rate. A benchmark rate that gives an indication of the average rate at which a contributor bank can obtain unsecured funding in the interbank market.
MGC	AFMA's Market Governance Committee. This has oversight of the self-management of many Australian OTC markets.
NCD	Negotiable Certificates of Deposit. These are one of the two instruments traded in the interbank market that underpins BBSW (see also BAB).
NTI	AFMA's Negotiable and Transferable Instruments Committee.
OIS	Overnight Index Swap. This may refer to the listed market for overnight index swaps or the new 10am benchmark reported rate published by AFMA.
OTC	Over The Counter. Trades executed directly between parties and not through an exchange.
RBA	The Reserve Bank of Australia.
Wheatley Review	The Wheatley Review of LIBOR: final report.

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Annex 1 - Summary of Differences to Libor

As outlined in this Guide there are significant differences between the structure of BBSW and Libor. The following list outlines some key differences and their implications.

- BBSW is based on an actively traded single market for each tenor that is visible to all participants. Libor relies on a reported estimate what each bank believes it could receive. As a consequence risks in relation to BBSW are less around submission as they are in relation to Libor. Conversely, were an underlying market to be manipulated (and this is illegal under Australian law) this has more implications for rates that rely on an underlying market than for an estimated rate.
- As a result of its Prime Bank quotation structure, BBSW takes 14 data samples for each rate that is calculated (as a trimmed mean) and published, whereas Libor takes one data sample for each of the up to 18 rates it tries to determine. Libor then publishes a trimmed mean of the up to 18 rates. Statistically these are very different processes and outcomes. This distinction results in the spread of accepted rates for BBSW being within 1 basis point around 98 per cent of the time over 2012.
- The averaging process in BBSW allows for netting of any residual bias in the accepted submissions. In Libor the averaging process may not have the same effect.
- BBSW uses a category of 'Prime Banks' whose paper trades homogenously by convention as the basis for quotation. This significantly reduces incentives to misreport as there is not the same potential for changes in the rate to be seen as an indicator of a particular bank's creditworthiness.[12]
- AFMA membership is wider than banks, extending to all types of market participants. Committees overseeing BBSW include investment firms, brokers, a state Treasury Corporation, an energy retailer and the Reserve Bank of Australia as an Observer.
- It is open for non-bank members (including asset managers) to become panellists through the election process. There is no requirement that panellists be banks.
- The role of the rate administrator is significantly different as a result of the difference in structure – for example, anomalous submissions are more apparent when a single type of paper is being quoted with 14 data samples and this facilitates their ready and more systematised identification of outliers and reduces opportunity for estimating trends in individual contributions.
- BBSW has performed well historically, including during the GFC, and this view is supported by industry feedback.

[12] *Wheatley* at A.7 discounts the potential for a category of 'Prime Banks' to add to objectivity but homogeneous trading in the AFMA BBSW experience suggests it can work effectively if it incorporates clearly defined criteria (with monitoring), an election process and supporting market conventions.

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