The following is an extract taken from the Australian Office of Financial Management's (AOFM's) 2010-11 Annual Report.

Readers should be aware that the strategies and conclusions presented may no longer reflect the current debt management practises used by the AOFM.

A HISTORY OF TREASURY BOND TENDERS AND PERFORMANCE

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Introduction

The Australian Government first introduced competitive price tenders for Treasury Bonds in August 1982. The key feature of this approach is that the issuer sets the volume of securities issued while the market determines the issuance yield. The bids at tender provide a snapshot of the demand for securities and a number of metrics are available for assessing tender performance.

The reasons for moving to a tender system and trends in tender activity over the last thirty years provide an historical context for reviewing the performance of tenders. Historical trends provide a context for assessing tender results since the onset of the global financial crisis.

Debt issuance before the introduction of tenders

Prior to tenders, the Australian Government borrowed through individual cash loans and a more flexible continuous offer mechanism known as the TAP system. Under these arrangements the Government set the yield and the market would determine how much was purchased.

The financial environment in which the TAP system operated was very different to that of today. At the heart of the financial system was a banking sector that was heavily regulated. There were quantitative restrictions on lending and assets, restrictions on financial products that could be offered by different types of institutions, and restrictions on the terms and conditions of financial products such as tenor, size and yields. Controls[1] on the proportion of bank balance sheets to be held in quality assets created a captive market for government debt issuance. Operating in parallel was a largely unregulated non-bank financial intermediary (NBFI) sector. The exchange rate was essentially fixed, but was subject to periodic change. Capital controls were also in place.

1 Trading banks were subject to the Liquid Government Securities (LGS) convention that was eventually replaced by a Prime Assets Ratio (PAR) in May 1985. Savings banks were subject to a Prescribed Assets Ratio and Liquid Assets Ratio, which were replaced by a Reserve Assets Ratio in August 1982. The removal of the distinction between trading and savings banks in December 1989 brought all banks under the PAR. The PAR was subsequently reduced and eventually abolished in 1999.

These regulations made the banking sector less competitive compared with the NBFI sector, with the latter experiencing rapid growth. Growth of the unregulated sector undermined the ability to implement effective monetary policy.

Financial deregulation in Australia took place gradually over the 1970s and 1980s. The removal of interest rate ceilings on bank deposits began in December 1980, while all other controls on tenors and size were abolished in August 1984. Most remaining ceilings on other bank interest rates (including lending) were removed in April 1985.[2] Reserve ratios on the banking sector were reduced throughout the 1970s and 1980s.

Under the TAP system there was considerable uncertainty as to whether the Government's financing needs would be met by the financial market. The Government had the capacity to fund shortfalls by issuing Public Treasury Bills[3] to the RBA. This potential for monetising debt was both unlimited and unpredictable which reduced the effectiveness of monetary policy and tied debt management to monetary policy.[4]

The TAP mechanism was not sustainable with increasingly flexible interest rates. As a result, a tender system was first adopted for short-term Treasury Notes in December 1979 and for Treasury Bonds in August 1982. The move to a tender approach supported the Government moving to fully funding its Budget without recourse to central bank financing.[5] This effectively separated monetary policy from debt management.

The adoption of tenders for debt issuance was critical in freeing up the key risk-free market yield in the economy. This proved essential for the financial innovation that was to occur in the financial markets in the following years.

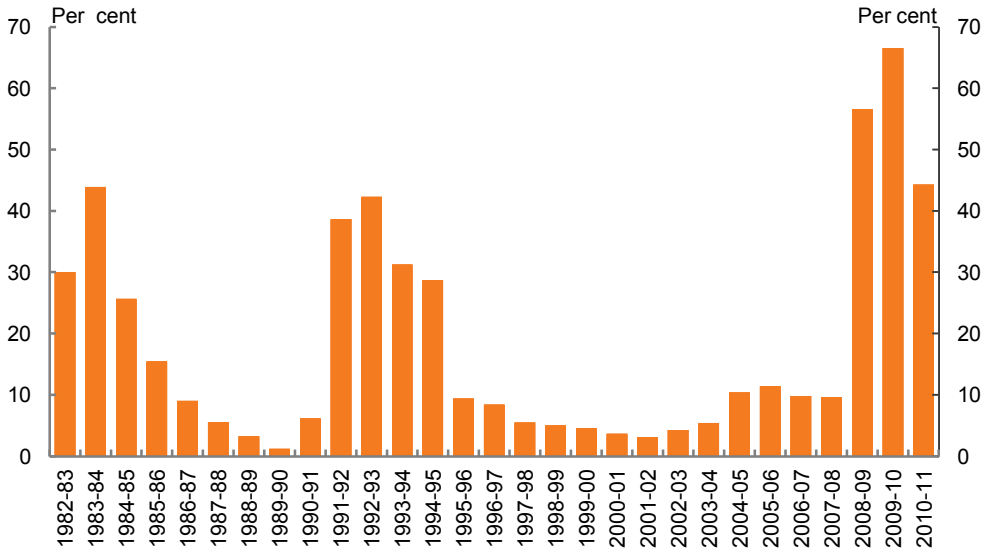
Tender activity

The volume of Treasury Bonds issued through tenders on a yearly basis and expressed as a proportion of the outstanding stock of Treasury Bonds at the start of each year, is

2 With the exception of the 13.5 per cent cap on owner-occupier housing loans under $100,000 which was removed for new loans in April 1986.
3 At a concessionary 1 per cent interest rate below market interest rates.
4 For example, if the RBA attempted to tighten monetary conditions and the Government did not also raise interest rates at TAP, then market demand for the bonds would be weak and the RBA would end up monetising the debt defeating the initial monetary policy intent.
5 This was formalised by agreement between the RBA and Treasury in 1986. A short-term overdraft facility at the RBA remains, however, protocols are that this is only used in unforseen circumstances, for short periods until the next tender and the Government is charged a penalty commercial overdraft rate for it use.

shown in Chart 1. The tender data includes bond issuance undertaken by the Commonwealth on behalf of the States and Territories up until 1990.[6]

Chart 1: Treasury Bond tender volumes relative to market size



The early years: August 1982 to July 1989

In these early years, the tender system was required to issue yearly volumes that were 30 to 40 per cent of the size of the Treasury Bond market at that time. The market was relatively illiquid and secondary market prices could change sharply in response to tender volumes and seasonal liquidity factors.

Issuance tended to be in a series of one-off issues into new stocks at a particular maturity date with a coupon at prevailing market rates. This more or less continued the issuance pattern that had arisen under the TAP system. By June 1985, there were 125 individual bond lines along a yield curve extending to 20 years.

In the latter half of the 1980s, tender activity was reduced as the budget position gradually returned to surplus. In order to promote domestic liquidity foreign currency debt was actively reduced through exercising early call options and undertaking market repurchases. This permitted greater Treasury Bond issuance than would have otherwise been the case. Secondly, debt managers commenced a benchmark line strategy which involved directing issuance into a smaller number of bond lines to

6 The Commonwealth ceased funding the States' new money requirements in 1984 but continued refinancing maturities of Treasury Bonds issued on their behalf until 1990.

build up their volume. Thirdly, additional issuance into these new benchmark lines funded the early redemption of other illiquid stocks (through the RBA).

By June 1990 the number of individual bond lines had been reduced to 74, with a yield curve extending to 15 years. Around 55 per cent of Treasury Bonds were in the 'more liquid' benchmark lines.

Return to the market: April 1991 to June 1995

As a result of the recession in the early 1990s, the Commonwealth returned to the market to fund the budget task. Tender activity at this time constituted around 30 to 40 per cent of the market size and provided a significant boost to liquidity. The strategy of issuing into deep liquid benchmark bond lines continued. By June 1995 the number of bond lines had been reduced to 52 with a yield curve extending to 12 years. Around 95 per cent of the stock was now in liquid benchmark bond lines.

A declining market: July 1995 to June 2003

Throughout the late 1990s the stock of Treasury Bonds declined and tender activity fell to levels below the volume of maturing bonds. Tender activity focussed on new long-term bond lines in order to maintain a Treasury Bond curve with a tenor of 12-13 years. To further consolidate liquidity, the AOFM[7] undertook a small number of conversion tenders in which some of the less actively traded benchmark lines[8] were exchanged for new stocks.

Other Commonwealth securities were discontinued in order to maintain liquidity in Treasury Bonds. The Treasury Adjustable Rate Bonds maturing in 1998 and 2000 were not replaced with new lines and issuance into Treasury Indexed Bonds stopped in early 2003. Issuance of Treasury Notes discontinued in 2003, as assets in the form of term deposits with the RBA became the main cash management tool.

By June 2003, the number of individual Treasury Bond lines had declined to 17, spread across a yield curve extending out to 12 years with over 99 per cent of these bonds in deep liquid benchmark lines.

Maintaining the market: July 2003 to January 2009

The then Government made a policy decision in 2003 to maintain a market for Treasury Bonds having considered the need for it to be maintained against the possibility of future borrowing requirements. This was compared against the potential

7 The AOFM came into existence on 1 July 1999 and took over debt issuance and management previously undertaken by the Treasury.

8 In particular, the 10 per cent February 2006 and 10 per cent October 2007 bond lines.

costs of re-establishing the market in the future. It also considered the broader benefits of the CGS market for the efficient functioning of Australian financial markets. Primarily because of these broader benefits, the focus became one of supporting the continued operation of the Treasury Bond futures market.

The periodic issuing and building of volume quickly in new 5 and 13 year benchmark Treasury Bond lines, with a target of $5 billion per line, became the practice. These lines would be available to enter the underlying bond baskets for the 3 and 10 year bond futures contracts. The Treasury Bond program was capped by the level of bond maturities[9] at this time which meant the Treasury Bond market remained at about $50-$55 billion outstanding.

In addition, a Stock Lending Facility was created in 2004 to provide market participants with access to Treasury Bonds when stocks became short in the physical market. This provided a temporary access to stock that was tightly held and unavailable from elsewhere in the market. Participants were required to post other CGS as collateral and the use of the facility was at a penalty rate.

Notwithstanding these policies, some signs of illiquidity in the Treasury Bond market had begun to emerge by 2008. In particular, some significant and persistent divergence between bond futures and the pricing of the physical stock underpinning the baskets had emerged and there were more frequent instances of individual Treasury Bond stocks becoming very tight in the repo market. These developments risked reducing the effectiveness of the bond futures market.

To address these issues, the Government took the decision to boost liquidity in the Treasury Bond market through additional issuance and to widen the range of securities eligible as collateral for the Stock Lending Facility. In July 2008, additional tenders commenced, including: switch tenders where Treasury Bonds were exchanged for other non Commonwealth Securities, for bond lines showing signs of tightness in the market, as well as for new bond lines.

Return to the market: February 2009 to June 2011

Tender activity increased substantially in February 2009 as the impacts of the global financial crisis began to hit Australia. Tender activity was rapidly increased with twice weekly tenders of $500-$700 million per tender of Treasury Bonds. It also decided to immediately re-establish the Treasury Note market to provide for short-term financing options. In October 2009 the Treasury Indexed Bond market was re-opened to diversify the investor base.

9 The legal authority to borrow was limited to financing maturities.

Trends in tender performance

The previous section highlights that there have been considerable variations in tender activity since the tender approach was adopted in 1982. This section examines the performance of these Treasury Bond tenders using common tender assessment metrics as well as some alternate measures.

With tenders, bids are ranked from lowest to highest yield[10] and stock is allocated to bidders in this order until the announced tender volume is met. Under a multiple price auction approach the successful bidders then buy the bonds at the yield they have bid.

The volume of securities sold provides little insight into the performance of tenders other than in the rare cases of uncovered tenders where investors are not prepared to make sufficient bids *at any price* to clear the tender.[11]

Range of accepted bids at tender and the spread between the tender yield and the secondary market

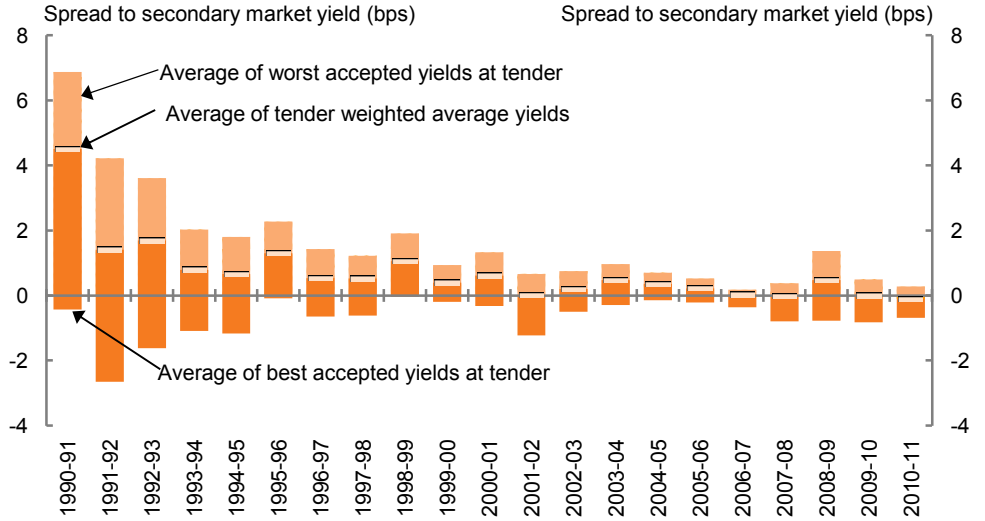
The range of accepted bids or the difference between the best and worst yields accepted at a tender is a commonly used measure of tender performance. A narrower range is considered to reflect stronger demand. A wider range can reflect a lack of demand and possibly uncertainty in the market around where pricing levels should lie.

Another commonly used measure of tender performance is the spread between the weighted average tender yield and the prevailing secondary market yield. Generally it is expected that the yield at tender will be close to that prevailing in the secondary market. This can be affected by the efficiency and liquidity of the secondary market and the size of tenders compared to normal secondary market parcels. A measure of spread abstracts from the general level of interest rates, which are influenced by broader economic conditions and allows for tender comparisons over time.

Chart 2 shows the tender weighted average yield expressed as a spread to the prevailing secondary market yield at the time of the tender. It also shows the best and worst accepted bids. For each year there is a weighted average, by tender volumes, of the respective tender figures in that year. The average range of accepted bids is reflected by the height of the columns in the chart. The light coloured bars show where the average tender yield sat within the range of accepted bids.

10 Equivalently ordered from the highest to lowest price bid.
11 This occurred in some United Kingdom Gilt auctions in 2009 and 1995.

Chart 2: Range of accepted bids and spread of tender yields to market



The chart shows a general compression in the range of accepted bids at tenders (hereafter 'range accepted') and a narrowing in the spread of tender yields to the secondary market yield (hereafter 'tender spreads') over the years. There are, however, fluctuations from year-to-year.

The range accepted was very wide in the early tender years, averaging around 30 basis points in the 1980s. This dropped to around 8 basis points towards the end of the decade.[12] The range accepted (during a period of increased tender activity) remained relatively wide at around 5-7 basis points between 1990-91 and 1992-93, but narrowed to around 2-3 basis points between 1993-94 and 1994-95. Tender spreads were initially wide (2-4 basis points), when issuance recommenced after an absence of almost two years, but improved to under 1 basis point. This probably reflected the increased liquidity associated with a greater volume on issue and the adoption of the strategy of building benchmark Treasury Bond lines.

Notwithstanding the lower tender activity during 1995 — 2003 and a reduction in the size of the Treasury Bond market, the range covered and tender spreads continued to improve. During this period the range accepted averaged around 1.9 basis points and tender spreads averaged around 0.7 basis points. This may have reflected the relative scarcity of new bond issuance in a market that was still quite liquid. Also the move to full electronic bidding at tenders and a substantial reduction in the time taken to inform the market of tender results, along with the growth of the bond futures market,

12 The range of accepted bids could not be displayed in the spread form used in the chart for the 1980s because prevailing secondary market yield data are not available prior to 1991.

may have assisted market participants in managing the risks of bidding at tenders. This would also have contributed to better outcomes.

Following the decision in 2003 to maintain the CGS market, there was a further improvement in the range accepted and tender spread results which continued through to 2007. The range accepted narrowed to 0.8 basis points on average and the tender spread narrowed further to 0.2 basis points. This was at least partly attributable to the greater certainty about the future of the market and the focus on boosting liquidity through targeted tenders and the availability of a stock lending facility.

Tender results weakened in 2008 as the effects of the global financial crisis on liquidity created dislocation in the financial system. There was some loss of liquidity in the Treasury Bond market notwithstanding the increase in demand for CGS as part of a 'flight to quality' response. However, this was minor compared with the loss of liquidity in the money, derivatives and securitisation markets at the time. The range of accepted bids widened to around 1.9 basis points and the tender spread widened to 0.8 basis points (it had been close to zero in 2007).

Notwithstanding the significant increase in tender activity in 2009, the range of accepted bids and tender spreads held at the wider levels that had emerged in 2008. In 2008-09 the range of accepted bids (around 2 basis points) and tender spreads (around 0.5 basis points) were wider than they had been for over a decade; although considerably better than in the early 1990s (4.4 basis points and 1.2 basis points respectively) when tender activity had similarly increased.

Tender results again improved in 2009-10 and 2010-11. The range of accepted bids contracted to 1.3 and 1.0 basis point over these two years returning to levels seen in the mid 2000s, but not quite as strong as the levels just prior to the onset of the global financial crisis. Remarkably, tender spreads tightened to under market mid rates in 2009-10 and 2010-11. In fact, the average tender spread in 2010-11 was better than any prior year since bond tenders commenced.

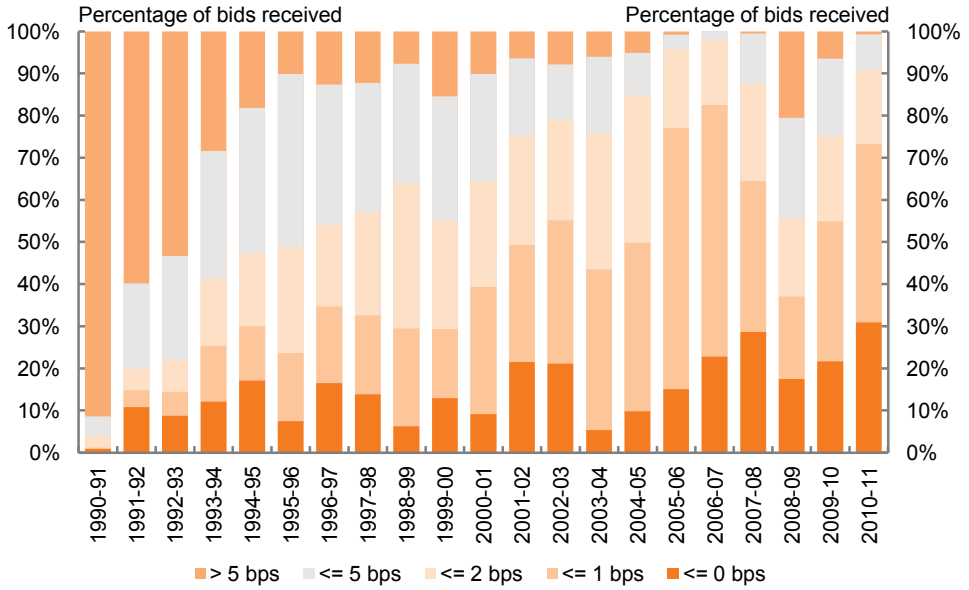
Distribution of bids at tender

Yet another way of viewing tender performance is to analyse the distribution of tender bids including those bids that were not accepted (the 'tender tails'). Generally, stronger tenders are expected to have a tighter distribution without long tails of uncompetitive bids. Uncompetitive bids may not be accepted in tenders, but could signal something about the depth of market demand for securities, which could be relevant in circumstances where financing had to be quickly increased.

Chart 3 shows the proportion of bids received at different pricing levels expressed as spreads to the prevailing secondary market yield at the time of the tender. In the

Treasury Bond market, there is normally a trading spread of 2 basis points between the bid and offer rates — translating to a bid rate of 1 basis point above the mid rate. Given tender volumes are for amounts greater than standard market parcels, a bid that is 2 basis points wider (or better) than the mid rate could be viewed as a quality bid.

Chart 3: Composition of bids received at tenders relative to prevailing secondary market yields



The chart shows that the proportion of bids at stronger pricing levels has improved significantly since the early 1990s. The proportion of quality bids broadly increased most years, reaching a peak in 2006-07 at around 98 per cent of all bids. The quality of the bids received at tender started to deteriorate with the onset of the global financial crisis in 2008 and with increased tender activity from the start of 2009. The proportion fell back to 87.5 and 55.6 per cent in 2007-08 and 2008-09 respectively, but subsequently rebounded strongly in 2009-10 and 2010-11. Since tender activity increased in early 2009, around 78.2 per cent of tender bids have been within 2 basis points or better of market mid rates. These results compare favourably with the experience of the early 1990s where quality bids on average made up only about 31 per cent of the bids received.

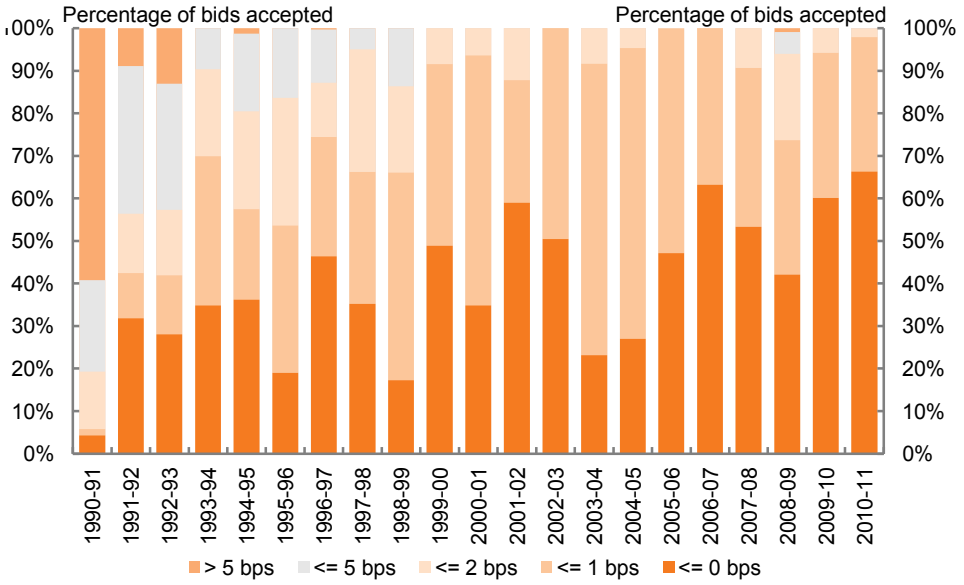
Another way of assessing the depth of the market is to calculate how much the average tender spread would have increased, if the tender volumes had been higher and as a result more of these tail bids had been accepted. This counterfactual requires the somewhat heroic assumption that tender bids (in terms of volume and price) would not have changed if higher tender volumes had been announced and on this basis is

not a useful predictor of the future. Nonetheless, it may be indicative of the comparative state of general demand for Treasury Bonds between different periods.

Since early 2009 when tender volumes were increased in response to the global financial crisis, doubling the bids accepted could have increased average tender spreads by 0.5 basis points. A comparable calculation for the early 1990s period indicated a rise in average tender spreads of around 3 basis points.

Chart 4 shows the distribution for bids accepted at tender only. This chart shows, notwithstanding deterioration in the quality of demand following the global financial crisis, that many of the lower quality bids were not required. A very small proportion of bids greater than 2 basis points away from the secondary market yield in 2008-09 were picked up, but this was quickly reversed in 2009-10 and 2010-11.

Chart 4: Composition of bids accepted at tenders relative to prevailing secondary market yields



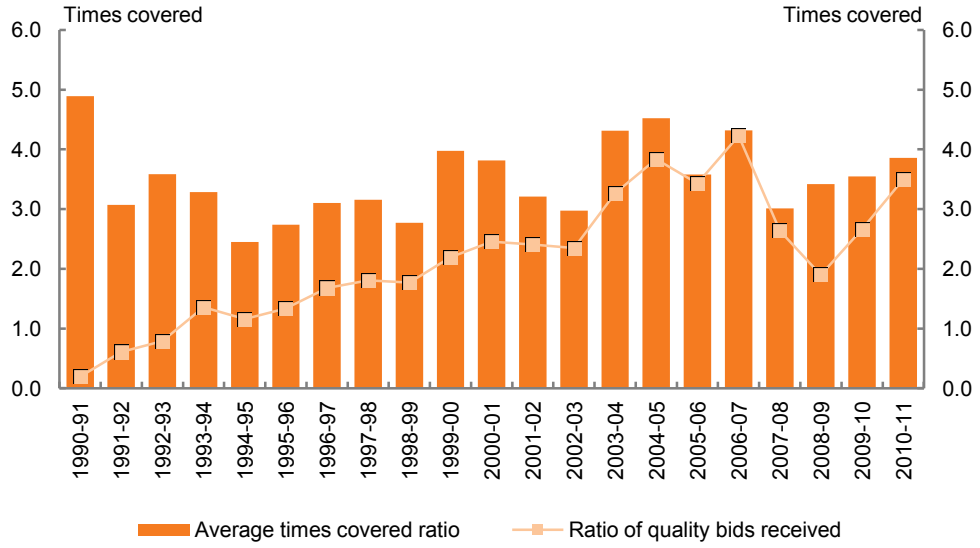
Times covered ratio at tender

Another commonly used measure of tender performance is the tender times covered ratio. This is defined as the volume of all bids received divided by the volume of bids accepted at tender. It is usually interpreted, rather simplistically, as how much more (proportionately) could have been issued at tender. This also has very limited usefulness as a predictive indicator because it is not clear bidding behaviour is completely independent of the pre-announced volume for tender. However, a

coverage ratio less than one indicates that an issuer will fail to meet its tender objective.

Chart 5 shows the average coverage ratio achieved at tenders back to 1990-91. In the 1980s, the average was around 2.7; in the 1990s and early 2000s the average was around 3.1, improving further to an average of around 4.0 after 2003 but prior to the global financial crisis. During 2008 it dropped to an average of 3.0 but has picked up to average 3.7 since early 2009.

Chart 5: Times covered at tenders



Note: The ratio of quality bids received is defined as the bids with a spread to the market mid rate 2 basis points or better, divided by the volume of accepted bids.

The tender times covered ratio does not distinguish between the quality of the bids received and a high cover ratio may disguise bids that are quite unattractive to the issuer. It therefore is a relatively blunt indicator of the strength of market demand at tenders.

Accordingly, Chart 5 also shows a modified coverage ratio, which takes into account the quality of the bids received. It is defined as the ratio of quality bids received (those with a spread to the market mid rate 2 basis points or better) divided by the volume of accepted bids. Note a ratio less than one does not indicate a failure to cover a tender on this modified measure.

The chart shows a steady improvement in coverage by quality bids over the period since the early 1990s. It declined following the onset of the global financial crisis. It has recovered strongly since 2008-09 to be close to peak levels seen prior to the crisis.

Conclusion

The move to a tender system was a critical component of financial deregulation in the 1980s. The move to a tender system along with the floating of the exchange rate was a necessary condition for there to be an effective and independent control of monetary policy. It was also a necessary condition for financial innovation and the development of Australian financial markets to provide an efficient mechanism for pricing and transferring risk.

Australian governments, the AOFM and Treasury have attempted to support the efficiency of the Treasury Bond market through their debt management policy, strategies and operations. The tender system has provided a very effective system for financing fiscal policy and has met the challenge of raising significant funds over the last thirty years. Tender performance has steadily improved over time, mirroring the increasing depth and efficiency of the Australian financial market.

There does not seem to be any one particular factor that has, over time, lead to an improved quality of tender outcomes (in terms of price and stronger demand). However, it is reasonable to suggest that a focus on supporting liquidity (whatever the overall size of the CGS market at the time), improved efficiency of financial markets (through a number of reforms), greater transparency and predictability in tender activity, and improvements in the tender process (and more particularly the speed with which results are known to bidders) have all contributed positively to reducing the Government's costs of financing. They suggest that should it be required, the Government will have ready access to markets without experiencing fiscal dislocation.

Tender performance during the global financial crisis weakened initially but rebounded strongly and has performed considerably better than it did in a comparable period in the early 1990s.

Table 1: Historical bond tender results 1982-83 to 2010-11

Period	Tender volumes		Tender performance					
	Amount accepted ($ million)	Amount bid ($ million)	Range of accepted bids (basis points)	Weighted average yield spread to market (basis points)	Share of quality bids* received (per cent)	Share of quality bids* accepted (per cent)	Times covered total	Times covered by quality bids*
1982-83	5,594	12,917	50.2	..	..	..	2.3	..
1983-84	9,554	30,683	45.4	..	..	..	3.2	..
1984-85	7,550	17,255	17.9	..	..	..	2.3	..
1985-86	5,504	14,435	17.9	..	..	..	2.6	..
1986-87	3,402	7,857	13.8	..	..	..	2.3	..
1987-88	2,201	6,384	7.8	..	..	..	2.9	..
1988-89	1,200	3,859	8.5	..	..	..	3.2	..
1989-90	400	638	56.3	..	..	..	1.6	..
1990-91	2,000	9,784	7.3	4.5	3.9	19.3	4.9	0.2
1991-92	11,995	36,801	6.9	1.4	19.9	56.4	3.1	0.6
1992-93	16,591	59,488	5.2	1.7	22.0	57.3	3.6	0.8
1993-94	16,693	54,838	3.1	0.8	41.2	90.3	3.3	1.4
1994-95	19,293	47,198	3.0	0.7	47.3	80.4	2.4	1.2
1995-96	7,599	20,786	2.4	1.3	48.7	83.6	2.7	1.3
1996-97	6,814	21,122	2.1	0.5	54.1	87.1	3.1	1.7
1997-98	4,504	14,221	1.8	0.5	57.1	95.0	3.2	1.8
1998-99	3,696	10,241	1.9	1.1	63.9	86.4	2.8	1.8
1999-00	3,198	12,718	1.1	0.4	55.1	100.0	4.0	2.2
2000-01	2,303	8,781	1.7	0.6	64.4	100.0	3.8	2.5
2001-02	1,798	5,769	1.9	0.0	75.0	100.0	3.2	2.4
2002-03	2,400	7,138	1.2	0.2	78.9	100.0	3.0	2.3
2003-04	2,998	12,929	1.2	0.5	75.8	100.0	4.3	3.3
2004-05	5,498	24,865	0.8	0.4	84.8	100.0	4.5	3.8

* The ratio of quality bids received is defined as the bids with a spread to the market mid rate of 2 basis points or better, divided by the volume of accepted bids.

Table 1: Historical bond tender results 1982-83 to 2010-11 (continued)

Period	Tender volumes		Tender performance					
	Amount accepted ($ million)	Amount bid ($ million)	Range of accepted bids (basis points)	Weighted average yield spread to market (basis points)	Share of quality bids* received (per cent)	Share of quality bids* accepted (per cent)	Times covered total	Times covered by quality bids*
2005-06	6,099	21,832	0.7	0.2	95.8	100.0	3.6	3.4
2006-07	5,199	22,438	0.5	0.0	98.0	100.0	4.3	4.2
2007-08	5,002	15,060	1.2	0.0	87.5	100.0	3.0	2.6
2008-09	30,799	105,221	2.1	0.5	55.6	94.0	3.4	1.9
2009-10	52,151	184,876	1.3	0.0	75.1	100.0	3.5	2.7
2010-11	55,190	212,823	1.0	-0.1	90.7	99.9	3.9	3.5
Aug 82 to Jul 89	35,405	94,027	29.5	..	..	..	2.7	..
Apr 91 to Jun 95	66,572	208,108	4.4	1.2	31.6	71.0	3.1	1.0
Jul 95 to Jun 03	32,312	100,775	1.9	0.7	58.4	91.2	3.1	1.8
Jul 03 to Dec 07	23,395	92,881	0.8	0.2	89.9	100.0	4.0	3.6
Jan 08 to Jan 09	6,898	20,593	1.9	0.8	64.7	91.1	3.0	1.9
Feb 09 to Jun 11	132,642	486,569	1.3	0.0	78.2	99.0	3.7	2.9

* The ratio of quality bids received is defined as the bids with a spread to the market mid rate of 2 basis points or better, divided by the volume of accepted bids.