Evaluation of the Bond Buyback Program

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Executive Summary

The Government of Canada announced the bond buyback program on March 30, 1998 and the first buyback took place on December 1 of that year. The objective of the cash buyback program is to maintain liquidity for new bond issues in an environment of fiscal surplus, while retaining bond market transparency. In the fiscal year 1998-1999, the government repurchased $1 billion of bonds and the program has grown to $5.3 billion in bonds being repurchased in 2001-2002.

The program is monitored carefully via an ongoing process of consultation with market participants. Several modifications and improvements have been made since inception. These include:

- Tenders are submitted electronically via CARS rather than faxed.
- Bonds eligible for repurchase are greater in number across a wider maturity band.
- Market risk to participants has been reduced via shortened time between submission of tenders and announcement of results.
- A switch bond buyback program to supplement the cash bond buyback program has been introduced.

This paper provides an evaluation of the bond buyback program. The analysis is both quantitative and qualitative. Quantitative analysis is limited by the available data. Much of the available data was considered carefully in the March 2002 study by Halpern and Rumsey. This paper avoids repeating that work. The qualitative analysis

presented here results from interviews with Canadian bond market participants and from discussions with representatives from debt agencies with bond buyback programs in both Australia and the United Kingdom.

This evaluation concludes that the Canadian bond buyback program is successful and should continue. Evidence indicates that bond market liquidity in the benchmark issues has been enhanced, though market participants believe liquidity in the off-the-run issues targeted by the program has declined. Gravelle links a high degree of market fragmentation with reduced potential for market liquidity in his 1998 Bank of Canada working paper. A bond market characterized by a high degree of fragmentation would have a large number of bond issues outstanding relative to the total amount of outstanding market debt. A smaller number of issues each representing larger amounts of debt would constitute a bond market with a smaller degree of fragmentation. The analysis presented here indicates that Canadian bond market fragmentation has decreased since the inception of the bond buyback program, and attributes at least some of this reduced fragmentation to the program.

The transparency of the program is adequate, and few market participants favour increased transparency. The experiences with bond buyback program transparency in Australia shed little light on the Canadian situation, though those in the UK may be illustrative as that program continues to evolve. The question of the cost of the bond buyback program cannot be answered definitely because of the confidential nature of much of the data. The evidence that is available indicates that the program has been at least economically neutral to the government. Bond buyback representatives from other sovereignties note the political importance of not visibly repurchasing government securities at unfavourable prices.

This evaluation recommends that the government exercise moderately increased care in the choice of bonds eligible for buyback. Some apparently off-the-run and/or illiquid bonds serve other purposes for market participants, and their elimination or reduction in amount outstanding is problematic. It is recommended that the government be alert to and creative toward further opportunities to reduce market risk to participants. Initiatives such as the reduction in time between the auction and the announcement of auction results, and the move toward electronic submission of tenders have been successful and well-received. It is recommended that the Australian public debt evolution be monitored with a view to what may transpire in Canada in a somewhat distant time. The future of debt management in Canada may include interesting questions regarding the decreasing size of the government debt market, and the ongoing ability of the buyback program to sustain liquidity in new issues in a cost-effective manner.

1. Objectives and Scope of the Program

The fundamental debt management objective of the Bank of Canada and the Department of Finance is to raise stable, low-cost funding for the federal government. The strategic objective is to maintain and enhance a well-functioning market for Government of Canada securities.[1] The benefits of a well-functioning capital market are widespread.

In the recent climate of declining rather than growing debt, (and with an anticipated worst case future of stable debt,) the Bank and the Department of Finance have undertaken several initiatives to respond to the evolving debt market in a way that continues to meet their debt management and strategic objectives. New targets for the ratio of long-to-short term debt (i.e. fixed rate to floating rate debt) have been established as conditions change. The 3-year benchmark bond has been eliminated. New larger sizes for benchmark issues have been established. The timing and transparency of the bond auction process has been modified. As the need to issue new debt has decreased, but the goal to establish large size benchmarks has remained, initiatives to retire older, less liquid and high coupon debt early have been implemented. The bond buyback program is one such initiative.

The Department of Finance and the Bank of Canada have an ongoing process of market consultations to ensure the continued well-functioning of the Canadian government bond market. In a study completed in March 2002, Paul Halpern and John Rumsey reviewed

[1] See *Debt Management Strategy*, 2002-03, page 11.

the debt management policies of the Government of Canada.[2] The topics of investigation for that report were broad and concerned the well-functioning of the market for Government of Canada securities. Halpern and Rumsey considered new procedures for stripping and reconstitution of bonds, the bond buyback program, changes in auction procedures and timing, new sizes for benchmarks, new target levels for the ratio of long- to short-term debt (fixed to floating rate debt), all with a view to the improved efficiency of the bond market. This study examines the bond buyback program specifically. We endeavour not to repeat quantitative analysis conducted by Halpern and Rumsey through to the end of 2001 since more recent data extends only through October 2002.

This examination of the bond buyback program begins by reviewing the stated policies objectives of the program. We then consider these objectives in turn and evaluate the impact of the program. Limited quantitative analysis has been conducted. The study by Halpern and Rumsey included considerable quantitative investigation for which there is little new data available. We have conducted extensive qualitative analysis by interviewing Canadian bond market participants as well as representatives of similar bond buyback initiatives in both Australia and the United Kingdom (UK).

2. Review of Policy Objectives

The bond buyback program for Government of Canada securities was announced on March 30, 1998 and the first buyback (on a cash basis)

[2] Halpern, Paul and John Rumsey, "Developing Well-Functioning Canada Bond and Bill Markets – A Review and Assessment of Debt Management Policies of the Government of Canada", March 7, 2002.

took place on December 1, 1998. For the first buyback on a cash basis, five bonds were eligible for repurchase. The criteria for inclusion were that the bonds had to have maturity dates within one year of the recently auctioned five-year bond, could not be among the current or previous two generations of benchmark bonds in the five-year sector, and could not be deliverable into the CF futures contract. $1 billion of bonds were repurchased in the fiscal year 1998-99. The program grew to $3.3 billion in 1999-2000, was at $2.8 billion in 2000-2001 and at $5.3 billion in 2001-2002. The criteria for inclusion have expanded to include more bonds across a wider maturity spectrum, to include some older benchmark bonds and some smaller, older, less-liquid issues. The cash buyback program provides flexibility to manage the net bond program. The government has been able to maintain a larger gross bond program with the buyback program in place than it otherwise would have been able to do. The gross bond program was $37.9 billion in 1998-1999, $46 billion in 1999-2000, $39.9 billion in 2000-2001 and $41.6 billion in 2001-2002.

Under the existing buyback program, illiquid Government of Canada issues are bought on a cash basis (reverse auction) or exchanged. In contrast to the buyback program on a cash basis is the switch buyback program that was piloted in February 2002. In the switch program, less-liquid outstanding bonds are exchanged for new benchmark bonds on a duration neutral basis. Specific bonds are targeted for the switch that fall within a range of maturities related to the maturity of the replacement bond. Offers are submitted on the basis of a yield spread between the target and replacement bonds. The intention is to reduce participants’ market risk and enhance overall participation in the buyback programs.

There have been several modifications to the bond buyback process since its inception, including a movement from faxed[3] to electronic submission of tenders and shortening of the time between submitted tenders and announcement of results. Recent consultations with market participants undertaken by the Bank of Canada reveal that participants are not adverse to small and illiquid bonds being removed from the set of bonds eligible for cash-buyback provided those bonds remain eligible for switch-buyback operations. We consider the change in size and structure of the Government's market debt, and report the opinions of interviewed market participants regarding the choice of targeted bonds.

Liquidity

One of the key goals of the program is to maintain a liquid new bond issue program in a climate of fiscal surplus. Liquidity and measures that are indicative of liquidity are discussed. However, it is not possible to examine the liquidity of the secondary market for Government of Canada issues quantitatively because available data for liquidity measures does not separate out the secondary market. Interviews with market participants reveal much anecdotal evidence regarding perceptions of liquidity in this market. As noted by Halpern and Rumsey, the overall impression of participants is that liquidity in the Canadian government bond market has declined, but that this is not a purely Canadian phenomenon. Participants are of the opinion

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3 Though only one or two submissions were done by fax, the process and its difficulties left a lasting impression on Canadian bond market participants as evidenced by their expressed approval of the movement to electronic submission of tenders.

that liquidity in the benchmark issues has been enhanced by the program.

Economic Neutrality

One of the stated objectives of the bond buyback program is that it should be at least economically neutral. The goal is that the cost of buying back bonds should be no more than that of issuing new bonds. We examine the cost of the program to the government via the Post-Mortem documents reviewing the early bond buybacks prepared by the Bank of Canada. This information is available up to the January 2001 buyback. The views of market participants on the issue of cost to the Government of buybacks differ somewhat and are reported.

Transparency

Sustained transparency of the bond program extends to the bond buyback initiative. The Bank of Canada and the Department of Finance are committed to initiatives that facilitate planning by market participants. All Canadian bond market participants interviewed had an opinion on the transparency of the bond buyback program, though there was no consensus. The experiences in Australia and the United Kingdom (UK) regarding transparency of the bond buybacks are different from each other and from Canada, and shed some light on the ongoing debate regarding the appropriate level of transparency.

This Evaluation

Beyond the stated goals of the Canadian bond buyback program, it would be insightful to know the impact of the program on market prices, and participation. Quantitative analysis of market prices is not readily possible given data limitations. Analysis of changes in market participation over time is not possible since we do not have time series of participants' involvement in auctions and buybacks. We present a limited quantitative picture of market participation, as well as anecdotal evidence resulting from interviews conducted.

We conclude our evaluation of the Government of Canada bond buyback program by discussing areas where the program might be improved, and the views of market participants on whether or not the program should continue.

3. Review of Quantitative and Qualitative Evidence

In this section, we present the results of both quantitative data-reliant investigation and insights gained from interviewing both Canadian bond market participants and representatives of the bond buyback programs in both Australia and the UK. The discussion is separated according to issues and policy objectives identified in the previous section.

Liquidity

Bond market liquidity can be defined by considering aspects of the market such as the speed with which a transaction can be executed, and the size of a transaction that can be executed at a particular price.[4] There is no direct measure of liquidity, but several quantitative calculations indicative of liquidity are commonly employed including the bid-offer spread, the volume of transactions and the turnover ratio. Canadian bond market participants interviewed agreed, for the most part, that the bid-offer spread was inversely related to liquidity.

Several studies in the academic literature suggest avenues of investigation to determine changes in liquidity with the bond buyback program. Of particular interest would be a simulation of what liquidity would have been in the primary Government of Canada bond market without the bond buyback program. Warga (1992) compares the holding period returns of constant duration portfolios constructed from on-the-run US Treasury securities to holding period returns of similarly constructed portfolios comprised of only off-the-run issues. He finds that the portfolios constructed from on-the-run issues have lower returns, and concludes that the greater liquidity of the on-the-run issues is positively priced. We cannot investigate differences in liquidity between on-the-run and off-the-run issues because the data is grouped by maturity sector of the bond, and is not available broken down between on-the-run and off-the-run issues. An earlier study by Sarig and Warga (1989) concluded that a bond's liquidity decreases with its age. The results of these studies are implicitly captured by the buyback policy since the targeted bonds are older, less liquid bonds.

Kalimipalli and Warga (2002) considered the relationship between volatility, volume and bid-offer spreads for actively traded bonds on

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4 Footnote 1, page 7 of Halpern and Rumsey (2002) reiterates and defines the four relevant dimensions of liquidity noted by Gravelle (1998). These are immediacy, depth, width and resiliency.

the NYSE. They concluded that there exists a positive relationship between volatility and observed spreads, and a negative relationship between volume and observed spreads. Most market participants whom we interviewed for this evaluation of the Canadian bond buyback program consider higher trading volume to be synonymous with lower spreads, and are of the opinion that these are standard observed measures indicative of liquidity. The inter-relationships from the Kalimipalli and Warga study are evaluated in the multivariate regressions presented in the Halpern and Rumsey study, and the results there corroborate the findings of Kalimipalli and Warga.

One Canadian bond market participant interviewed attributed the decline in bond market liquidity in Canada to changes in interest rate volatility. The expressed opinion was that intra-day volatilities were much higher 10 years ago than they are now, and that this reduction in volatility was the result of the Bank of Canada's inflation policy. As a result of reduced volatility, bond portfolio managers do not anticipate great reward from pursuing duration-based strategies or strategies that hinge on interest rate fluctuation. Seeking alternative opportunities for returns from fixed income markets, their attention has shifted away from Government of Canada fixed income securities, at least somewhat, and moved into other fixed income areas such as the corporate bond market. This shift in turn contributes further to reduced volumes and liquidity. Indeed, with fewer players in this market, and fewer market makers, those that remain must be compensated for their increased risk and so bid-offer spreads are higher.

Another interviewee, commenting on the decline in relative value opportunities for portfolio managers, was of the opinion that the bond buyback program resulted in a reduction in liquidity of off-the-run bonds. This interviewee believed the program had succeeded in increasing the liquidity in the primary market and in the benchmark bonds. Further, with net supply of bonds being removed from the market, his/her opinion was that there was no improvement in liquidity though also not much deterioration. This participant was loathe to comment on changes in overall bond market liquidity, but rather emphasized that there were very definite changes in different segments of the market – some improvements in liquidity and some deterioration.

To examine the question of whether liquidity in the secondary market has changed over time, an analysis of spreads relative to the theoretical yield curve might be conducted. However, the transparency of the bond program does not extend to the theoretical yield curve model used by the Bank of Canada, and so this avenue is not available. Furthermore, even if it were, it is not immediately obvious how changes in the spread relative to the yield curve that result from the bond buyback program could be distinguished from changes in the relative spread that result from other changes over time in the secondary bond market.

Another approach for examining the impact of the buyback program in the secondary market would be to compare the bid-offer spreads of the bonds eligible for repurchase before and leading up to the buyback. This would convey information only about the liquidity of the bonds eligible for buyback, and not about the bonds left outstanding. However, bid-offer spread data is not available grouped in this way.

Using standard proxies for liquidity such as the bid-offer spread and turnover ratios, we are unable to examine differences in any detail since the data are not available by bond, but rather by bond grouping. These groupings are by maturity sector, and not divided according to benchmark and non-benchmark issues.

Canadian bond market participants interviewed were of the opinion that liquidity of bonds eligible for buyback decreases immediately prior to the buyback. The view was that liquidity of off-the-run bonds targeted for buyback had unambiguously decreased. The explanation proposed was that bond market participants are holding inventory of these bonds in anticipation of the buyback.

Level and Structure of Outstanding Debt

Figure 1 shows the total Government of Canada market debt outstanding each year from 1977-78 to 2001-02. The total Government of Canada outstanding market debt grew from $51,665 million in 1977-78 to a high of $476,852 million in 1996-97 and was only $442,137 million in 2001-02.[5] [6] Net bond issuance for each of 2002-03 and 2003-04 (i.e. after buybacks) was and will be approximately $30 billion.[7] For the fiscal year 2000-01, the total net issues of Canadian dollar marketable bonds was $626 million. For the following year, total net issues were negative $1,478 million. In the

5 Unless otherwise noted, all figures are in nominal Canadian dollars. This data is taken from Reference Table II in the 2001-02 and 2000-01 Debt Management Reports.
6 The decline in Government of Canada market debt reported as a percentage of GDP is very dramatic. The ratio has declined from 57 percent in 1996-97 to 40.5 percent in 2001-02. See page 214 of The Budget Plan 2003.
7 Notice, Tuesday, 18 February, 2003.

current economic environment, the need for net issues is rapidly declining. The Bank of Canada and Department of Finance recently committed to increasing the size of the benchmarks. Large new issue size is justified by the need of market participants for liquidity. Without the buyback program, the primary sovereign Canadian bond market would have been characterized by auctions of smaller size, or by issues of debt for which at least some of the funds were not required.

Figure 1
Government of Canada Outstanding Market Debt

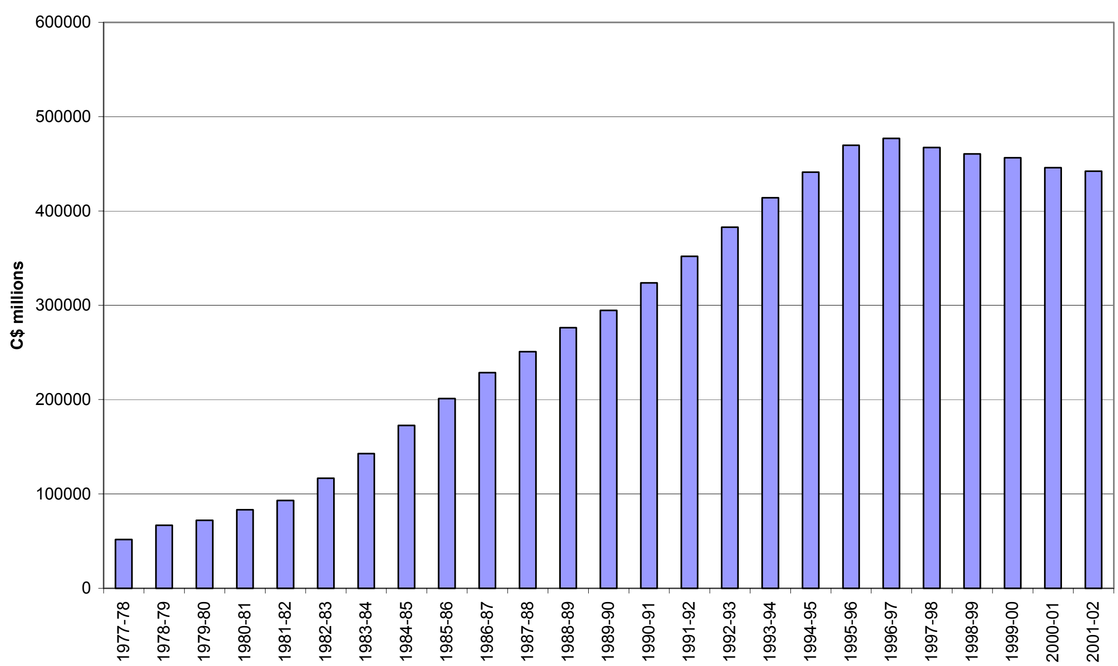
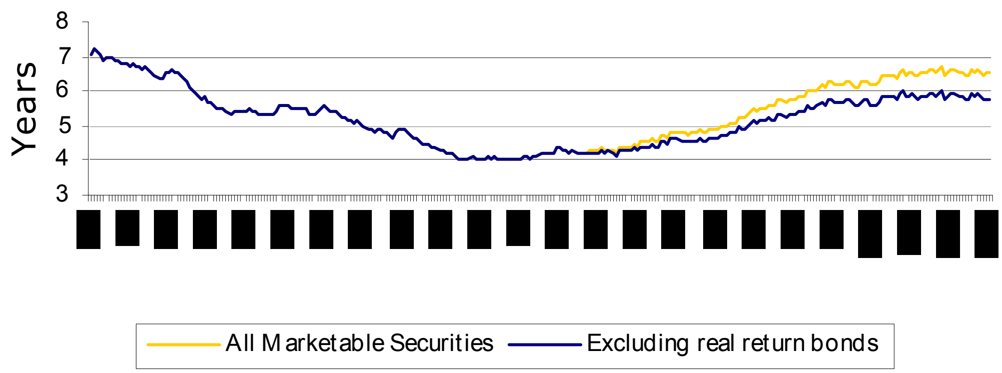


Figure 2 plots the average term to maturity of Government of Canada marketable securities from 1980 through to the beginning of 2003. This decreased from a high of over 7 years in 1980 to a low of 4 years in late 1989 through to late 1991, and is now at about 6.5 years.

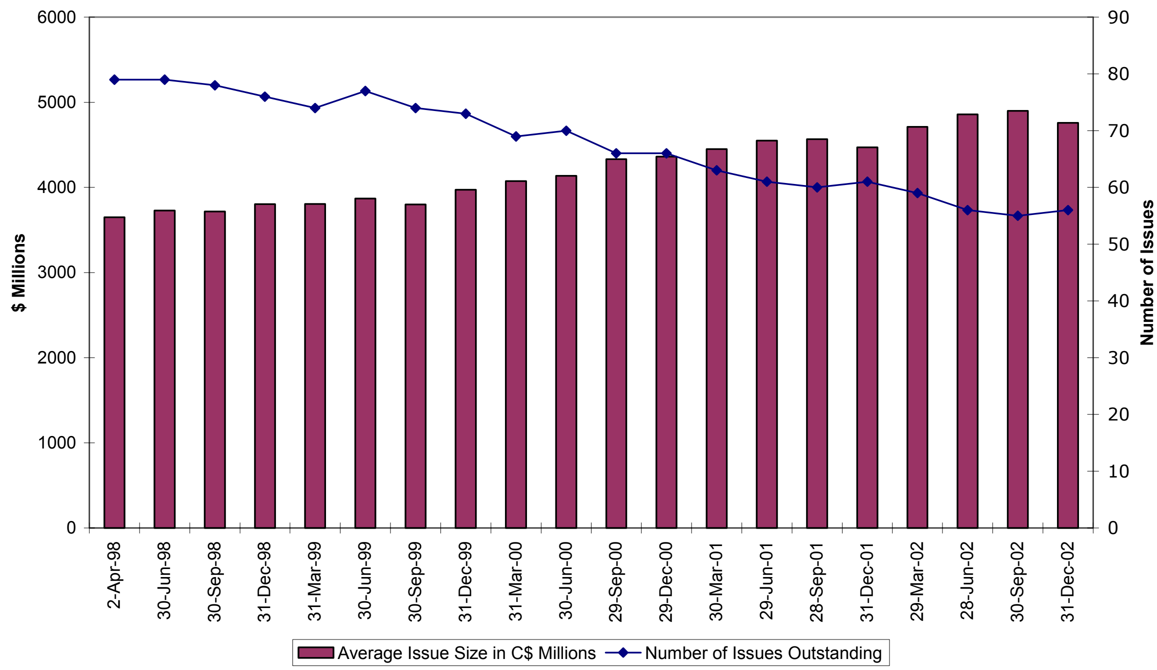
Fixed-rate debt (debt with more than one year to maturity) is typically more expensive in terms of interest rate costs than its short-term alternative. During the 1990s, the Government increased the fixed portion of the federal debt to two-thirds from one half. This achieved cost stability in an era of annual deficits, volatile interest rates, high levels of debt and political uncertainty. In the most recent budget, it was announced that with the changing economic and fiscal environment, the Government will now lower the portion of fixed rate debt in the market debt and so lower debt-servicing costs. The new target is 60 percent.

Figure 2
Average Term to Maturity (Par Value) Gov't of Canada - Marketable Securities



With a commitment to larger benchmark sizes announced in 2000-01, the bond buyback program has been instrumental in permitting benchmark issues to be large even as the need to issue debt is decreasing. As less liquid and older off-the-run bonds are targeted for buyback, the landscape of Government of Canada securities outstanding is changing. The total dollar value of issues outstanding is decreasing and so is the number of issues. Figure 3 plots the number of bonds outstanding in each quarter and the average dollar value of issues outstanding in that quarter.[8] We begin with the first quarter of 1998 (before the first bond buyback) through to the last quarter of 2002.

Figure 3
C$ Marketable Bonds: Average Size in $Millions vs. Number of Issues Outstanding



Combining the information contained in Figure 3 with that in Figure 1 offers a visual dramatization of the debt management situation. As evidenced in Figure 1, the total debt is declining. From Figure 3, the average issue size is increasing. This is in keeping with the policy to have larger targeted benchmark sizes. The number of bonds outstanding is shrinking. In order to have larger average issues, even as the level of debt declines, the situation is managed so that fewer issues are outstanding and those issues can be large.

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[8] This chart is mimicked from the chart contained in a December 14, 2001 presentation of John Grant. His chart extended from 1981 through to 2001 and uses annual observations. The decline in number of issues and increase in average issue size is more dramatically obvious on his chart.

In his 1998 Bank of Canada working paper, Gravelle makes the case that "In an over-the-counter (OTC) dealer market such as a government securities market, secondary market liquidity can be enhanced by minimizing the degree of security fragmentation and by issuing new bonds at a relatively low frequency."[9] Hhe notes that relative to government securities markets in other developed countries, Canada has a relatively high degree of fragmentation. In 1998, there were 79 Government of Canada issues outstanding. He recommends that consolidating the large number of government issues into fewer larger issues would improve liquidity. The fragmentation of the Canadian bond market is gradually being reduced. There are now 56 issues outstanding, and a higher total nominal value of debt outstanding as shown in Figure 3. This reduced fragmentation is the result, at least in part, of the flexibility made possible in the net bond program by the bond buyback program.

Cost of Buyback Program / Cost of Debt

One of the key objectives of the bond buyback program is that it be at least economically neutral to the government. An examination of the Post-Mortem documents compiled after the first bond buyback in December 1998 through to the buyback of January 2001 reveals some information on the cost of the program. For each bond repurchased, an analysis is done of the cost of repurchase relative to the theoretical yield curve – the rich/cheap analysis. For all but the first buyback, these documents report net savings to the Government. This information is not public, nor was it available for this study for dates beyond January 2001.

[9] Page 2, Gravelle (1998).

The cost of the buyback program was raised with Canadian bond market participants interviewed. More than one questioned the goal of buying the bonds eligible for repurchase “cheap” (i.e. cheap relative to the theoretical yield curve) as opposed to buying those bonds to fill the quota set. The point was raised by participants that since the bond being repurchased usually has a higher coupon than one that might be issued to replace it, that even if the price to be paid is not “cheap” it is still sensible to buy it back up to the quota and issue less expensive debt in its place. Participants queried and were puzzled by instances in which the Government had not repurchased up to its set limits.

While discussing the cost of buyback programs with representatives from the UK and Australia, an interesting political point was raised. The feeling was that the Government should only buy back bonds when they were “cheap”, since it would cause a political calamity to buy bonds expensively. The Australian representatives cited an instance where the bond eligible for repurchase had tenders that were all expensive. The Australian Government chose to buy back none rather than take only the expensive tenders submitted by dealers.

<u>Transparency</u>

Opinion regarding transparency in the bond buyback program of the Government of Canada with Canadian bond market participants was far from uniform. All participants interviewed commended the Government for the level of transparency that currently exists. Some wished for increased transparency in the form of revelation of the theoretical yield curve model used by the Government. Others felt it was not necessary to unveil this model. One even indicated that knowing the model would not alter his/her ability to outperform other market participants and the market.

It is difficult to draw definitive conclusions regarding the appropriate level of transparency in a bond buyback program from the experience in Australia or the UK. The UK has maintained a stringent policy with a high level of transparency, including making its yield curve model public. By contrast, Australia's early buyback program was characterized by very low levels of transparency to the extent representatives described the actions of the Reserve Bank of Australia as surreptitious.

The Australian buyback experience has evolved from the early stages during which it purchased outstanding bonds in the market without publicly announcing its intentions, to the most recent experience in which its intentions were announced in advance. The goal is to manage the reduction in the stock of government securities. The early operations had little impact on market prices and were cost effective in the short run. The government targeted unpopular bonds and wished to acquire them as cheaply as possible. Small parcels were acquired over extended periods of time. This approach was not sustainable and gradually became more expensive.

One of the bonds that has been a target for buyback was to mature in February 2006. It had A$4.102 billion outstanding originally. Simultaneous with the decrease in supply of this bond, the government moved toward increased transparency in its buyback operations. In 2001, there was a conversion with advance announcement of the source and destination bond and the maximum volume that would be eligible. Using a multiple price auction system, the tendered yields are ranked and those at the cutoff are prorated. Starting with the February 2006 for this conversion, the price did move in the market. This year, the same bond was the announced target in a repurchase operation with the goal of cleaning up what little was left outstanding. The bids submitted were all below fair value and the government has stepped back from this repurchase and has bought none at tendered yields. The move toward increased transparency in its buyback operations has not been successful in terms of buying back at fair value or inexpensive yields. However, the increased transparency has been simultaneous with an ever shrinking set of bond lines from which to choose as a consequence of seven successive budget surpluses and a government commitment to eliminate debt. The Australian experience with the move toward more transparency in its operations has not been successful, but it is difficult to say whether the lack of success is a function of transparency alone.

Participation

Table 1 shows the level of participation in the nominal Government of Canada bond auctions and in the bond buyback program for different dealers from January 1, 1996 through to October 31, 2002. The most active participants in the bond auctions are not necessarily the most active participants in the bond buyback program.

Table 1: Dealer Participation in Nominal $ Bond Auction and Buyback[10]

Dealer	Nominal $ Bond Auction (%)	Rank	Dealer	Buyback (%)	Rank
c	14.91	1	**c**	85.45	1
F	12.58	3	**A**	5.02	2
D	10.34	4	**F**	3.06	3
A	7.69	5	**I**	1.51	4
M	7.64	6	**M**	1.47	5
B	7.51	7	**H**	1.39	6
H	3.79	10	**E**	0.82	7
E	3.30	11	**B**	0.67	8
I	1.98	14	**D**	0.45	9
L	0.76	16	**L**	0.17	10

The first column of Table 1 identifies the dealer. The second column indicates the percentage of the total nominal Canadian dollar auction captured by that dealer. The third column indicates how the dealer's percentage in the second column ranks relative to the 27 total dealers participating between 1996 and 2002. The fourth column indicates the dealer's percentage in the buyback program, and the last column ranks the dealer's participation in the buyback program of the 10 dealers participating.

Dealer c had the largest single percentage of the total dollar volume in both the nominal bond auction and the buyback program. This represented only just less than 15 percent of the total auction, but over 85 percent of the buybacks. Dealer F ranked third in both the auction and the buyback, but captured over 12 percent of the auction market whereas only a little more than 3 percent of the buyback market. Clearly the level of participation in the auction market during

10 The dealers ranked 2, 8, 9, 12, 13 and 15 in the nominal $ bond auction do not participate in the buyback program.

the period 1996 through 2002 is not useful in predicting participation in the buyback program.

This data does not allow us to investigate changes over time in participation. Neither can we distinguish participation of the dealer on his/her own behalf from participation for a customer.[11]

Conversation with Canadian bond market participants indicates they believe their own participation is decreasing over time. This is in part because the steep portion of the learning curve associated with participation in the buyback program has been crossed, and fewer resources are required to achieve similar results. This is also in part because of more limited profit opportunity in the Government of Canada market as the market shrinks both in total dollar size and in the number of participants.

Improvements

Canadian bond market participants were unanimous in commending the improvements made in the bond buyback program to date. They praised the shortened turnaround time between submission of tender prices and announced results, and the associated reduction in time during which they are exposed to market risk. They commented favourably on the move from faxed submissions to online electronic submissions. They were pleased with innovations such as the bond switch program.

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[11] We do not analyze turnover ratios or volumes here. This analysis was done in Halpern and Rumsey, 2002, and the data has only been updated very slightly since that study.

When asked to comment on possible improvements to the bond buyback program, there were not many suggestions. A few participants wished the Government would reveal its theoretical yield curve model. One participant wished the Government would exercise somewhat more care in selecting bonds eligible for repurchase. The Government seeks to build the benchmark issues. Some bonds appear old, high-coupon or illiquid and become targets for the buyback program. Notwithstanding, they may serve as benchmarks for other purposes, or for mid-points between existing benchmarks to determine points on the yield curve. On at least one occasion, such a bond became eligible for repurchase and the resulting decrease in its outstanding volume has been problematic for market participants because of the useful role it played.

4. Conclusion

Success

When asked if the Government of Canada bond buyback program has been a success, market participants responded in the affirmative, but not with enthusiasm. The prevailing sentiment was that it should continue and that the Government had done a good job, within the constraints that it faces.

Market participants were clear that they believed the Government should continue the bond buyback program. The program does contribute to maintaining and enhancing a well-functioning market for benchmark Government of Canada securities.

The Future

If the current economic and fiscal environment prevail and if non-market debt is not changed to market debt, then the total market debt of the Government of Canada will continue to decrease. Maintaining the size of the benchmark bonds will necessitate further de-fragmentation of the bond market via mechanisms such as the bond buyback program. Taken to its logical conclusion, where does this lead?

The Australian experience offers a glimpse of a possible future. The Government is committed to eliminating the debt, and is nearly there. Australian representatives are managing the reduction in the stock of government securities. There have been surpluses in seven successive budgets. In May 2003, a political decision regarding the complete disappearance of the government debt markets will be made. To date, the experience of its buyback operations in the face of ever-shrinking stock is instructive. With fewer and fewer lines to target, transparency or not, achieving the repurchase at a favourable price and without moving the market price becomes less and less straightforward.

The UK characterizes its buyback operations as evolving. Small amounts of money are involved and buyback operations are employed in response to surpluses. A buyback was first used at the end of the 1980s. The government's net borrowing was negative in 1988-89. In 1998-9 through 2001-02, net borrowing was also negative.[12]

[12] From General Government Net Borrowing in A1 Budget Balances of the Public Sector Finances Databank of the UK.

To a lesser extent, buyback operations are employed on an opportunistic basis when market conditions present an opportunity. One example cited was in response to a dramatically inverted yield curve when it would have been chaotic to have little supply of bonds at the long end.

Conversions and switches are employed in UK debt management on a more ongoing basis and are not restricted to surplus situations. Switches are used to remove small amounts of debt from the market leaving the source bond viable and liquid, and are generally done via market makers. They may also be employed to smooth large index movements. Participation in switches is open only to primary dealers directly. A switch is very close to a normal auction, except that it is not a cash transaction. On the morning of the switch, the Debt Management Office (DMO) announces the price set for the bond that will be replaced. Participants then bid at auction for the bond that will replace the one for which the price has been announced.

Conversions are used to reduce the whole of one stock of debt in a gradual manner. Relatively liquid high coupon older debt is targeted for conversions. Every holder of the target bond has the option to participate in the conversion and exchange the bond he/she holds on set terms, but participation is not compulsory. The conversion process takes approximately three weeks since each bond holder has to be informed of the conversion offer. The market movement during the three weeks between the announcement of the conversion terms and the day of conversion may impact participation, but it is usual for over 90 percent of bondholder (by value) to convert.

One UK representative commented on what it would mean, though, to be in the Australian situation and to allow the government debt market to vanish. His/her opinion was that to allow the market to vanish entirely was to set oneself up for future costs of re-entering the market. These costs would be both in terms of expertise and in terms of re-attracting market participants who had taken their capital elsewhere. This person was of the opinion that such costs were large and warranted retaining government debt even when the funds were not required.

The Canadian situation falls somewhere in between that of Australia and the UK. The continued usefulness of the buyback program on an ongoing and likely increasing basis seems likely given current economic projections. Canada remains a long way from the Australian dilemma of having to decide whether or not to permit the Canadian government debt market to be eliminated.

Canadian bond market participants were asked to comment on this potential evolution of the market for Government of Canada securities. Some felt the elimination of Canadian debt would have relatively little import in the grand scheme of things, given that Canada represents less than 3 percent of the global bond index. The feeling from these participants was that finding an alternative set of benchmarks, likely in the US market, was not problematic. Other participants were clear that the Canadian debt market had to continue to exist. Canadian benchmarks from which other market securities are priced were critical, and US alternatives would not be suitable or desirable. The feeling from these participants was that, if it came to that, the Canadian public would have to be educated regarding the usefulness of sovereign benchmarks and so the usefulness of a debt market merely for that purpose. Market participants were not of the opinion that this debate would become timely in the near future.

In summary, the Canadian bond buyback program is achieving its goals. It has resulted in less fragmentation of the bond market while retaining large sized benchmark issues. It has been at least cost neutral to the Government, as far as available data reveals. Bond market participants comment favourably on the program and are of the opinion that improvements to the program are appropriate and useful. Liquidity in some segments of the market has been enhanced by the program, and has decreased in the off-the-run issues targeted by the buyback program. Participants' views differed on whether increased transparency is desirable. The future of debt management in Canada may include interesting questions regarding the decreasing size of the government debt market, and the ongoing ability of the buyback program to sustain liquidity in new issues in a cost-effective manner.

5. Summary and Recommendations

Summary

This evaluation of the bond buyback program has examined several aspects of the program. A summary of the key features and findings related to each is provided.

Maintenance of a Well-Functioning Market for Government of Canada Benchmarks

One cannot know what the market for the benchmark securities would have been without the bond buyback program in place. The cash buybacks provide flexibility to manage the net bond program. Our analysis reveals that fragmentation has been reduced, and that market participants feel liquidity has been enhanced for the benchmarks.

Liquidity

Enhancing and maintaining liquidity for the current benchmark bonds in the government bond market is one of the goals of the buyback program. Market participants feel that bond market liquidity has decreased, not just in Canada but in other sovereign bond markets. The decline in liquidity is attributed, in part, to a decline in interest rate volatility. Market participants believe liquidity has improved in the benchmarks, but has declined in some of the off-the-run issues targeted by the buyback program.

Fragmentation

Gravelle's 1998 Bank of Canada working paper links high security market fragmentation with decreased market liquidity. The analysis conducted in this evaluation shows that fragmentation in the Canadian government bond market has decreased since 1998. The decrease in fragmentation is attributable, at least in part, to the bond buyback program's ability to retire older less-liquid issues, and increase the size of new issues.

Economic Neutrality

This evaluation examined whether the bond buyback program has been at least economically neutral. Information is limited and confidential on the precise economic outcome of the buyback operations, though data from early operations conducted reveals that the government did not lose money on most of the early operations. Later data is not available. Comments from bond buyback experts in other countries noted that it is politically prudent for the government to be better than neutral, i.e. to be seen to be repurchasing bonds at "good" prices. Canadian market participants interviewed queried why the government had not always purchased up to its set limits.

Transparency

The government maintains a high degree of transparency with regard to its bond programs. Market participants generally agreed that the current level of transparency is sufficient and appropriate. Some expressed the wish that the government's yield curve model be made public. The Australian experience with various levels of transparency is unable to provide guidance since it is not possible to disentangle the changes in transparency of buyback operations from the dramatic decrease in the amount of the issue targeted for buyback. The UK offers greater transparency of bond market operations to its market participants than Canada does and so their experience is relevant if the Canadian authorities wish to consider increased transparency.

Should the Program Continue?

Canadian bond market participants believe the bond buyback program should continue. They believe it functions well, within the constraints faced by the government. They approve of the improvements and modifications made to the program since its inception in December 1998.

<u>Recommendations</u>

Bond Eligibility

The criteria for eligibility for inclusion in the basket of targeted buyback bonds have changed during the life of the program. It is recommended that the government be sensitive to the various purposes that outstanding bonds may serve. This sensitivity for target selection will become increasingly important as the number of issues outstanding continues to decrease and so those eligible are fewer in number.

Market Risk Reduction

Market risk faced by bond market participants has decreased with the shortening of the time horizon between submission of tenders and revelation of results, and with the advent of the switch buyback program. It is recommended that the government continue to monitor the marketplace for other ways to mitigate the market risk faced by participants.

Potential for Increased Transparency

The UK Debt Management Office's policy on bond market transparency requires greater transparency than that of the Canadian government. Should the Canadian authorities consider a move toward increased transparency, careful scrutiny of the UK experience is warranted. This will be particularly true in the future as the UK program continues to evolve and its experience broadens.

Reduction in Market Debt

Government of Canada market debt is a long way from being eliminated. As the market debt shrinks, issues regarding the continued well-functioning of the market will change as the scope of available outstanding issues and the size of those issues offers reduced flexibility to manage the market. It is recommended that the Australian public debt experience be monitored closely since its current experience may shed light on the future for the Canadian case.

Consultation with Market Participants

It is recommended that the government continue its current practice of consultation with bond market participants on a regular basis. Considerable insight has been gained from the experience of those who work within the relevant markets on a daily basis.

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