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More RRBs, Please! Why Ottawa Should Issue More Inflation- Indexed Bonds

For individual savers and financial intermediaries such as pension funds, real-return bonds offer uniquely valuable protection against inflation. Issuing more RRBs would yield benefits for investors and Ottawa alike.

Philippe Bergevin and William B.P. Robson

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A handwritten signature in black ink that reads 'Finn Poschmann'.

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THE STUDY IN BRIEF

Financial instruments indexed to the general price level are of great potential use to borrowers and lenders alike. But up until recently, they have been relatively scarce – in part because private borrowers dislike offering protection against inflation that they do not control. Since the early 1980s, several developed-country governments have begun issuing price-level-linked bonds, and these bonds now constitute a large share of some countries' total debt issue. This *Commentary* argues that Canada's federal government, which began issuing real-return bonds (RRBs) in 1991, should issue more RRBs of more types than it currently plans to do.

Price-indexed bonds such as Canada's RRBs are debt securities with principal and/or coupon payments linked to the general price level. Governments are well placed to issue such bonds because changes in the price level tend to affect tax revenues one-for-one and most national governments control inflation through their central banks. For individual savers and financial intermediaries such as pension funds, these bonds offer uniquely valuable protection against inflation. The popularity of Canada's RRBs with long-term investors is evident in the tendency for their yield to be lower than the equivalent yield on nominal bonds combined with anticipated inflation would suggest, in the relatively large bids they receive at auction, and in their relatively low turnover.

A more aggressive program of RRB issue by Ottawa over the next five years offers a number of benefits. By replacing nominal debt with a yield that tends to compensate investors for inflation higher than the Bank of Canada actually targets, it offers straightforward interest savings to the federal government. By reducing the fiscal advantages of above-target inflation, it could also bolster confidence in the inflation target, which could reduce interest costs on nominal federal debt – and possibly elsewhere in the economy – as well.

This *Commentary* explores the potential impact of a larger RRB issue over the next five years than Ottawa currently plans. Rather than the \$2.4 billion annually now planned, we suggest \$7.2 billion annually. We further recommend that two-thirds of the larger RRB issue have 10-year maturities rather than the 30-year maturities exclusively issued to date. A plausible estimate of the net interest savings on federal debt comes to \$200 million in 2016/17 and \$500 million over the period until then. We canvass a number of ways the federal government can ensure that this higher RRB issue does not hurt the depth and liquidity of the market for its nominal debt.

Issuing more RRBs would not only better satisfy existing demand from investors, it has the potential to spur the development of other price-indexed instruments. Experience elsewhere suggests that more federal RRBs could encourage other entities to issue price-indexed debt, and would let intermediaries provide such products as inflation-linked annuities, thus providing more Canadian savers with protection against intentional or accidental inflation.

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Well-developed financial markets facilitate the flow of funds between savers and borrowers. Private- and public-sector entities have produced many instruments to match savers' and borrowers' preferences for liquidity, risk profile and much else, but one type of instrument that looks very attractive in principle is relatively scarce in practice: debt securities with principal and/or yields linked to the general price level.

One prime example in Canada are federal government issued real-return bonds (RRBs), which provide inflation protection by indexing their principal value to the Consumer Price Index (CPI).¹ The amount of RRBs outstanding is small, however, and the new amounts issued annually tend not to be much more than the value of interest payments from existing RRBs. Because RRB holders typically reinvest their interest payments, the additional float of RRBs available to new investors grows slowly.

Issuing more RRBs would yield several benefits to Ottawa and for Canadians broadly. Because RRB yields, after adjustment for the 2 percent inflation targeted by the Bank of Canada, have typically been lower than the yields on nominal bonds, issuing more RRBs could directly lower Ottawa's interest costs.

A second interest-saving effect is more speculative but potentially important: by reinforcing the government's commitment to the 2 percent inflation target, issuing more RRBs could reduce

inflation-risk premiums on nominal debt. This effect may be important in the current context, as some investors are worried about inflationary tendencies because of fiscal pressures and central bank policy abroad.

There are other potential benefits. To the extent that federal-government borrowing costs affect private-sector borrowing costs, lower inflation-risk premiums on Ottawa's nominal debt might spur private investment. Issuing more RRBs would better satisfy demand from investors with inflation-sensitive liabilities. It should, moreover, promote price-indexed debt issues by other borrowers and the development of other instruments indexed to, or otherwise based on, RRB price levels, further facilitating efficient flows of funds between lenders and borrowers.

This *Commentary* recommends that Ottawa increase RRB issuance between now and March of 2017 to \$7.2 billion annually, triple the currently planned level of \$2.4 billion. At the end of that

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- 1 The Canadian model for RRBs has become the global standard (Barclays Capital 2011). The principal of RRBs changes continuously according to changes in the price level, based on the difference between the CPI at a reference period (typically three months before the adjustment date) and the CPI at the time of issue. The coupon payment is the stated coupon rate times the adjusted principal. At maturity, the principal repaid is the adjusted amount.

period, the federal government should reassess this increased issuance in light of investor demand and its realized interest savings. We further recommend that rather than simply expanding the current program of 30-year RRB maturities, this larger issuance should also contain maturities typical of other bellwether bonds.

To ensure that the larger RRB issue does not reduce the quantity of other bonds for which there is an established market, we recommend gradually adding a 10-year maturity as investor appetite grows, perhaps using syndicated issues rather than auctions to establish the market.

This increased RRB issuance would lower federal interest costs by perhaps \$200 million in the fifth year and \$500 million over the entire period. We also show how more and more diverse indexed federal debt could benefit savers and intermediaries.

BACKGROUND

The possibility that debt will be repaid in debased currency has always been a major risk for lenders. To diminish this risk, distinguished economists such as Jevons (1875) and Keynes (1927) have advocated bonds indexed to the price level. Such assets, designed to protect holders from unanticipated inflation, can make financial markets more complete and improve risk sharing (Garcia and Rixtel 2007). While private companies have issued price-indexed bonds in some countries that have experienced high inflation – Chile and Israel are notable examples – private indexed debt is rare.²

Governments, however, are well placed to issue such bonds. Changes in the price level tend to

affect tax revenues one-for-one and, critically, most national governments control inflation through their central banks.

The first issue of price-indexed bonds appears to have occurred during the American Revolutionary War (Shiller 2003). Two centuries later, following the breakdown of the fixed exchange rate system linked to gold through the US dollar in the early 1970s, widespread inflation piqued fresh interest in the idea. In the 1980s, large-scale price-indexed issues occurred in developed countries. The United Kingdom began issuing price-indexed bonds in 1981, and Australia followed in 1985. Canada's first issue was in 1991. Sweden and New Zealand began issuing them in 1994 and 1995, respectively. The US government began issuing Treasury Inflation Protected Securities (TIPS) in 1997 and has become the largest issuer of such instruments, with almost US\$600 billion outstanding in 2010 (see Table 1).

In contrast, Canadian RRB issues are modest – around \$2 billion annually in recent years – compared with the substantial amounts of price-indexed debt in many countries (see Table 2).³

EVIDENCE AND EXPLANATIONS FOR RELATIVELY STRONG DEMAND FOR RRBS

A striking feature of price-indexed bonds in Canada and elsewhere is their low yield. The gap between RRB and nominal bond yields of the same maturity tends to be larger than targeted inflation rates can explain and, when inflation is on target, larger than realized inflation rates can explain as well. Figure 1 shows the spread between nominal

2 It might appear that businesses whose revenues are highly correlated with the price level would find inflation-indexed debt attractive to issue (Fischer 1983). However, the impact of inflation on actual profits is more complicated, and negative in important ways, exacerbating a natural reluctance to protect investors against a political and non-diversifiable risk.

3 A large part of new issues in Canada merely matches the appetite of existing investors to reinvest coupon payments, a practice we understand arises partly because the bond indexes portfolio managers seek to mimic or benchmark against assumed reinvestment of coupons.

Table 1: Price-Indexed Bonds Outstanding and as Share of Total Central Government Marketable Debt (Selected Countries, 2010)

Country	Amounts Outstanding (US\$ billions)	Share of Central Government Debt (percent)
Australia	10.6	8.4
Canada	43.5	7.6
Chile	8.7	50.6
France	218.7	13.5
Germany	43.2	3.0
Israel	38.1	33.2
Italy	131.7	6.5
Japan	69.0	0.8
Sweden	33.4	20.5
UK	341.1	17.9
US	563.2	6.6

Sources: Barclays Capital, OECD, and authors' calculations.

and real-return 30-year federal government bonds since the end of 1995 – the period during which the Bank of Canada has been targeting 2 percent CPI inflation. The spread between the two has typically exceeded the 2 percent inflation target, even though actual CPI increases have averaged almost exactly 2 percent over the period.⁴

Strong Demand for RRBs

On its face, the larger-than-2-percent typical spread of nominal over real-return bonds suggests that demand for RRBs is strong relative to supply.

In particular, pension funds and retirement savers should like the protection RRBs provide against expected and unexpected inflation, since retirees no longer receive wage income – which tends to rise with inflation – but still pay nominal prices for what they consume. The Department of Finance and the Bank of Canada have noted in a summary of comments received on the government's debt program that, "Dealers and investors reiterated that there is strong demand for long-dated nominal bonds and real-return bonds, as evidenced by the increased use of liability-driven investment mandates by pension funds and insurance

⁴ As of July 2012, the cumulative difference between the actual CPI and a hypothetical CPI growing at exactly 2 percent annually since the end of 1995 was 0.4 percentage points – a negligible annualized miss of 0.02 percentage points.

Table 2: Government of Canada Domestic Bonds: Gross Issuance and Shares of Nominal and Real-Return Bonds

Fiscal year	Total Gross Bond Issuance (\$ billions)	Share of Nominal Bonds (percent)	Share of Real-Return Bonds (percent)
1995/96	49.7	98.0	2.0
1996/97	55.7	96.9	3.1
1997/98	39.9	95.7	4.3
1998/99	37.9	95.8	4.2
1999/00	46.0	97.4	2.8
2000/01	39.9	96.5	3.5
2001/02	41.6	96.6	3.4
2002/03	43.7	96.8	3.2
2003/04	40.8	96.6	3.4
2004/05	36.9	96.2	3.8
2005/06	33.9	95.6	4.4
2006/07	33.4	95.2	4.8
2007/08	34.3	93.3	6.7
2008/09	75.0	97.2	2.8
2009/10	102.2	97.8	2.2
2010/11	95.5	97.7	2.3

Sources: Federal Debt Management Report 2010/11 and authors' calculations.

companies" (Finance Canada and Bank of Canada 2012).⁵

Measures of oversubscription at auction, such as the ratio of bids to amounts offered, typically show relatively strong demand for RRBs. Over the five years ending 2010/11, the average coverage ratio stood at 2.58 for RRBs – meaning bids submitted amounted to 2.58 times the amounts auctioned – the highest ratio for any category of bonds (Table 3).⁶

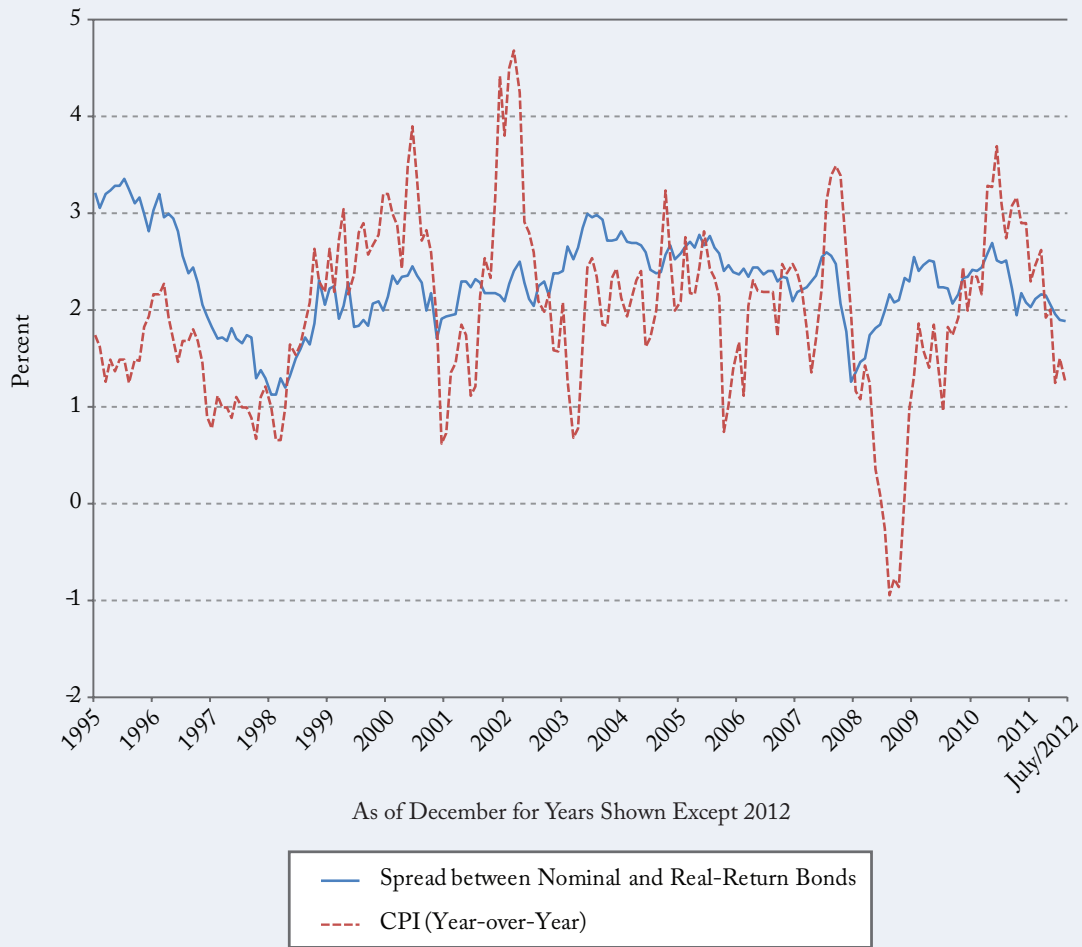
Relatively ample bids compared to available supply for these bonds suggest unsatisfied demand.

Further, secondary trading of RRBs is relatively low. In a given week, around one-third of all outstanding federal government bonds change hands, but the figure for RRBs is barely 1 percent (Figure 2). Bid-offer spreads in secondary markets tend to be relatively wide for RRBs, which also suggests less liquid markets (Pengelly 2011). This

5 A recent article in *Risk* magazine based on interviews with a number of Canadian RRB investors highlighted their view that new issues have been slow to increase in line with demand (Pengelly 2011).

6 The auction of RRBs differs from that of other federal government bonds. RRB auctions are single-price auctions, with successful bidders getting bonds at the single-price equivalent of accepted competitive bids, while nominal bond auctions use a multiple-price allotment. RRB auctions, as opposed to nominal bond auctions, also tend to attract a greater share of investors who are not primary dealers.

Figure 1: Spread between Nominal and Real-Return Bonds and CPI Inflation, December 1995 to July 2012



Source: Statistics Canada.

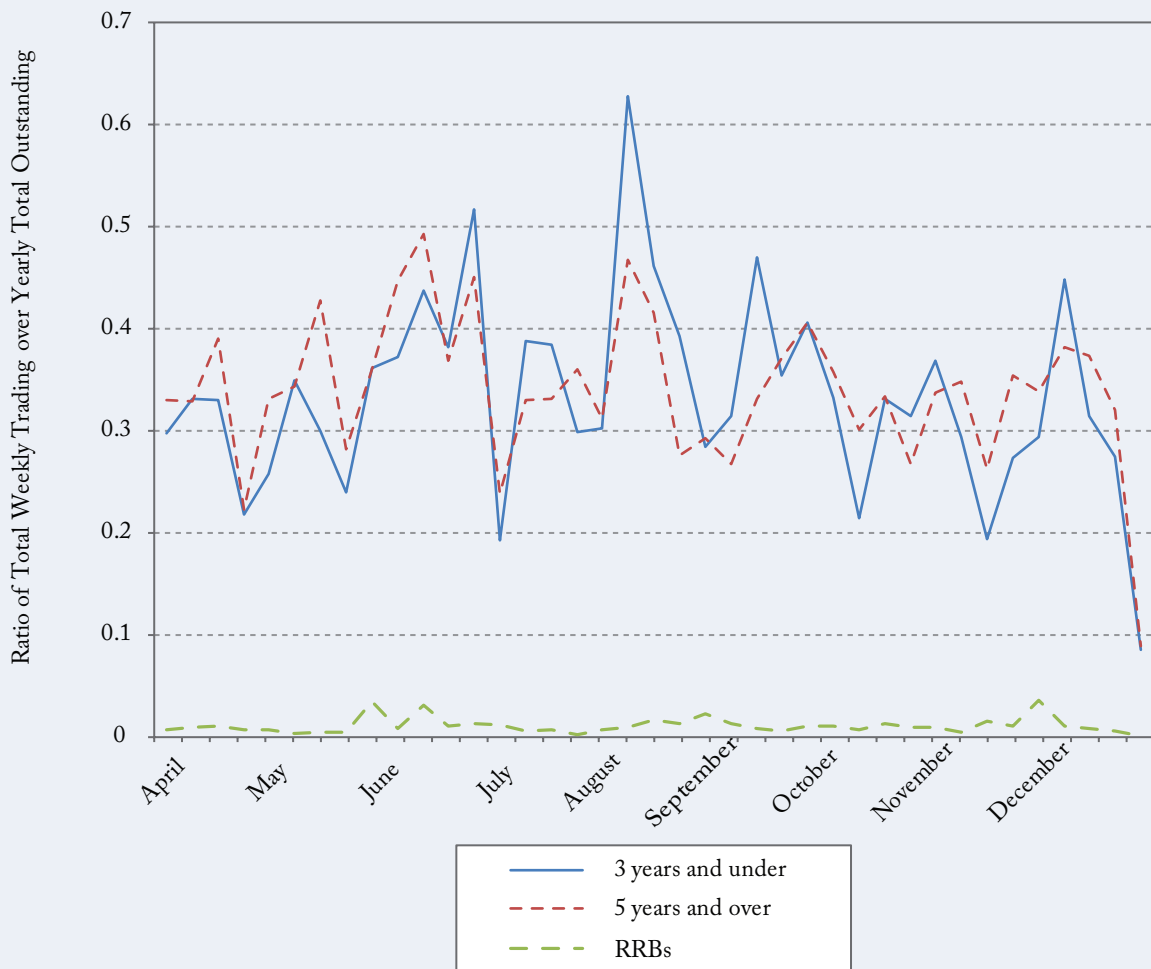
Table 3: Coverage Ratios of Domestic Bond Auctions (5-Year Average Ending in 2010/11)

Nominal Bonds					Real Return Bonds
2-Year	3-Year ⁽¹⁾	5-Year	10-Year	30-Year	30-Year
2.50	2.44	2.35	2.34	2.55	2.58

(1) Reflects only two years of data since the 3-year bond was reintroduced in 2009/10.

Source: Debt Management Report 2010/2011.

Figure 2: Weekly Turnover of Nominal and Real-Return Bonds, 2011



Sources: Bank of Canada and authors' calculations.

lack of liquidity probably reflects the tendency of RRB investors to hold them to maturity, which makes RRBs less attractive to investors who value liquidity more.

Protection Against Inflation

Why are RRBs so popular, especially among buy-and-hold investors, that their yields would typically be lower than adjustment of nominal yields for the inflation target would indicate? An obvious explanation for a nominal-bond-yield spread that

exceeds 2 percent over RRB counterparts is that investors doubt the Bank of Canada's commitment to 2 percent inflation. If inflation were to exceed 2 percent, nominal bonds would lose more than 2 percent of their purchasing power annually, but RRBs would perform relatively better. More subtly, investors might believe the Bank of Canada intends to produce 2 percent inflation, but want insurance against the possibility that inflation ends up higher. They would pay for that insurance by sacrificing some yield when buying RRBs.

Meanwhile, surveys of inflation predictions from professional forecasters tend to show high confidence that the Bank of Canada will actually deliver on its 2 percent promise.⁷ Still, it is not hard to think of reasons why investors might expect inflation above 2 percent in the long run, or be prepared to pay for insurance against that possibility. Repayment in debased currency has been a reality throughout history, with inflation being a standard tool for governments to avoid paying their debts in full.⁸ Even in Canada, prices as measured by the CPI more than doubled between 1972 and 1982, transferring much wealth from savers, including holders of government debt, to borrowers, including governments.

Like other national governments, including those in countries with higher inflation, Canada's federal government would, in fact, benefit from surprise inflation. Inflation essentially boosts major tax and fee revenues proportionally and immediately, while its impact on program spending occurs with a lag. Indeed, Ottawa holds few financial assets that would lose value if the price level rose unexpectedly relative to the debt that would be similarly affected, which means surprise inflation would positively affect its balance sheet.

As we have noted, market debt that would not lose value with inflation – Ottawa's RRBs – is a relatively small share of total federal debt (see Table 4 for more detail on RRBs outstanding). While Ottawa does carry considerable indexed liabilities in the form of pension obligations to its employees – about \$285 billion at fair value as of 31 March 2011 (Laurin and Robson 2011) – the amount of nominal debt Ottawa owes makes surprise inflation favourable for federal finances overall.

Moreover, while a disinterested taxpayers' representative might see indexed federal-employee

pensions making inflation less fiscally attractive by making the inflation sensitivity of the two sides of Ottawa's balance sheet more similar than it would otherwise be, there remains an agency problem. These pensions are price-indexed assets for the very people – elected representatives and public servants – who would engineer the inflation and who, being protected from the harm it would do other savers and retirees, would improve their relative purchasing power. So these indexed liabilities are likely less discouraging of inflation than an equivalent amount of RRBs would be.

An additional reason to fear inadvertent above-target inflation in Canada stems from severe fiscal challenges that are intensifying in many major economies, including those of the United States, most Eurozone members, the United Kingdom and Japan. The central banks in all these currency areas have massively expanded their balance sheets over the past four years, and that of the European Central Bank is swelling further as it supports Eurozone members experiencing fiscal and balance-of-payments problems. Money printing on this scale will make the currencies concerned less valuable in terms of goods and services within the area – another way of saying inflation – and against currencies with less monetary expansion, including the Canadian dollar. Exchange rate volatility may complicate the Bank of Canada's management of monetary conditions enough to produce small inflationary accidents, and periodic attempts to hold the value of the Canadian dollar down could give the Bank's policies a persistent inflationary bias.

In this fraught context, a larger RRB issue offers two additional benefits. It would reinforce the credibility of the commitment to 2 percent inflation by reducing the fiscal advantages of letting inflation run above that rate. It could also help

7 Consensus Economics's March 2012 survey showed an average forecast of 2 percent for Canadian CPI inflation for 2012, as well as over a two-to-three-year and six-to-10-year horizon.

8 Reinhart and Rogoff (2009) provide the best recent survey of this experience.

Table 4: Government of Canada Real-Return Bonds Outstanding (February 2012)

Maturity Date	Amount (\$ millions)	Coupon Rate (percent)	Inflation Adjustment (\$ millions)	Outstanding Amount (\$ millions)
01-December/2021	5,175	4.25		
01-December/2026	5,250	4.25		
01-December/2031	5,800	4		
01-December/2036	5,850	3		
01-December/2041	6,550	2		
01-December/2044	4,400	1.5		
Total	33,025		7,922	40,947

Source: Bank of Canada.

the Bank of Canada hit its inflation target in a turbulent environment. As Smith (2009) argues, additional RRBs with maturities matching those of other nominal bonds would let the Bank of Canada observe the differences in yields between nominal and real bonds at more maturities, which would give it better information about inflation expectations than it gets from surveys or existing bonds. That information could help the Bank react faster to changes in sentiment and reduce the risk of mistakes that might shake confidence in the target.⁹

Potential Interest Savings for the Federal Government

For a government that seriously intends to pursue

2 percent inflation, these considerations mean that a larger RRB issue could produce interest savings. The obvious benefit lies in taking advantage of the wider-than-2-percent spread between nominal bonds and RRBs that typically exists. For example, suppose the Bank of Canada actually produces 2 percent inflation. In that case, every RRB that displaces an equivalent-maturity nominal bond that would have borne an interest rate more than two percentage points higher than the RRB will reduce the cost of servicing that amount of debt.

How might these savings play out in practice? To answer that question, we rely on the government's recently announced debt management plans (Finance 2012).¹⁰ We calculate Ottawa's total gross debt issuance over the next five years on the basis of maturing debt to be refinanced and the projected

9 These two objectives – to send a signal of an anti-inflationary stance and to promote the development of a real-return indicator as a measure of expected inflation – were both explicitly identified as evolving objectives when the RRB program was put in place in 1991 (Johnson 1998).

10 These debt management plans contain a projected debt structure that presents percentage targets for different types of borrowing instruments, including RRBs. The government makes its projected debt structure public only for March 2022; we use a simple linear interpolation to estimate the debt structure for March 2017, the end of our five-year cost-estimate horizon.

net requirement for funds arising from government operations.¹¹

We then modify that debt management program to substitute more 30-year RRBs in place of their nominal counterparts. Because we want more than just 30-year RRBs to diversify the market and provide an additional source of information about inflation expectations, we also propose introducing a new 10-year RRB issue that would displace some of the 10-year nominal bonds the government would otherwise issue.¹² Table 5 compares projected gross issues (i.e., actual amounts that need to be auctioned) and net issues (i.e., gross issues less retirements) for the major debt categories under the government's baseline and our alternative.

As Table 5 illustrates, the government's plan envisions outstanding RRBs increasing in value from \$41 billion in March 2012 to about \$53 billion in March 2017, a product of future inflation adjustments of 2 percent along with \$2.4 billion in new issues annually. Our alternative envisions new RRB issues of \$7.2 billion annually, which would bring total outstanding RRBs to \$78.1 billion by March 2017, including inflation adjustments. Of the larger RRB float, \$8 billion would be additional issues of the same 30-year maturities envisioned in the government's plan, while \$16 billion would be

our new proposed 10-year RRB. These new issues would displace dollar for dollar the nominal bonds in those maturities in the baseline.

These new RRBs would straightforwardly lower interest on new debt issues because the realized yield on RRBs, after adjustment for 2 percent inflation, would be less than the realized yield on nominal bonds. Recently, as investors have sought safe havens, strong demand for Canadian government bonds has compressed the spread between 30-year nominal and real-return bonds, and at the time of writing, anticipation of only very modest near-term increases in the CPI has pushed the yield spread below 2 percent. The spread has averaged just slightly above 2 percentage points since the beginning of 2012, but we think it is reasonable instead to assume an average spread from previous non-crisis conditions. We therefore use a 2.42 percentage-point spread, equal to the average from January 2001 to December 2007. On that basis, Ottawa would realize a 42-basis-point saving for every dollar of 30-year nominal bond displaced by a dollar of 30-year RRB.¹³

We have no similar market yields from which to calculate possible savings from issuing 10-year RRBs. As Table 4 illustrates, Ottawa has issued RRBs only in 30-year maturities, and while the

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- 11 The amount of maturing debt each year is from the Public Accounts of Canada, 2010/11. We also take into account the two- and three-year bonds the government would issue and retire during the five years, and planned t-bill issuance. Future additional net financial requirements are from the relevant 2012 federal budget projections. Our estimate also includes additional interest savings arising because the initial savings from increased RRB issues reduce subsequent issues of nominal debt.
- 12 Ten-year inflation-indexed bonds are commonplace in some markets, for instance in the United States where they have been issued since the inception of its inflation-indexed bond program in 1997. It is also worth noting that the last official RRB program evaluation, in 1998, pointed out that the majority of pension plan sponsors interviewed for the report expressed an interest in a 10-year RRB (Johnson 1998).
- 13 There is a further savings effect related to a potential illiquidity premium: the extra yield investors demand to compensate them for the risk of not finding a buyer in a timely manner, or at a price that is not in line with long-term fundamentals. As noted already, secondary trading in RRBs is less than in other bonds. As the federal government issues more RRBs, the RRB market would in all likelihood become more liquid, which would reduce the illiquidity premium. A lower illiquidity premium would increase the savings associated with increased RRB issuance levels for the federal government. Our cost calculations may therefore understate potential savings.

Table 5: Projected Issues of Major Debt Categories: the Government's Baseline and Our Proposed Alternative, Billions of Dollars

	Total Amount Outstanding, May 2012	Average Yearly Gross Issuance (Next 5 years)	Average Yearly Net Issuance (Next 5 years)	Total Amount Outstanding, May 2017
Government Baseline				
RRBs*	40.6	2.4	2.4	53.3
30-year Bonds	72.3	2.2	2.0	82.3
10-year Bonds	117.0	7.7	-1.7	108.6
Our Alternative				
RRBs*	40.6	7.2	7.2	78.1
30-year Bonds	72.3	0.7	0.4	74.5
10-year Bonds	117.0	4.6	-4.8	93.0

*Amounts outstanding include inflation adjustments.

Sources: Debt Management Strategy for 2012/2013 and authors' calculations. We derive the government's baseline by interpolating projections of the federal government's debt structure for March 2022.

redemption date of its first issue in 1991 is less than 10 years off, the high coupon on that issue exposes its holders to more reinvestment risk – in other words, these older bonds have a shorter duration – than would be the case for more recently issued 10-year RRBs with a lower coupon. To estimate the savings from issuing 10-year RRBs compared to 10-year nominal bonds, we use the ratio of two spreads: the spread between 10-year nominal bonds and RRBs issued in 1991 over the January to December 2011 period (when the 1991 RRBs had a remaining maturity of 10 years) to the spread between the 30-year nominal and real-return bonds

over the same period.¹⁴ This calculation yields a potential spread of 2.30 percentage points between the yields on new nominal 10-year bonds and 10-year RRBs. For the 10-year maturity, we therefore assume a 30-basis-point saving from additional RRB issues.¹⁵ Multiplying the differences in new RRBs issues by these assumed yield spreads suggests that our proposed larger RRB issues would save the government some \$248 million in interest payments over the next five years.

To the extent that the spread between nominal bonds and RRBs typically exceeds 2 percent because investors doubt the government's commitment to

- 14 Comparing the yields on two 30-year bonds maturing in 10 years' time reduces the problem of non-comparable duration, since both have higher coupons than freshly issued 10-year bonds. But it does not eliminate the problem, since the spread between nominal and RRB yields was higher in 1991 than 2011.
- 15 We get the 30-basis-point figure by taking the spread between the yield on the 30-year RRB issued in 1991 over the January to December 2011 period, during which time it had 10 years to maturity, and the yield on 10-year nominal bonds over the same period, expressed as a ratio to the yield spread between the 30-year nominal and real bonds, again over the same period. We then applied that ratio – 73 percent – to our assumed gap between new 30-year issues. Seventy-three percent of 42 basis points is 30 basis points (source for the 10-year bond spreads: Bloomberg).

the 2 percent inflation target or want insurance against inflationary accidents, reducing the risks of deliberate or accidental overshoots of the target could also cut Ottawa's interest costs on new issues of nominal bonds. This second interest saving is more speculative, but the sizeable amount of federal debt outstanding makes it potentially important.¹⁶ Suppose, for example, that it reduced the premium on nominal debt of all maturities that Ottawa issues over the next five years by an average of only one additional basis point annually, reaching five basis points by 2016/17. That small change alone would lessen interest costs on new nominal bond issues by \$278 million over the period.

This second effect would reduce the net direct saving from the larger RRB issues, since a lower inflation premium on nominal bonds would reduce the yield advantage of RRBs. After subtracting this offset, the premium reduction we posit would increase federal interest savings beyond the direct effect of higher RRB issues by a further \$248 million over the five years.¹⁷

These two effects together put the federal government's total interest savings from the higher RRB issue at \$200 million in 2016/17 and a cumulative \$500 million from now until then. It is reasonable to suppose that more confidence in the durability of 2 percent inflation would lower borrowing costs not only for Ottawa but for other borrowers as well, in which case demand and output in Canada would likely be higher under the alternative scenario – which, among other benefits, would boost federal revenues. Those effects are still more speculative, however, and we think the

prospect of the interest savings just outlined alone justifies the initiative.

PAST OBJECTIONS TO A LARGER RRB ISSUE NO LONGER HOLD

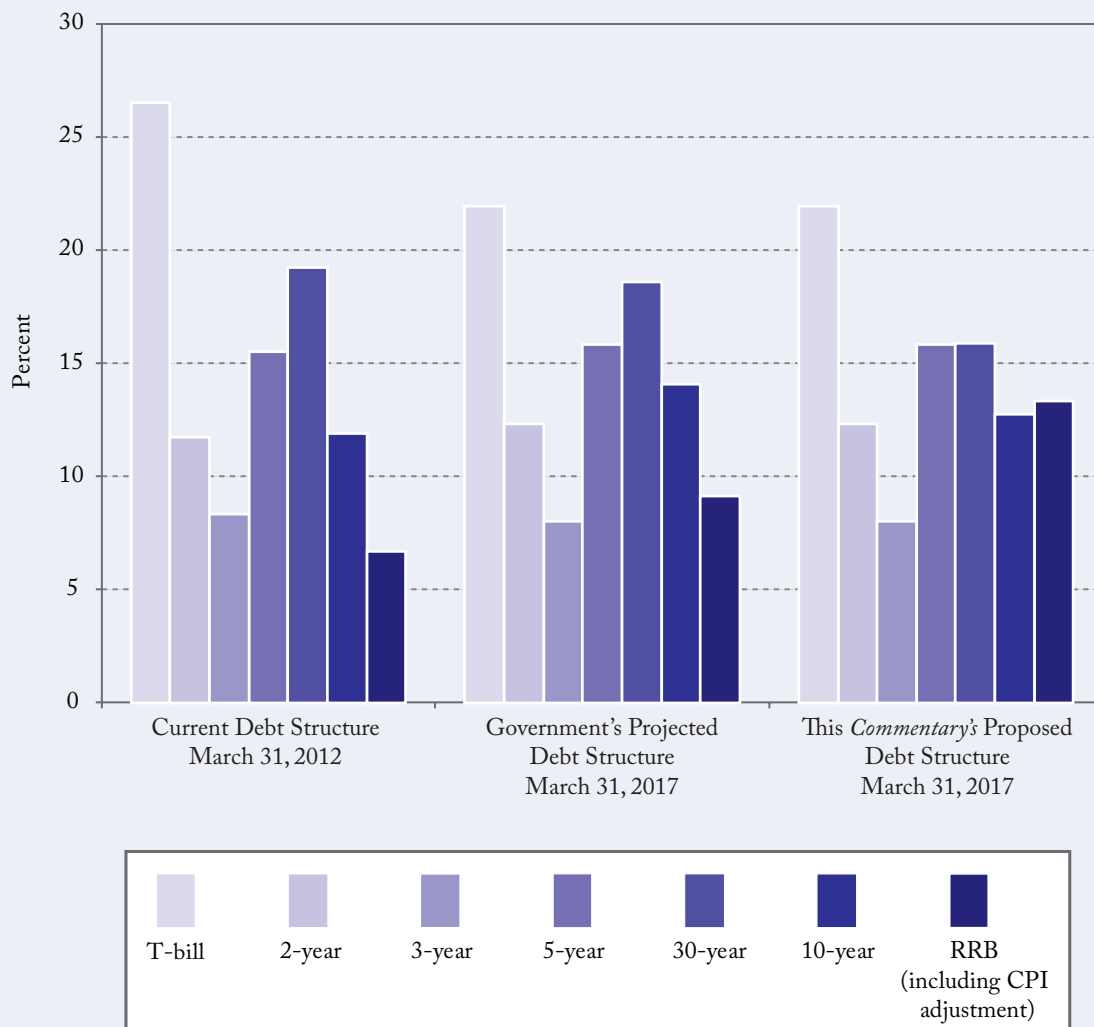
One possible objection to our proposal is that reinforcing the government's commitment to 2 percent inflation is a drawback. Opponents might see greater inflation as a useful tool for a fiscally troubled government, potentially less damaging to the economy than other actions it might take such as increases in growth-damaging income taxes, cuts in valuable spending or outright debt defaults. A country must be in deep trouble, however, to make inflation – which itself has major and pervasive economic and social costs – a relatively attractive option. Canada is not in such trouble and has plenty of fiscal options to keep itself out of it.

Another possible objection is that governments cannot control inflation well enough to take on this kind of exposure. Even if the premise that the federal government, through the Bank of Canada, cannot control inflation were correct, this argument would not be persuasive. Ottawa's exposure to inflation is already asymmetrical: more price-indexed debt would hedge it better against accidental deviations from target. However, the premise is wrong. Experience since the advent of inflation targets in 1991, and especially since the target became 2 percent at the end of 1995, shows that inflation control is possible with greater precision than many – even inside the Bank of Canada – thought possible 20 years ago.

16 Some recent studies have estimated the inflation-risk premium embodied in long-term US bond yields at between 20 and 140 basis points (Garcia and van Rixtel 2007), but the equivalent in Canada, with its long history of successful inflation targeting, would probably be lower.

17 To calculate the offset, we estimate the lower inflation premium on 30-year bonds to average five basis points the first year, reaching 25 basis points by 2016/17. For the 10-year bonds, we estimate it to average four basis points the first year, reaching 18 basis points by 2016/17.

Figure 3: Structure of Federal Debt: Baseline versus Larger RRB Issues



Sources: Debt Management Strategy for 2012/2013 and authors' calculations.

A third type of objection relates to the market's capacity to absorb more RRBs. The spread between nominal bond and RRB yields was less than 2 percent for a period in the late 1990s (see Figure 1), when unfamiliarity with RRBs and a very illiquid market caused some traders to dub them "Really Repulsive Bonds." Their popularity increased over time, and the spread widened. This improvement in market receptivity coincided with a period of

federal budget surpluses, however, which made more aggressive RRB issuance seem unattractive because it might oblige Ottawa to curtail issues of other bonds used as bellwethers by portfolio managers and other financial market participants.

With market acceptance of RRBs now high and federal debt outstanding now vastly larger, this objection has lost force. Our proposed increases in RRBs would displace some planned 30-year and

10-year nominal bonds over the next five years. But gross and net issuance will be high enough to ensure plenty of 30-year and 10-year nominal bonds (Figure 3): our proposal makes a surprisingly small impact on Ottawa's projected debt structure over this period. We also note in passing that current low long-term interest rates create an opportunity – and in the eyes of some analysts, a need – for the federal government to lengthen the average term of its debt more than it currently plans to do. Further lengthening term might offer interest savings over time, but since it would not do so in the near term, we do not pursue the idea further here. Such a change would increase the float of 10- and 30-year nominal bonds, however, offsetting any negative impact on those markets from our expanded RRB program.

Moreover, the government has options in issuing new RRBs, particularly the proposed 10-year issue, to further mitigate the risk that introducing the new bonds will cause indigestion in the market. It can vary the pace of issue, depending on feedback from buyers and dealers, as well as launch the new instruments through syndication, testing the demand without risking a failed auction.¹⁸

We are confident that, over time, demand for additional RRBs will ensure their acceptance. We have already noted that the share of price-indexed bonds in many other countries is much larger than in Canada, and some plan to raise it further: the Swedish government's long-run target, for example, is for them to make up 25 percent of its debt (Barclays Capital). While data on who holds price-

indexed bonds are sparse, Canadian pension funds appear to hold a far smaller share of their assets in these bonds than their UK counterparts, which suggests that increased issue on the scale we propose might easily find buyers in that sector alone.¹⁹

BENEFITS FROM MORE DIVERSE RRB ISSUES

The benefits of issuing RRBs with different maturities go beyond their potential to give the Bank of Canada a better read on inflation expectations. The fact that the high coupon on the 1991 RRB issue shortens its duration by exposing its holders to more reinvestment risk than a more recently issued 10-year RRB would do reduces its value to traders, portfolio managers, potential designers of other price-indexed products such as annuities, and potential designers of products designed to arbitrage it against a 10-year nominal counterpart.

Moreover, a larger and more diverse stock of RRBs could promote the development of more inflation-linked products, which – in turn – could deepen the market for inflation-linked securities more generally. For instance, the introduction of TIPS in the United States supported the emergence of new financial products such as inflation futures, inflation swaps and inflation-linked benchmark indices. As well, US pension funds have expanded their offerings of inflation-linked investment plans and annuities (Garcia and Rixtel 2007).²⁰

18 For instance, when RRBs were first introduced in Canada in 1991, 10 of the 11 first issues were sold through dealer syndicates.

19 According to the Pension Investment Association of Canada, RRBs in 2010 represented 4.6 percent of the assets of plans sponsored by its members (Composite Asset Mix Reports, available at: piacweb.org). In contrast, indexed gilts in the United Kingdom account for more than 8 percent of pension funds' managed assets and for 35 percent of their fixed-income assets (Garcia and Rixtel 2007).

20 More specifically, following the introduction of TIPS in the US, futures and options that referenced these bonds were introduced by the Chicago Board of Trade. Mutual funds benchmarked on TIPS also developed, and pension funds introduced investment plans and annuities that were linked to inflation (Garcia and Rixtel 2007).

Canadian savers would benefit from more such products. With the conspicuous exception of current and former federal government employees, Canadian retirees are exposed to serious erosion of their purchasing power even if the Canadian price level continues to rise as anticipated by the 2 percent inflation target. Over the 22.6 years that the average 65-year-old woman can now expect to live, 2 percent inflation will cut the purchasing power of a nominal annuity by more than one-third. Savers seeking protection from inflation would have more attractive assets to hold if a deeper, more liquid market for price-indexed federal government bonds fostered the issue of price-indexed debt by provinces²¹ – whose inflation-linked revenues also place them well to service such debt – or by entities such as utilities or infrastructure companies whose revenues also tend to move with other prices.

CONCLUSION

The issue of RRBs by the federal government over the last two decades has been a welcome development for Canada's savers and Canada's economy. While investors reacted coolly at first, demand for RRBs has burgeoned since, outstripping supply.

Issuing more RRBs would yield several benefits to the federal government and the economy in general. Relatively low yields on RRBs would directly lower Ottawa's borrowing costs. By reinforcing the credibility of low inflation, a larger outstanding stock of RRBs should reduce inflation-risk premiums on other debt, which would amplify

the government's interest savings and cut costs to other borrowers as well. It would also better satisfy demand from investors with inflation-indexed liabilities and, especially if it led to real-return debt issues by other borrowers, more RRBs could foster the development of more price-indexed instruments that savers would find useful.

In short, we recommend that Ottawa issue more RRBs over the next five years: rather than the \$2.4 billion annually now planned, we suggest \$7.2 billion annually. We further recommend that the federal government diversify its RRBs – specifically, that two-thirds of new RRBs issues, over and beyond what is already planned, have 10-year maturities rather than the 30-year maturities exclusively issued to date. We think issuing the new bond in these quantities is possible without disrupting markets, especially if its introduction is syndicated rather than auctioned. A plausible estimate of the resulting interest savings on federal debt comes to \$200 million in 2016/17 and \$500 million over the period until then. Those savings would continue beyond that date and would grow if success to that point prompted the government to continue issuing more of its debt in this form.

The desirability of reinforcing the credibility of low Canadian inflation, the demonstrated success of inflation targeting, the appetite of Canadian savers for price-indexed debt and the prospect of further financial innovations make a strong case for larger RRB issues. Other countries have boosted their issues of price-indexed debt – the time is ripe for more RRBs here, too.

21 Several Canadian provinces have issued RRBs. Ontario, for example, has two RRB issues that are set to mature in 2036, with outstanding values of \$2.4 billion and \$790 million. Quebec has a number of issues outstanding that are set to mature in 2013, 2021, 2026 and 2031. Quebec's RRBs have been issued with a variety of maturities, including one 10-year, and the province has also issued real-return, medium-term notes.

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