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MONETARY POLICY

How Soon? How Fast? Interest Rates and Other Monetary Policy Decisions in 2010

By
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- With the economic recovery taking hold and the Bank of Canada's conditional commitment to keep the overnight rate at 0.25 percent expiring soon, a number of questions about the conduct of monetary policy need to be considered.
- The author argues the Bank should keep its conditional commitment, but should thereafter raise the overnight rate sharply by 50 basis points at every announcement date until mid-2011.
- In addition, the Bank should publish conditional statements about the future path of the policy rate to help shape market expectations and avoid surprises that disrupt financial markets, output, and employment.
- Further, the Bank should withdraw its injection of excess reserves at a future pre-announced date and should gradually wind down credit easing measures.

With three more fixed announcement dates before the Bank of Canada's conditional commitment to hold the overnight rate at 0.25 percent expires in July,[1] it is timely to consider five questions about monetary policy. They are:

1) Should the overnight rate, the Bank's policy rate, start to rise before July 2010?
2) What path should the overnight rate follow as inflation returns to target?
3) How can the Bank use conditional commitment to improve the performance of monetary policy?
4) How has the Bank used quantitative easing and when and how should it disengage this tool?
5) How has the Bank (along with the Department of Finance) used credit easing and when and how should this tool be disengaged?

I examine each of these questions in turn and suggest the appropriate policy actions for the Bank in the coming months.

Phillipe Bergevin, Thorsten Koeppl, David Laidler, Angelo Melino, John Murray, Angela Redish, William Robson and Nicholas Rowe commented on an earlier version. I thank them for their suggestions but note that they do not endorse my conclusions.

1 The future announcement dates for 2010 are March 2, April 20, June 1, July 20, September 8, October 19, and December 7.

Should the Overnight Rate Start to Rise before July 2010?

When the Bank of Canada lowered the overnight rate to 0.25 percent (its effective lower bound) on April 21, 2009, it announced that, conditional on the inflation outlook, it would hold the rate at that level until the end of the second quarter of 2010. The Bank's credibility requires this commitment to be honoured unless the inflation outlook has worsened significantly since April 2009.

Have conditions changed to create a significant risk that inflation will return to the Bank's 2 percent target more rapidly than previously expected and, in the absence of an early monetary policy tightening, exceed that target?

The answer is a firm no. Core inflation[2] through 2009 did turn out to be slightly higher than the Bank had forecast in its April 2009 *Monetary Policy Report*, but not by much; and headline consumer price index (CPI) inflation, although distributed slightly differently across the quarters than expected, ended the year exactly as forecast. Based on the absence of upside inflation surprises, the Bank's forecast for the path of inflation in its January 2010 *Monetary Policy Report* – a rate converging on 2 percent (with an output gap of zero) by the end of 2011 – was essentially the same as in April 2009.[3] One may presume from these forecasts that the Bank expects the path of the overnight rate to remain at 0.25 percent through mid-2010. If this presumption is correct, there is no case to be made for abandoning its April 2009 commitment in March 2010. To do so would damage the Bank's credibility.

What Path Should the Overnight Rate Follow as Inflation Returns to Target?

The Bank of Canada should begin to raise the overnight rate in July 2010 and keep raising it for some time thereafter. But how quickly should the rate rise? The best way to approach this question is for the Bank to get the answer delivered by its quarterly projection model, ToTEM (see Murchison and Rennison 2006), and possibly other models. What is needed is the conditional forecast of the interest rate path most likely to deliver the target inflation rate, at least cost in terms of lost output.

An alternative way to approach this question is to get a benchmark answer by using the so-called Taylor Rule.[4] While the Bank does not use this rule, it does set the policy rate to satisfy the Taylor Principle – of which the Taylor Rule is a special case – which requires the real overnight rate to move in the same direction as the inflation rate. To satisfy the Taylor Principle, when the inflation rate falls the overnight rate must fall by more than the fall in the inflation rate, and when the inflation rate rises the overnight rate must rise by more than the rise in the inflation rate. The Bank's bold moves to lower the overnight rate in 2008 and 2009 are examples of its satisfying the Taylor Principle. We can be reasonably confident that the Bank will be as mindful of the need to satisfy that Principle as the inflation rate start to rise.

What path does the overnight rate need to follow, starting in July 2010, according to the Taylor Rule? Table 1 provides the answer. I calculated the output gap and the inflation gap by using the Bank's forecasts of real GDP growth, potential GDP growth, and inflation.[5] I further assumed that the neutral real overnight rate is 2 percent per year. Based on these data, the Bank correctly set the overnight rate at its effective lower bound of 0.25 percent only in the second and third quarters of 2009, when the Taylor Rule could not be satisfied because it would have called for a negative overnight rate. By the fourth quarter of 2009, the Taylor Rule put the overnight rate at 0.5 percent and, in the first quarter of 2010, at 2 percent.

2 Core inflation strips out volatile energy and certain food prices from the CPI.

3 *Monetary Policy Review*, January 2010, table 4.

4 The Taylor Rule, suggested by John B. Taylor, sets the overnight rate at 2 percent (the neutral real rate) plus the inflation rate, plus a half of two gaps: the output gap (real GDP minus potential GDP) and the inflation gap (the inflation rate minus the inflation target). Simulations show that this and similar rules stabilize inflation and real GDP even better than the decisions of expert committees.

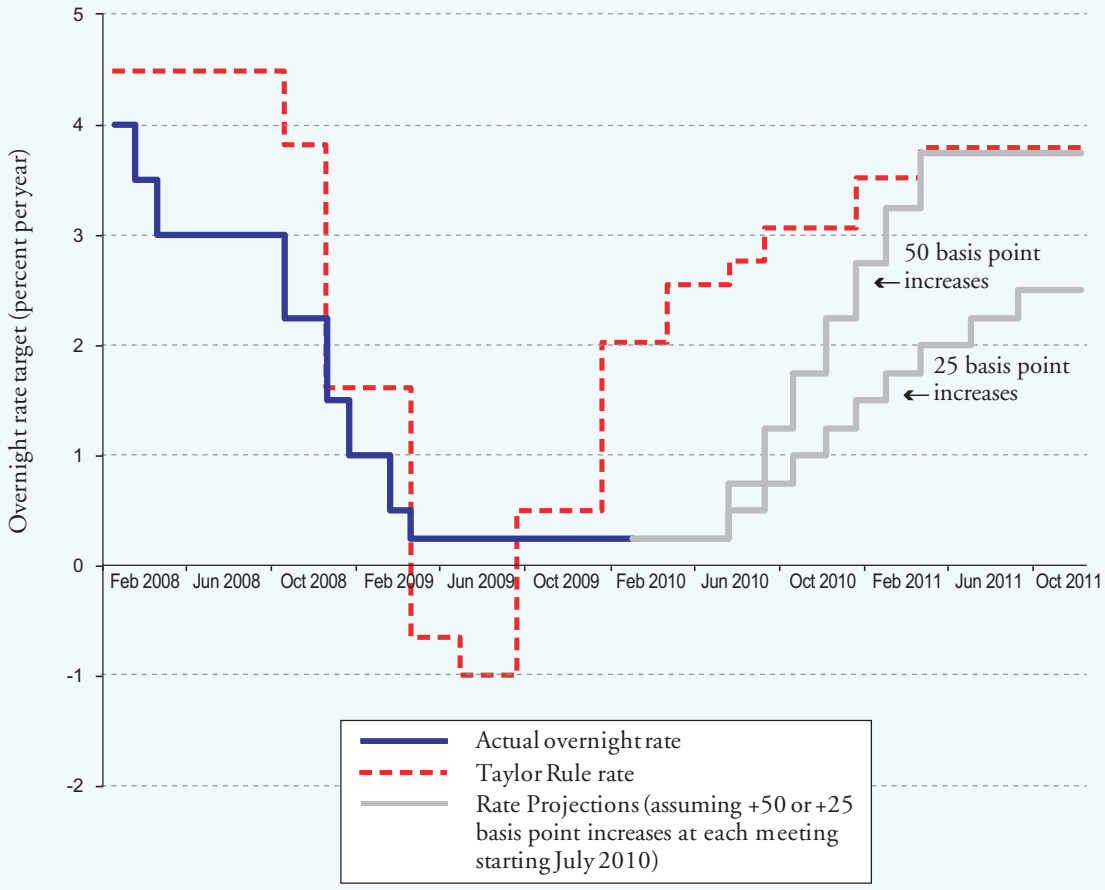
5 See *Monetary Policy Review*, January 2010, table 4. The Bank says it "expects potential output growth to trough at 1.2 per cent in 2009, and then to pick up to 1.5 per cent in 2010 and 1.9 per cent in 2011" (p. 14). I used these growth rates to calculate the output gap forecasts.

Table 1: The Overnight Rate According to the Taylor Rule

		Output gap *(%)*	Inflation gap *(% per annum)*	Overnight Rate according to the Taylor Rule *(% per annum)*	Actual Overnight Rate *(% per annum)*
2008	Q4	-0.4	0.2	3.80	2.50
2009	Q1	-2.4	-0.1	1.60	1.00
	Q2	-3.6	-0.1	-0.65	0.25
	Q3	-4.0	-0.3	-1.00	0.25
	Q4	-3.7	-0.4	0.50	0.25
2010	Q1	-2.8	-0.4	2.01	
	Q2	-2.3	-0.3	2.56	
	Q3	-1.9	-0.3	2.74	
	Q4	-1.6	-0.2	3.04	
2011	Q1	-0.7	-0.2	3.51	
	Q2	-0.5	-0.1	3.58	
	Q3	-0.5	0.0	3.76	
	Q4	-0.6	0.0	3.72	

Sources: Bank of Canada, Statistics Canada and author's calculations

Figure 1: Overnight Rate Paths



Sources: Bank of Canada, Statistics Canada and author's calculations.

These calculations imply that, when the overnight rate starts to rise, it must be on a steep upward path. Further, because the Bank is expected to hold the rate at 0.25 percent for the first half of 2010, at a time when the Taylor Rule calls for a higher setting, it might be that a rate somewhat higher than that called for by the Taylor Rule formula is needed in the second half of 2010 and through 2011 to avoid inflation running above target.

In normal times, the Bank moves the overnight rate target in steps of 25 basis points. If the Bank were to continue this practice and increase the rate with every announcement date, starting in July 2010, by the end of 2011 the rate would reach 2.5 percent, a level that is almost certainly too low. To reach the Taylor Rule benchmark during 2011, the rate would need to rise by 50 basis points at every announcement date. Figure 1 shows these paths for the overnight rate along with the Taylor Rule and actual paths. While the Bank might want to raise the overnight rate more slowly than 50 basis points at every announcement date, doing so would keep the real overnight rate negative through a period in which the economy is returning to normal and run a serious risk of leading to excess demand and rising inflation expectations in 2012 and 2013.

Using Conditional Commitment to Improve the Performance of Monetary Policy

The primary task of monetary policy is to keep inflation expectations anchored at the target inflation rate. Conditional commitment plays a useful role in the performance of this task. The Bank of Canada explains conditional commitment as a more comprehensive tool than one that operates only at the effective lower bound. The Bank describes it as a tool that makes "conditional statements about the *future path of policy rates*,"[6] not just the first part of the future path or the number of quarters over which the rate will be held conditionally at the effective lower bound.

In making the case for conditional statements about the future path of policy rates, the Bank correctly notes that "[c]lear communication is a cornerstone of the Bank's inflation-targeting framework and is a crucial factor behind its success" and "to ensure that market participants understand that the policy statements are conditional on the Bank's inflation outlook and can assess the risks around the projection, such statements would be supplemented with the publication of confidence intervals around the projection. This information should help shape market expectations of future short-term interest rates."[7]

The Bank should now consider accepting its own argument. Bank economists make a conditional forecast of the policy interest rate as an input to forecasts of the inflation rate and real GDP growth rate published in the *Monetary Policy Review*. Greater clarity would be brought to the policy process and discussion if, along with these forecasts, the Bank were to publish a conditional statement about the future path of the policy rate that extends to the end of the two-year forecast horizon. The Bank would emphasize that a conditional statement is neither a promise nor a forecast set in stone, but a *conditional* forecast that will change when the outlook for inflation changes.

It is particularly important in the current situation for the Bank to provide its view of the future of the overnight rate. If it expects to raise the overnight rate as aggressively as the Taylor Rule requires, it should publish and explain this conditional path. If the Bank does not expect to raise the rate this aggressively – and perhaps not even as rapidly as a 25-basis-point rise at every announcement date – it should publish what it does expect and explain why such a slowly rising path is consistent with an inflation rate that does not rise above the 2 percent target in 2012 and 2013. By this means, the Bank could help shape market expectations and avoid surprises that disrupt financial markets, output, and employment.

If the Bank is uneasy about taking this step, at least it should provide qualitative guidance on where it sees the interest rate moving in the next two years and publish staff forecasts with a six-month time delay, which would help to educate market participants about the nature of conditional forecasts.[8]

6 Monetary Policy Review, April 2009, p. 25 (emphasis added).

7 Ibid.

8 Angelo Melino made this suggestion.

The Use of Quantitative Easing

The Bank of Canada describes quantitative easing as the "outright purchases of financial assets through the creation of excess settlement balances (that is, central bank reserves)"[9] and it says that quantitative easing influences aggregate demand by lowering the yields on securities that are purchased, encouraging banks to increase the supply of credit, and increasing the monetary aggregates.

Quantitative easing is, in fact, just a new name for the traditional view that monetary policy is conducted by influencing the monetary base. Keeping this traditional view in mind is valuable because it reminds us of another old (and correct) idea: the importance of distinguishing between a one-time change in the monetary base and a change in its growth rate. A one-time increase in the monetary base will (eventually) raise the price level but leave the inflation rate unchanged; an increase in the growth rate of the monetary base will (eventually) increase the inflation rate. Over the past year, the task of monetary policy has been to increase the inflation rate, so the monetary base has needed to grow at a faster pace.

The Bank understands this need and its aggressive 50-basis-points cuts in the overnight rate target in March and April 2008, followed by further cuts starting in October 2008, have brought faster growth of the monetary base. Between August 2007 and May 2008, the monetary base fluctuated around a zero-growth trend; but since June 2008, it has grown at an average rate of 5 percent per year, exclusively in the form of growth of notes in circulation.[10]

In April 2009, when the Bank lowered the overnight rate to 0.25 percent, it also made a one-time injection of $3 billion – representing 6 percent of the monetary base – into the reserve balances of members of the Canadian Payments Association (CPA), which were maintained at their April 2009 level until November 2009 when they were pulled back to $2.7 billion.

The purpose of the injection was to ensure that the overnight rate would remain at the effective lower bound, but it seems likely that the target rate could have been hit with a much smaller injection. The injection didn't bring an increase in the growth rate of bank lending, nor did it lower bond yields. It isn't surprising that the chartered banks did not rush to lend excess reserves and boost the monetary aggregates with this reserves injection. A rational bank would expect the additional reserves to be withdrawn with the speed at which they were created, so if it used the reserves to make loans, it would need to reverse that action when the reserves were withdrawn.

If the Bank of Canada had wanted to stimulate lending, it would have increased the growth rate of reserves, not the level. It would have drip-fed the banks with reserves so that they grew at a faster rate and at the same time made it clear that the future growth rate would slow but the level would not be reversed.

In the event, the Bank made the judgement, correctly, that with monetary aggregates growing at double-digit rates and the monetary base growing at around 5 percent per year, there was no call for even faster growth rates and so no need for aggressive quantitative easing in addition to what had been achieved by the rate cuts of the preceding year.

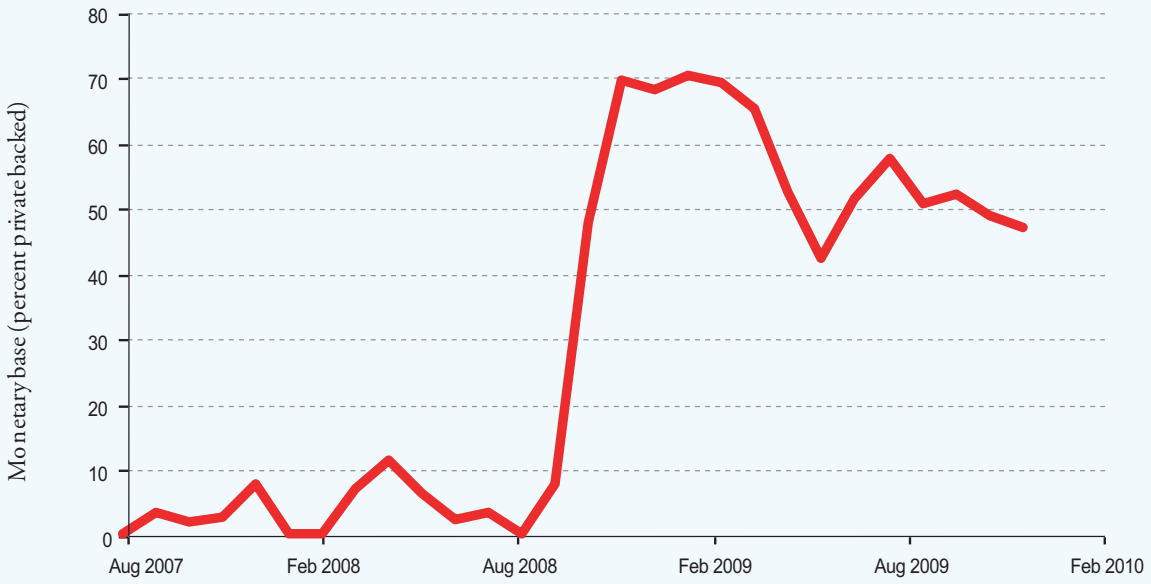
The growth rates of the monetary aggregates and monetary base now being achieved are fine while the economy is recovering from recession and they are not inconsistent with moving the inflation rate to its 2 percent target. But these money growth rates are too high to be sustained if the inflation rate is to be held at 2 percent. As real GDP returns to potential GDP and the growth rate slows to the trend rate, money growth will need to be slowed. The steeply rising path for the overnight rate described above would achieve this outcome and help to keep the inflation rate on its target path.

The remaining reserves injected in April 2009 probably should be withdrawn overnight at a future pre-announced time.

9 *Monetary Policy Review,* April 2009, p. 26.

10 Faster growth of the monetary base has been accompanied by fast growth of the narrow monetary aggregates. From January 2008 to September 2008, M1+ grew at an 8 percent annual rate and M1++ grew at a 9 percent rate. From October 2008 to March 2009, these growth rates were 12.5 and 13.4 percent, respectively. After April 2009, M1+ grew by 13.5 percent per year and M1++ by 18 percent per year.

Figure 2: Credit Easing



Source: Bank of Canada.

Credit Easing

Credit easing is the substitution of private securities for government securities in the Bank of Canada's balance sheet with the opposite substitution in private balance sheets. These asset substitutions can be initiated either by the Bank or by the Department of Finance. Strictly speaking, credit easing is not monetary policy but credit market policy.

The Bank and the Department of Finance have undertaken credit easing on a large scale. The Bank has eased credit through the use of repurchase agreements that take private securities onto its own balance sheet. To avoid increasing the monetary base through these transactions, the Bank sells government securities on behalf of the government of Canada and places the proceeds from these sales in a government of Canada deposit in the Bank's balance sheet.

The Department of Finance has contributed to credit easing (and on a very large scale) through the use of the Insured Mortgage Purchase Program and the expansion of lending by the Canada Mortgage and Housing Corporation, the Business Development Bank of Canada, and Export Development Canada.

The scale of credit easing can be seen by rewriting the Bank of Canada's balance sheet to subtract government of Canada deposits from both assets and liabilities. On the assets side, these deposits can be subtracted from the Bank's holdings of government securities to measure the extent to which the Bank has decreased its net holding of government bonds and increased its facilities to chartered banks and other primary dealers. On the liabilities side, subtracting government of Canada deposits obtains a total that is approximately equal to the monetary base. Figure 2 shows the magnitude of credit easing as the percentage of the monetary base that is backed by credits to the private sector. The scale of credit easing peaked at $40 billion in December 2008, when it represented some 70 percent of the monetary base. Credit easing was pulled back through 2009, but $28 billion – more that 50 percent of the monetary base – is still outstanding and will need to be wound down over the coming quarters.

As the Bank notes, "[a]lthough a number of instruments are available to stimulate aggregate demand at the [effective lower bound], there is considerable uncertainty with respect to the size and timing of the economy's response to these measures."[11] Similarly, there is considerable uncertainty with respect to the size and timing of the economy's response to their unwinding. Nonetheless, the sheer scale of these actions points to their having a large effect, so the exit strategy will need to be handled with care.

Unwinding quantitative easing requires raising the overnight rate sharply, but unwinding credit easing does not require the overnight rate to rise. The Bank might be tempted to go slow on interest rate hikes while credit easing is being reversed, but the temptation should be resisted. Getting credit markets back to normal is a task that is distinct from keeping the inflation rate on track. Raising the overnight rate to slow the growth of the monetary base and the narrow monetary aggregates is crucial to holding the line on inflation as the recovery picks up steam in 2011 and beyond.

Conclusions

Five conclusions emerge from my review of the monetary policy questions faced by the Bank of Canada today. They are:

- The Bank cannot abandon its conditional commitment to leave the overnight rate unchanged at its effective lower bound until mid-2010 without damaging its credibilty.
- When the overnight rate does begin to rise, the changes must be as aggressive as the rate cuts of 2008 and 2009 with increases of 50 basis points at every announcement date until mid-2011 not seeming unrealistic.
- The Bank should publish conditional statements about the future path of the policy rate to help shape market expectations and avoid surprises that disrupt financial markets, output, and employment.
- The current rapid growth rates of the monetary base and monetary aggregates must be slowed. This outcome will occur only if the policy rate follows a sharply rising path.
- Credit easing measures implemented by both the Bank and the Department of Finance should be unwound but with care and consistently with the gradual return to normal in credit markets.

11 *Monetary Policy Review,* April 2009, p. 26.

References

Murchison, Stephen, and Andrew Rennison. 2006. "ToTEM: The Bank of Canada's New Quarterly Projection Model." Technical Report 97. Ottawa: Bank of Canada. December.

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