

IMF STAFF DISCUSSION NOTE

Appendices to SDN/16/09**Macroeconomic Management
When Policy Space is Constrained:
A Comprehensive, Consistent and
Coordinated Approach to Economic Policy**

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APPENDIX I. FISCAL FRAMEWORKS

A credible and clearly-articulated fiscal framework is needed to achieve fiscal policy objectives. The framework should define a fiscal anchor and how to comply with it, with the purpose of managing public sector balance sheet risks (both assets and liabilities). Such a framework enables the government to deploy effective counter-cyclical fiscal policy and to act as a last-resort safety net to the financial sector. Without a long-run framework, short-run fiscal actions could call into question the commitment to longer-term fiscal objectives. For example, a short-run fiscal stimulus could result in volatile policy-making or in entrenched policies that cannot be easily reversed.

An effective fiscal framework defines five main elements: (1) principles to guide fiscal policy, including long-term objectives; (2) a transparent fiscal anchor for the public sector balance sheet; (3) a commitment device—as reflected in the systematic behavior of the fiscal authority—to help navigate transition to the anchor; (4) an understanding of how expectations regarding the future course of fiscal policy affect the behavior of private agents today; and (5) transparency and accountability vis-à-vis the relevant demographic institutions and the public at large.

The forward-looking nature of the fiscal framework suggests that analyzing and managing risks to the public sector’s balance sheet is of paramount importance (see IMF, 2016c).

Analyzing and disclosing how macroeconomic shocks and the materialization of various contingent liabilities could affect public finances in various states of the world would strengthen credibility. The main elements of the balance sheet to be managed are public debt, contingent liabilities, and, more broadly, net worth. Fiscal risks need to be clearly identified and quantified, in order for them to be then mitigated and managed:

- **Identifying and quantifying fiscal risks.** A thorough analysis of fiscal risks requires comprehensive, reliable, and timely fiscal and macroeconomic data. Fiscal data should cover all public sector entities, stocks (balance sheets), and flows. Stress tests and probabilistic forecasts are important in this context.
- **Mitigating fiscal risks.** Once exposure to various risks has been identified, governments need to consider how to mitigate or manage them. Mitigating instruments include: (1) direct controls to limit exposure (for example limits on sub-national borrowing or ceilings on the issuance of government guarantees); (2) regulation and incentives (e.g., through higher capital requirements for banks or risk-based fees for guarantees); and (3) transferring/sharing risks (for example through insurance or the use of state-contingent financial instruments).
- **Managing fiscal risks.** For those risks that cannot be mitigated, provisioning can be used. Examples include deposit insurance funds or stabilization funds in natural resource-rich countries. Prudent public debt levels, however, are the most effective way to ensure that such risk can be contained with minimal economic fallout.

APPENDIX II. MEDIUM-TERM INFLATION

EXPECTATIONS AS SHOCK ABSORBER OR AMPLIFIER

In normal times, following a contractionary shock, policy would react with a rate cut which has its effects on inflation and output via the usual transmission mechanism. At the ELB, the story is more complicated as the nominal interest rate cannot decline, but a somewhat weakened version of the mechanism could still apply through real interest rates and the real exchange rate. That is, expected inflation provides a channel through which forward guidance can stimulate the economy. If monetary policy is active and credible, it could persuade the public that it will eventually get inflation back up to the long-run target (Appendix Figure II-1). With the promise of a sufficiently vigorous policy, which commits to holding the interest rate near zero for an extended future period, the public would expect higher inflation in the future. This would reduce longer-term real rates of interest, even though the nominal rate is stuck at the ELB. These movements serve as a buffer to the shock. In an aggressive response, the central bank could show a forecast with sufficient monetary policy stimulus in which, over the medium term, inflation overshoots before returning to the long-run target. If this forecast is credible, it reduces real interest rates, depreciates the real foreign exchange value of the currency, and boosts asset prices. The effect on demand and inflation is positive.

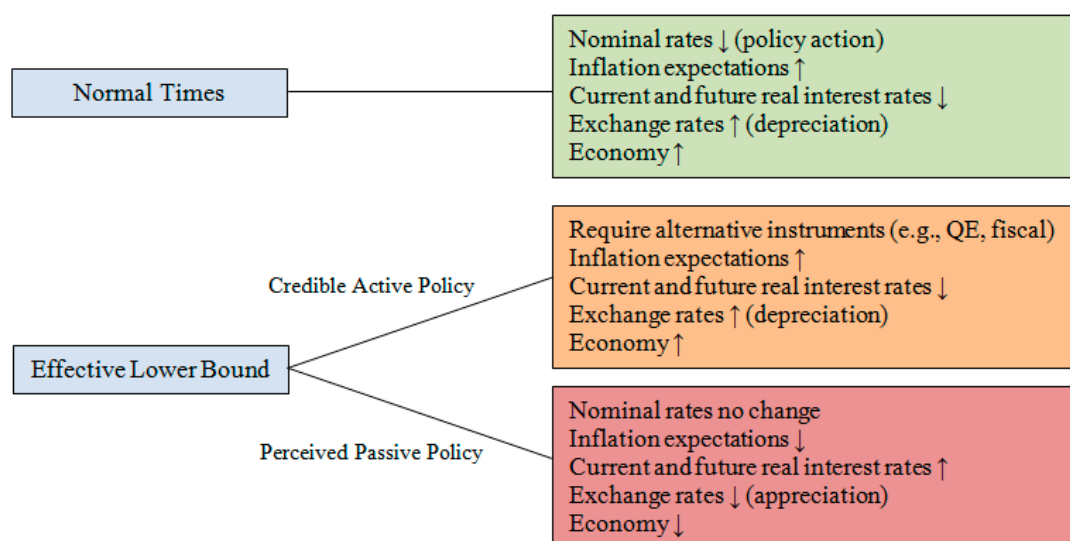
If, however, monetary policy is passive or not credible, changes in the real exchange rate and asset prices amplify a contractionary shock because the expected rate of inflation falls (the expected rate of deflation rises). At the ELB, real interest rates go up, the real exchange appreciates, and asset prices fall, which is the classic deflation trap.

Credible active policies, and hence stabilizing expectations, are evident for Canada in the response to the global financial crisis (Appendix Table II-1). The rate of inflation when Lehman Brothers failed in September 2008 was on target at about 2 percent and the Bank of Canada's policy rate was above 4 percent. The ample room for action was exploited by the Bank, which cut the policy rate in steps to near zero. The Canadian dollar depreciated. Exports fell, but not precipitously, and the recession in 2009 was relatively mild in comparison to previous Canadian recessions and in comparison with what happened in the rest of the world. Inflation fell to a low level, but remained positive. Considering the proximity of Canada to the U.S. epicenter of the crisis, and that Canada suffered in addition a large deterioration in terms of trade with the post-crisis collapse of commodity markets, the two important shock absorbers (long-term interest rates and the exchange rate) worked well.

In Japan, the story is quite different. The main difficulty for counter-cyclical monetary policy was that the short-term interest rate was already near zero when the crisis broke (Appendix Table II-1). With the drop in demand, and oil prices dropping sharply from their peak, 2009 saw a marked deflation. Since the nominal short-term interest rate could go no lower, the real rate went up. The

yen rose strongly against the U.S. dollar, appreciating 25 percent between 2007 and 2009. Exports plunged. Deflationary pressures intensified. It was as if the public had the self-reinforcing belief that policy would not be able to offset the contractionary shock. That is, expectations amplified the contractionary shock.

Appendix Figure II-1. Expectations as Absorbers or Amplifiers Following a Contractionary Shock



Source: Adapted from Clinton and others (2015).

Appendix Table II-1. Selected Economic Indicators for Japan and Canada Before and After the Global Financial Crisis

	Real GDP Growth	Real Export Growth	Output Gap	CPI Inflation	3-yr Ahead Inflation Expectation	Long-term Interest Rate	Short-term Interest Rate	Bilateral USD Exchange Rate (2007=100)
Japan								
2007	2.2	8.7	0.8	0.1	0.9	1.7	0.6	100.0
2008	-1.0	1.4	-1.0	1.4	0.9	1.5	0.4	87.8
2009	-5.5	-24.2	-6.7	-1.3	0.3	1.4	0.1	79.5
Canada								
2007	2.0	1.1	1.9	2.1	2.1	4.3	4.2	100.0
2008	1.2	-4.5	0.9	2.4	2.1	3.6	2.4	99.3
2009	-2.7	-13.1	-3.5	0.3	2.1	3.2	0.4	106.4

Note: All units are in percent except for the bilateral USD exchange rate, which is indexed to 100 in 2007. 3-year-ahead inflation expectations are from Consensus Forecast Long-term Survey, October 2007-09. An increase in the bilateral USD exchange rate means a depreciation of the Yen or Canadian dollar.

Source: Adapted from Clinton and others (2015).

APPENDIX III. FLEXIBLE INFLATION TARGETING FOR RISK AVOIDANCE WITH OCCASIONAL OVERSHOOTING

Policymakers typically do not try to fine-tune the economy, but they do seek at least to avoid outcomes that are very bad. A risk-avoiding central bank ignores small deviations from desired outcomes, but attaches an increasing marginal cost to output gaps, and reacts more strongly to deviations from the inflation target as they grow. In particular, risk avoidance prompts strong corrective actions whenever the economy approaches a dark corner where conventional policy might be ineffective.

Under current circumstances, in economies with significant economic slack, an aggressive risk-averse strategy is likely to result in a central bank forecast showing a temporary overshoot of the inflation target. An attempt to fine-tune a smooth return to target is likely to fail on two related counts. First, the promised modest increases in the inflation rate from current low levels would do little for the medium-term transmission of monetary policy. Indeed, in most advanced economies, this would be a repeat of the unsatisfactory situation of the post-crisis years. Second, a smooth return to target from below does nothing, after years of downward bias, to lift long-term inflation expectations to the target rate.

A central bank that wants to establish firm credibility for the inflation target will on average over the years see positive and negative deviations cancelling out. Thus, even though policymakers may not deliberately aim to overshoot the target after a period of undershoots (i.e., even though they may not deliberately react to past deviations from target as they would in pursuit of a price-level-path target), if they are reinforcing expectations at the target rate, then over the long run it will look as if they do. The key to establishing the nominal anchor is to stabilize the average inflation rate over the cycle. A policy that seeks only to reduce existing, durable deviations—aiming to stay below the target during the medium term—is likely to fall short.

Relevant evidence is provided by the difference in experience of economies in which monetary policy has established IFT (or, equivalently, the U.S. dual mandate as defined in 2012). For example, 3-year-ahead inflation expectations (as well as the 2017-19 average) in Canada, the Czech Republic, and the United States are solid at the target rate, whereas in Japan, less so (Appendix Table III-1).

Appendix Table III-1. Inflation Expectations

CPI Inflation Expectations (percent)							
	2016	2017	2018	2019	Objective	Average (2017-2019)	IFT CB ¹
Canada	1.6	2.1	2.0	1.9	2.0	2.0	Yes (1994)
Czech Republic	0.6	1.7	2.1	2.0	2.0	1.9	Yes (2002)
United States ²	1.3	2.3	2.3	2.3	2.3	2.3	Yes (2012)
Japan	-0.1	0.6	0.9	1.1	2.0	0.9	No

Note: ¹ IFT CBs use consistent macro forecasts to explain how they are adjusting their instruments to achieve their output-inflation objectives. ² The implicit CPI inflation objective for the U.S. is estimated by the authors at about 0.3 percentage points above the Fed's official PCE inflation objective of 2.0 percent. This is based on the difference in long-term CPI and PCE inflation forecasts from Philadelphia Fed's Survey of Professional Forecasters.

Source: Consensus Economics, July 2016.

Publication of a complete macroeconomic forecast by a central bank in this situation is a very useful communications tool. It would show a path for the policy rate that is at the ELB long enough to get inflation above the official target for a while. This helps move expectations in the right direction for both longer-term nominal interest rates (down) and medium-term inflation (up). This double dose reduces real interest rates, which in turn increases asset prices and depreciates the currency, all of which boost output and inflation. When the policy interest rate is near its floor, and the unemployment costs of further negative shocks to demand much outweigh the potential inflation costs of positive shocks, risk avoidance calls for aggressive action.

The logic for deliberate overshooting of the inflation target during the medium term ahead is quite clear. In this, as in other difficult situations, publication of all key features of a coherent macroeconomic forecast, including the projected interest rate path, would help the central bank give a credible public account of its strategy. In contrast, publication of an overshooting inflation rate, without the full story, might undermine confidence in the nominal anchor—it might look as though the central bank was doing “too little, too late” in terms of raising the interest rate to a more normal level. Full transparency would allow the central bank to adopt a more aggressive strategy against deflation, and to avoid losses of output and jobs. More generally, over time publication of the complete central bank forecast path provides a historical record from which outsiders can assess the systematic component of monetary policy, and thereby better hold the central bank to account.

APPENDIX IV. FINANCIAL SECTOR POLICIES AND MONETARY POLICY TRANSMISSION

The monetary policy stance is transmitted to the real economy through various channels, most of which require a healthy financial system. The following are thought to be the most relevant channels (described following a shift to a more accommodative monetary policy stance):

- **Intertemporal interest rate channel:** lower interest rates in the short to medium term decrease returns from savings and lower the cost of investment, making more projects profitable. Saving decreases and borrowing increases, favoring consumption and investment, and boosting aggregate demand.
- **Balance sheet channel:** higher asset prices and expected profits increase the net worth of households and firms, decrease balance sheet leverage, and raise collateral values and borrowing capacity. Banks charge a lower premium on loans as risk decreases. Credit generally increases as does banks' willingness to invest in riskier projects with potentially higher returns and positive effects on potential growth.
- **Bank lending channel:** more liquid assets in the form of reserves and deposit funding enable banks to extend further lending.
- **Exchange rate channel:** less attractive domestic assets lead to currency depreciation, which increases profits from exports (at constant export prices) or export volumes (at constant domestic prices).

Both supply-side and demand-side policies are needed to strengthen the transmission of monetary policy following an acute crisis.

Supply-side Policies

Supervisory action is needed to provide banks with incentives to recognize the fair value of losses from troubled assets. Banks otherwise tend to do so partially or late, to avoid hits to capital, profit, and market sentiment. However, this leaves banks vulnerable, and diverts financial and managerial resources away from providing new lending.

Asset Quality Reviews (AQRs) ensure that bank balance sheets reflect actual economic valuations. Assumptions of future macroeconomic developments substantially influence recovery values of assets and collateral.

Stress tests aim to assess the adequacy of banks' capital buffers and viability over a longer horizon. Stress tests also take a close look at banks' business models, though, again, results are sensitive to economic assumptions.

Supervisory action is also important to ensure banks' capital base is sufficiently strong to continue lending to the economy even in protracted downturns. If capital is insufficient, banks should preferably seek private investment.

State solvency support for bank recapitalizations should remain a measure of last resort. To minimize moral hazard and reduce risks to taxpayers, public equity injections require the dilution of private shareholders, strong governance arrangements, and an adequate compensation for risks. However, only very strong economies are able to provide state support in systemic crises; smaller or weaker sovereigns risk overburdening themselves.

Private sector bail-ins are also possible, though financial stability implications need to be considered carefully. First, buffers of bail-in-able claims need to be built several years ahead of a crisis, when such funds are available at reasonable cost. Second, creditors should be closely monitored and ideally drawn from non-systemic institutions, and as much as possible from abroad.

Asset Management Companies (AMCs) can relieve banks of troubled assets, but raise multiple design issues. The price at which assets are transferred must not provide back-door recapitalizations to banks. The selection of assets must be sufficiently wide to relieve banks. And though funding will often include the public sector (given its access to stable, low-cost, and long-term funding), risks to taxpayers can be shared with the private sector.

Central bank intervention can also help restore market functioning, thereby supporting bank balance sheets, but should only be used to address temporary market distortions. Central banks can provide liquidity support to specific market players, or even set price floors on specific assets when these trade at prices too far below fundamentals (as did the U.S. Federal Reserve through non-recourse repos on Asset Backed Securities (ABS) through the TALF, see Sack, 2010).

Demand-side Policies

Over-indebtedness of households and firms is a key impediment for new lending.

Restructuring distressed loans is vital to clean private sector balance sheets and jump-start credit demand. Viable firms need to be rehabilitated and restructured in the context of a speedy insolvency process. Consumers need to have access to a "fresh start" under appropriate safeguards. At the same time, an effective enforcement regime, including foreclosure frameworks, is needed to provide borrowers with incentives to negotiate and, as a last-resort, deal with unviable debtors.

APPENDIX V. CONTRASTING CASES: CANADA AND JAPAN

Among advanced economies, Canada and Japan present contrasting situations with respect to the room for maneuver of macroeconomic policy. Notwithstanding heterogeneity across provinces, Canada has substantial fiscal space, and—subject to appropriate regulatory measures to cool off overheated housing markets—some room for further monetary stimulus. In Japan, conditions are more challenging, headwinds are more deeply entrenched, and policy is much more constrained. Policy simulations for the pair illustrate the range of possibilities for the advanced economies whose situation lies between the two. Most face fewer difficulties than Japan, but have somewhat more limited policy space than Canada.

Canada¹

Longer-term inflation expectations are firmly anchored in Canada at the 2 percent target rate. Since 2008, however, output has not re-attained potential, and the post-2014 collapse of oil prices has compounded the underlying weakness. Growth is set to recover, but only modestly, as the low oil price continues to take a toll on the economy. There remains a material output gap. Headline inflation is below target, although core inflation remains at around 2 percent. Part of the problem has been the unexpected persistence of global headwinds after the crisis of 2008-09 and its aftershocks. As a consequence, the decline in the equilibrium real interest rate was recognized only with a substantial lag. In hindsight, estimates of the equilibrium real interest rate, in the range of 1-2 percent (Mendes, 2015), have become difficult to square with current very low nominal bond yields and the general performance of the economy. Overestimates of the equilibrium rate lead to overestimates of the degree of stimulus that monetary policy provides.

The Bank of Canada (BoC) IFT framework has worked well and is quite transparent, but a further degree of transparency about instruments and objectives would enhance its effectiveness. First, publication of the central bank forecast could be more comprehensive, especially to include the path of the policy rate. That change would more effectively guide the term structure of interest rates in line with monetary policy objectives. Second, whereas the current, 2011, central bank-government agreement on the inflation control target states that “the inflation target will continue to be the 2 per cent mid-point of the 1 to 3 per cent inflation-control range,” the scheduled 2016 restatement of the agreement could emphasize that the 2 percent point target is the medium-term objective, and that monetary policy should not rigidly try to achieve it in the short run.² Third, explicit recognition of the dual objective for output (in non-numerical terms) as well as

¹ Obstfeld and others (2016) considers the Canadian example in more detail.

² The inflation-control agreements have moved over time in the proposed direction. Before 2001 they expressed the target *only* in terms of a range. This implied some ambiguity about the long-run target, and discussions about the

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for inflation (with the latter having priority) would set out formally the obligation, which in practice the central bank already respects, to account explicitly for the management of the short-run output-inflation tradeoff.³

The BoC still has some room to ease money, through interest rate cuts and unconventional instruments. As regards the latter, Governor Poloz has suggested that the policy rate could go negative, and that the options of forward guidance, large-scale asset purchases, negative interest rates, and funding for credit, remain open (Poloz, 2015).

Canada has fiscal policy space, and is using it. Although the general government gross debt is relatively high, at about 90 percent of GDP including financial assets, its net debt is below 30 percent of GDP, one of the lowest debt ratios in the G7. At the federal level, the gross debt is considerably lower, at 40 percent of GDP (with net federal debt standing at around 23 percent of GDP). However, the future trajectory of the debt ratio is a function of the overall policy package put in place. Strengthening the fiscal framework, by establishing a credible medium-term fiscal consolidation plan at the general government level, will help make the current stimulus more effective.

Policy simulations indicate that a fiscal stimulus coupled with aggressive monetary accommodation would be a potent stabilizer in the event of further negative shocks. Appendix Figure V-1 shows the impact of a series of negative shocks to foreign and domestic demand. If monetary policy follows a regular inflation-forecast-based reaction function, the Canadian output gap in 2017 widens from about -0.5 percent of potential in the baseline WEO forecast (black line) to -1.2 percent (red line). In this simulation, the BoC is assumed to cut the short-term interest rate in gradual steps to about zero in 2018. The negative output gap is not eliminated until 2020, and inflation falls short of target through these years. The government debt-to-GDP ratio rises permanently relative to baseline. This unpalatable outcome suggests that Canada could reasonably apply a more expansionary macroeconomic policy mix. The package depicted in the blue line assumes that fiscal policy too plays a role. This is in line with the 3-C view that fiscal policy should backstop monetary policy in the event of persistent large shocks. In addition, the very low initial level of interest rates, and the risk of heightened financial imbalances that might be associated with further rate cuts, would also justify fiscal stimulus. In the simulation, the fiscal package includes a permanent increase in government investment equal to 0.25 percent of baseline GDP. In addition, the package also includes a temporary increase in targeted transfers covering the period of 2016-19 (0.25, 1.0, 1.0, and 0.5 percent of baseline GDP, respectively). Because of the severe shock, and the weakness already present in the initial conditions, monetary policy accommodates the increased spending by cutting the interest rate below the baseline by 25 basis points in 2016 and 75 basis

meaning of the range boundaries—e.g., were they hard or soft? Experience among IFT economies indicates that a range, compared with a point target, has been associated with inferior results in terms of anchoring long-term inflation expectations (Levin, Natalucci, and Piger, 2004, and Goretto and Laxton, 2005).

³ This last proposal is squarely in line with the objectives of the mandate defined in the preamble to the 1934 Bank Act: “to mitigate fluctuations in the general level of production, trade, prices and employment, so far as may be possible within the scope of monetary action, and generally to promote the economic and financial welfare of Canada.”

points in 2017-2018. The results for output and inflation are strongly positive. The output gap is quickly closed, and inflation modestly overshoots the 2 percent target in 2017-19.

The cumulative output gain under the strategy outweighs the costs of the cycle in output and inflation that it generates. The output gap at the starting point is wide, implying that closing the gap quickly has a high marginal benefit; the marginal cost of the smaller deviations from potential in the modest cycle that follows is relatively low.

The more aggressive expansionary strategy provides insurance against additional negative shocks that may happen in the future. By closing the output gap and raising inflation quickly, the stimulus creates conditions in which further disinflationary shocks are more easily resisted. Over the medium term, it raises the nominal interest rate somewhat, away from the ELB, and the higher inflation rate reinforces expectations that the inflation target will be achieved, and thereby further solidifies the already firm nominal anchor. More generally, the positive outcome on real and nominal income would help dispel notions of policy impotence. An effective stimulus program would therefore increase, rather than diminish, Canada's monetary and fiscal policy space. A risk in the scenario with negative interest rates in 2017-18 is that it might add fuel to the real estate boom in Toronto and Vancouver, and to the unsustainably rapid rise in household debt. However, with the faster recovery, the interest rate rebounds more quickly, such that by 2019 the stimulus strategy has higher interest rates than the no-stimulus alternative.

In particular, the stimulus package need not weaken public finances. A downward trajectory in the government debt-to-GDP ratio is established in the medium term. The aggressive short-run monetary accommodation of the fiscal stimulus reduces the debt ratio in the medium term (relative to the no-stimulus alternative). The initial conditions of low inflation, and a negative output gap, are important to this result. They allow an increase in both real output and the rate of inflation, without compromising the inflation control objective of monetary policy. Stronger nominal GDP has a positive impact on government revenues. In addition, with the lower interest rate, the cost of debt service goes down in the short run.

Canada's financial sector policies are strong. There are two clear risks, however, which appropriate macroprudential policy tools, rather than ad hoc adjustments to the policy interest rate, can address. The risks concern very high and rising household debt, and the housing market boom, which has resulted in large house price increases, posing risks for financial stability. To ensure that monetary policy is not encumbered by these risks, the situation in real estate markets and household borrowing must be carefully watched, and treated with appropriate actions, by government policymakers and financial regulators.

Japan⁴

⁴ Arbatli and others (2016) has more detail on the proposals in this section. It also compares the 3-C program with alternative programs for reflation in Japan, e.g., the "helicopter money" proposal.

Three Arrows Plus

The existing policy framework in Japan has not provided an exit from an entrenched deflationary equilibrium. The Bank of Japan (BoJ) has had to contend with weak monetary policy transmission, sluggish wage-price dynamics, and a falling natural rate of interest. Longer-term inflation expectations, responding to the systematic undershooting, have been below the announced target, indicating a credibility issue. In this context, the pressing communication challenge for the BoJ is to raise inflation expectations firmly to the target rate; the anti-inflationary credentials of the central bank are not in question. Fiscal policy has not followed a consistent line, switching between announced programs of stimulus, and actions to cut the deficit.

A 3-C package, aided by an incomes policy, could strengthen the Three Arrows of Abenomics (“Three Arrows Plus”). The economic program introduced by Prime Minister Abe at the start of 2013 was based on the “three arrows” of fiscal stimulus, monetary easing, and structural reforms. To this we would add one more element, an incomes policy designed to raise the overall rate of wage inflation to a level consistent with the BoJ inflation target. As things stand now, certain structural barriers in the labor market have been holding down wage growth. Our specific proposals are presented in the following paragraphs, starting with monetary and fiscal policies.

Monetary policy should recognize the dual objective, for output as well as inflation. The latter objective should, to be sure, retain clear priority. Moreover, no numerical objective should be announced for output or employment, as these variables are subject to numerous real forces that are beyond the purview of monetary policy.

A further increase in transparency would improve the effectiveness of monetary policy in Japan. The BoJ already releases some forward-looking information, including its forecast for inflation. In addition, publication of a forecast for an endogenous path of the policy rate, with a confidence band, would indicate to the public how policymakers intend to achieve their objectives, the headwinds they may perceive, and their degree of uncertainty. Under current conditions, where there is an unambiguous need for effective monetary stimulus, such a forecast would show an intent to hold the policy rate at the ELB for as long as it takes to get inflation expectations in line with the 2 percent long-run policy target, with a relatively narrow (and one-sided) confidence band. Simulation experiments indicate that this goal might be achieved more quickly and efficiently if the central bank deliberately allows inflation to overshoot 2 percent over the medium term. The improvement in transparency would pay off in more normal times too, since, in general, it would lead the term structure of interest rates to move in a way that would support the objectives of monetary policy. It would also be helpful for central bank accountability—over time, for example, publication of the central bank’s forecast path for the interest rate would reveal its strategy toward the short-run output-inflation tradeoff (Alichi and others, 2015).

With respect to the fiscal framework, a clear strategy should be developed to reduce the high existing debt-to-GDP ratio over time. The high debt has been manageable so far because of the combination of strong home bias by investors, a high private saving rate, and demand for safe

assets in an aging society, leading to very low government borrowing rates. These conditions are not guaranteed to last forever.

A strategy that includes a gradual increase in the VAT will help manage public sector balance sheet risks. The VAT is the least harmful revenue source in terms of both its macroeconomic impact (low multiplier) and allocative distortions. Gradual increases over time will avoid the abrupt intertemporal reallocations of consumption, and the eventual weakness of spending amid low potential growth, that were associated with the VAT hike of 2014. The increased consumer price inflation during a prolonged period of VAT increases would also help raise expectations of inflation, in support of the monetary policy objective.

Structural reforms would yield substantial gains over time. The main gain would be through a significant long-term boost to potential output, mainly from productivity-enhancing and labor market reforms. The fiscal and monetary policies of the 3-C approach would be able to keep the economy on the desired growth path over the medium term, offsetting any short-run contractionary impact that structural reforms might have.

The Plus: Incomes Policy

The dual labor market in Japan has exacerbated the problem of inflation control. With the rise of irregular employment, the weak bargaining position of a large segment of the working population has reinforced sluggish wage-price dynamics in the aggregate. Labor has been at a bargaining disadvantage even in areas where there is an apparent shortage of workers, for example, segments of the services sector. It is as if the wage setting process suffers from a market coordination failure, which has added to an entrenched deflationary mindset.

A policy that supports nominal wage growth directly could help raise wage inflation to a rate consistent with the 2 percent policy objective for CPI inflation. The idea is to build a permanent 2 percent inflation expectation plus an expected productivity gain into the wage bargaining process, so as to get inflation in line with the BoJ target through a cost-push channel. The government would provide its wage guidance through a wage policy for the public sector and a “comply or explain” policy for the private sector. The latter would be similar to the regulatory approach used in Japan, Germany, the Netherlands, and the U.K. to implement corporate governance improvements and financial supervision. The government would announce a wage inflation guideline, which companies would then either comply with, or else be obliged to explain publicly why they cannot. The authorities, however, should be ready to back up their incomes policy with fines and/or incentives if the private sector fails to comply.⁵ The incomes policy would be applied so as to work with market

⁵ Experiences with incomes policies have been mixed, but they have often been implemented in a way intended to bottle-up market forces – e.g., price controls in an inflationary environment. The suggestion here is not to override market forces, but to counter an apparent market imperfection that holds down warranted wage increases, and thereby to bolster public expectations for inflation. In the United States, as part of the New Deal, the Roosevelt Administration established the National Industrial Recovery Administration (NIRA) in early 1933, to help combat

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forces, raising wage settlements in sectors where there are evident labor shortages but where the bifurcated market has led to stagnant or declining wages, e.g., certain service sectors. If pursued consistently, the proposed policy would help raise expectations of inflation durably.

Model simulations indicate that the Three-Arrows-Plus package could deliver the ambitious targets of Abenomics.⁶ The results show an increase, above the medium-term WEO baseline forecast, in both real growth and inflation (Appendix Figure V-2). On average, real GDP growth would be 0.4 percentage points higher. The output gap would turn positive by 2019, and CPI inflation (excluding the effects of the VAT increase) would overshoot the BoJ target of 2 percent.⁷ In view of the need to raise inflation expectations to the target rate, after a long period during which actual inflation on average fell far short, the BoJ need not be concerned about an overshoot of this kind. Indeed, it would help to instill confidence in the target. The combination of higher real GDP growth, gradual VAT increases, and inflation would put the net-debt-to-GDP ratio on a downward trajectory after 2018. The real effective exchange rate would depreciate moderately.

Structural Policies

Support from structural policies is vital in Japan, given the limited room for maneuver of fiscal and monetary instruments. By providing a significant boost to potential output, appropriate reforms make it easier to sustain economic growth, end deflation, and make the public debt sustainable over the long run.

Labor market reform in Japan could help offset the drag on output of a declining workforce. The population is aging and declining. Options for offsetting the impact on the work force include higher participation and immigration. Female participation, already quite high at 65 percent (in the 15-64 years age group), could be raised further by encouraging employers to provide flexible work arrangements and by expanding child-care support to working mothers. The Japanese authorities could consider increasing the numbers of working visas for foreign workers in sectors with labor shortages. According to the Statistics Bureau of Japan (2011), foreign-born workers in Japan accounted for only 1.3 percent of the total labor force in 2010, well below the advanced-economy average.

deflation. It established collective bargaining rights, and a system of codes to set minimum wages, and to allow collusive pricing. The U.S. Supreme Court struck down the NIRA codes as unconstitutional in 1935. The results of the NIRA are difficult to evaluate, amid all the other developments of the time, including a vast program of public works and devaluation of the dollar, but coincident with the program, deflation did end, and industrial production rebounded. Romer (1992) and Eggertsson (1998) conclude that the NIRA played a crucial role in the economic refutation. Jalil and Rue (2016) provide new evidence that shift in inflation expectations played a causal role in stimulating the recovery from the Great Depression.

⁶ Assumptions for the simulations are given in Arbatli and others (2016).

⁷ Monetary policy is assumed to target inflation excluding the direct impact of the VAT increase. As a result, the relevant inflation comparison between the scenarios is the one excluding the direct impact of the VAT increase.

Labor market duality reduces mobility and economic efficiency. Whereas one part of the labor force enjoys secure jobs and steady wage increases, another part, typically younger and employed in service sectors, has a more precarious existence. There is little mobility between the two groups. Reforms to ease entry barriers into the more protected sectors would help investment in human capital, which can be lost when workers are trapped in low-skill jobs, and raise overall productivity. Greater job protections for non-regular workers would also raise the overall bargaining power of labor and strengthen upward wage pressures.

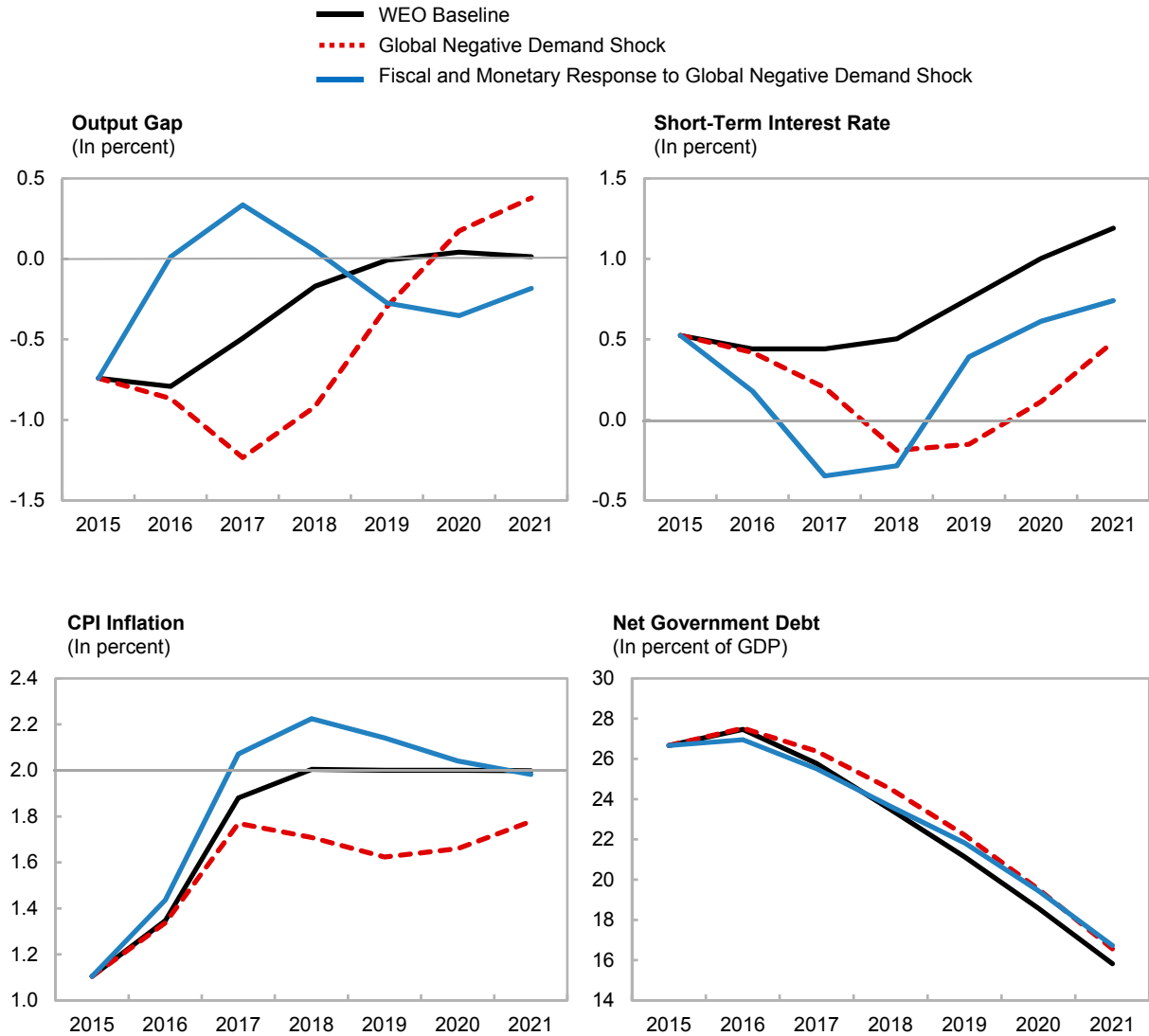
Measures to support domestic investment would also boost output. More investment at home would help counter the strong trend toward outsourcing by Japanese manufacturers. Tax incentives could be expanded to foster research and development. Financial sector reforms could encourage new firms to raise risk capital and small- and medium-sized enterprises to restructure.

Sectoral reforms could also help. Government protection of the agricultural sector could be reduced, and the traditional subsidies to certain food staples (e.g., rice) eliminated. As planned, the electricity sector should be opened up to competition, with regulatory reforms more focused on public safety.

Simulations of structural reforms indicate substantial gains over time. The main gain would be a significant long-term boost to potential output. Estimates suggest that an increase in the average growth rate of potential GDP of about 0.5 percentage points over the next five years is feasible (Appendix Table V-1).⁸ This boost would essentially double the estimated potential growth rate over the medium term. Productivity enhancing and labor market reforms account for four-fifths of the estimated growth effect. The short-term impact of structural reforms is difficult to quantify, given the uncertainty surrounding the private sector response. Therefore, the macroeconomic policy simulations presented in Appendix Figure V-2 do not take into account the structural reform component of the 3-C approach. The fiscal and monetary policies of the framework would be able, in principle, to keep the economy on the desired growth path over the medium term, offsetting any short-run contractionary impact that structural reforms might have.

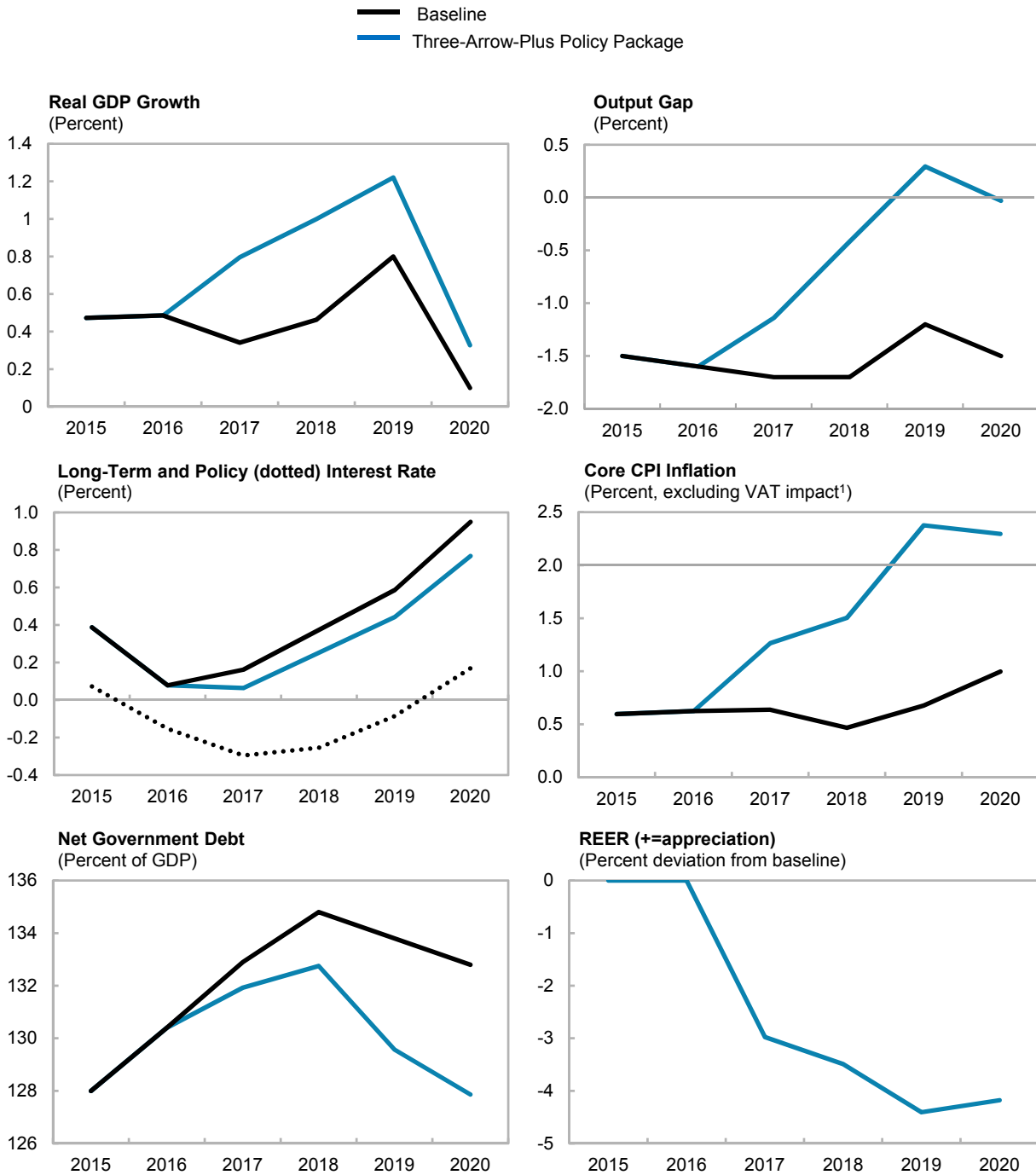
⁸ Based on the IMF-OECD-WBG G20 Macroeconomic Reform Priorities Report scenario and translated into our model by using Bouis and others (2012).

Appendix Figure V-1. Canada Baseline (WEO) and Alternative Scenarios



Source: Authors' simulations.

Appendix Figure V-2. Japan Three-Arrows-Plus Policy Package



Note: Baseline denotes the projections in IMF (2016a). Direct VAT impact is 0.3 and 1.0 percentage points in the baseline scenario for 2019 and 2020, respectively. Direct VAT in the other scenario is 0.4 percentage points for 2017 and 0.5 percentage points thereafter.

Source: Authors' simulations.

Appendix Table V-1. Estimates of the Growth Effects of Structural Reforms in Japan

(Percentage points, average over a 5-year horizon)	
All structural reforms	0.5
of which productivity enhancing and labor market reforms ¹	0.4
of which tax and incentive reforms ²	0.1

Note: ¹ Product market reforms, changes in employment protection legislation, child-care reform, active labor market policies, unemployment benefit replacement reforms. ² Tax and pension reforms.

Source: Authors' simulations.