

## **Growing Government Debt – International Experiences: An Introduction**

Nils Gottfries\*

### **Summary**

■ In the last two decades, the Swedish budget deficit has been extremely volatile around an increasing trend, and it appears to be very sensitive to cyclical fluctuations. Much of the increase in the deficit may be explained by the recession, as falling income reduced tax revenue and normal policy reactions (labor market policy, etc.) raised expenditure. There also appears to be some budget deterioration that cannot be explained by the recession, but the size of the non-cyclical change in the deficit is disputed.

International experience shows that in a situation with large and rapidly rising government debt, fiscal policy is an unreliable tool for stabilizing the economy. In fact, fiscal stabilization has often been associated with favorable macroeconomic development, and several of the contributors argue that the effect of major fiscal adjustment may be the reverse of what we usually think: fiscal stabilization may lead to expansion of private demand. Conversely, expansive fiscal policy may have contractionary effects as interest rates rise and expectations about future incomes are revised downward.

Judging from history, high and rising deficits entail increased risk of future inflation, so investors will demand higher nominal interest rates as compensation. Indexed bonds may bring substantial savings if the government is determined to reduce inflation. ■

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The recent accumulation of government debt in Sweden is extreme by most standards. When similar debt accumulation occurred in the past, it was typically in connection with major wars. In an attempt to review international experiences, and to relate these experiences to the Swedish situation, the Economic Council of Sweden invited contributions from one Swedish and several foreign economists. The papers were presented at a conference in Stockholm in June 1995. In this introduction I briefly state some of the key issues (Section 1), review and discuss some of the results in the papers (Sections 2–6) and try to draw some tentative conclusions (Section 7).

## **I. Questions**

In a situation with a large and growing government debt, a number of questions may be raised, some of which are listed below.

### **i) How did the deficit arise?**

This question can be answered on different levels. One aspect is whether the deficit emerged as a result of a change in policy or whether it was the result of shocks to consumption, exports, etc. for unchanged policy. Since “unchanged policy” can be defined in several ways, there is no single an-

*\*I thank Anders Vredin for comments. The introduction presents my own interpretation of the contributions, however.*

swer to this question. It may also be asked *why* a certain policy was carried out: can the observed policy be understood as the outcome of maximizing some social welfare function, or is it better understood as an outcome of a political process involving interest groups with partly conflicting interests?

## **ii) What are the effects of deficits and fiscal stabilization on output and employment?**

If the government borrows more today, it will have to raise taxes or cut expenditure in the future, or the government will default, in which case bondholders will bear the cost.<sup>1</sup> The government may also default in an indirect way by creating inflation that reduces the real value of outstanding debt. In a simple classical model where consumers care about the infinite future, they realize that they will have to pay for government consumption, regardless of whether it is financed by taxes today or tomorrow. Given expectations about government consumption, tax policy does not matter because consumers save any income arising from tax cuts or increases in transfers. An increase in government consumption reduces private consumption regardless of whether it is tax financed or not.

This so-called “Ricardian equivalence” result builds on several strong assumptions<sup>2</sup>, and a common view is that various deviations from the simple model referred to above imply less than full neutralization of changes in taxes and transfers, i.e., that full Ricardian equivalence does not hold; see Bernheim (1989). Another common view is that the economy is characterized by short-run rigidity of nominal wages and prices. This leads to the conventional Keynesian implication that cuts in taxes and increases in transfers have expansionary effects on the economy, and conversely. For a government facing the ugly combination of a large deficit in the midst of a recession, this creates a difficult dilemma: attempts to eliminate the deficit may drive the economy deeper into recession, giving rise to great social costs and possibly counteracting the fiscal stabilization.

However, as we will see below, several of the papers in this volume

<sup>1</sup> Here I disregard the disruptive effects that government default would have on the real economy (see section 2).

<sup>2</sup> Key assumptions are that consumers have perfect access to credit markets, are forward looking and take account of the utility of future generations.

question this conventional wisdom and argue that under certain conditions, fiscal stabilization need not cause recession, and may even have expansionary effects. Further, it is argued that the effects of a fiscal stabilization may depend on the *type of fiscal changes* that occur: the size of the change and the mix between expenditure cuts and tax increases.

### **iii) What is the relation between deficits, inflation and interest rates?**

Inflation and nominal interest rates are normally considered to be primarily monetary phenomena, but when government debt is large, there is a temptation for the government to allow inflation that reduces the real value of government liabilities. Government debt may also reach some critical level where financial markets refuse to accept government bonds and government debt becomes monetized by necessity. Interest rates will be high today if investors perceive a risk that this will happen in the future (Sargent and Wallace, 1981). How relevant are these considerations? When do governments resort to inflation, hyperinflation or even explicit default as a way of dealing with large government debt?

### **iv) How should the deficit be financed?**

The question of debt management becomes particularly important when the volume of debt is large. The choices here are between short and long maturity, domestic and foreign currency denomination, indexed bonds etc. The problem of debt management is closely related to the issues discussed under iii) above since the prices paid by the market for various debt instruments depend on expectations about future policies. Another question is how many different types of assets the government should issue, and whether the government should issue specialized and sophisticated assets or large quantities of standardized bonds in order to make the market liquid.

The papers in this volume shed light on these issues from different perspectives.

## 2. The Swedish deficit and its consequences

Mats Persson's paper, "Swedish Government Debts and Deficits 1970–95", is mainly descriptive, but he also discusses alternative interpretations. There are three distinct deficit episodes in the twentieth century. One occurred during the Second World War, the second in the early 1980s and the third started in the early 1990s. Since 1970 there has been a strong trend towards increasing deficits and debt. This is a general trend in the OECD but it has been particularly pronounced in Sweden.

Moreover, the Swedish budget deficit relative to GDP has been extremely volatile: the central government borrowing requirement rose above ten percent of GDP in the early 1980s, turned into a small surplus in 1989–90, and then increased to 15 percent of GDP in only a couple of years. Of course, this volatility partly reflects the fact that government revenue and expenditure are both large relative to GDP.

Persson discusses possible causes of variations in the deficit and argues that only the first deficit episode (during the Second World War) is consistent with the classical tax-smoothing argument, i.e., that the government should try to smooth taxes in the face of shocks to income and expenditure in order to minimize the distortions associated with taxation.

The second and third periods of increasing deficits occurred when right-wing coalition governments were in power, and this is consistent with the "strategic deficit" argument that a conservative government may run a deficit in order to force a possible left-wing successor to cut expenditure (Persson and Svensson, 1990, and Aghion and Bolton, 1990). Persson is unwilling to accept this interpretation, however. He notes that much of the variation in the deficit appears to be *unexpected*, rather than planned by strategic politicians. Further, a large part the deficit in the early 1990s was due to increased government transfers, particularly unemployment benefits, and since the transfer system appeared basically unchanged during this period, he concludes that much of the increase in the deficit resulted from a given transfer system when other factors pushed the economy into recession.

On the other hand, he notes that the Swedish experience is consistent with the findings of Roubini and Sachs (1989) that budget deficits tend to be larger with coalition governments.<sup>3</sup>

<sup>3</sup> See Ohlsson and Vredin (1993) for econometric evidence to this effect.

Persson also reviews debt management in Sweden. The share of loans denominated in foreign currency increased during the periods of increasing deficits around 1980 and 1991–92, and decreased in the latter part of the 1980s when deficits were low. The maturity of domestically denominated debt, which had been relatively stable, has increased in recent years. Following Missale and Blanchard (1994), Persson calculates an effective maturity of government debt, which measures the possibilities for the government to inflate away the gross debt, and finds that effective maturity increased in the first half of the 1990s (contrary to the pattern observed for other countries by Missale and Blanchard).

Examining interest rates, Persson finds that during the last couple of years, the interest rate differential between Swedish and US dollar-denominated bonds has been relatively stable at 40–50 basis points. He therefore attributes most of the variation in nominal bond yields to inflationary expectations and inflation risk premia rather than default risk.

In their paper, “Non-Keynesian Effects of Fiscal Policy Changes: International Evidence and the Swedish Experience”, **Francesco Giavazzi** and **Marco Pagano** offer a new interpretation of recent macroeconomic developments in Sweden. Their argument is that in a situation with a large and growing government debt, a tax cut (or increase in transfers) may not only be neutral with respect to aggregate demand (Ricardian equivalence), but may actually lead to a *contraction* of aggregate demand.<sup>4</sup> Several theoretical arguments have been advanced as to why fiscal policy may have such non-Keynesian effects. An obvious channel is the effect of the budget deficit on interest rates. There may also be effects on consumption if a tax cut today implies larger perceived costs for consumers in the future: when taxes are cut, a tax hike in the near future may become more likely, taxes will have to be raised *more* in the future to pay for accrued interest, and there may be increased probability of future government default, with associated disruptions of the real economy.

Giavazzi and Pagano suggest that the drastic increase in transfers and decrease in taxes relative to GDP in the early 1990s may indeed have had such contractionary effects. They point primarily to three pieces of evidence to support this interpretation. First, they point out that much of the increase in the deficit between 1990 and 1993 was an increase in the

<sup>4</sup> This argument is an extension of the earlier argument by the same authors that severe fiscal contractions can be expansionary (Giavazzi and Pagano, 1990).

*cyclically adjusted* deficit as measured by the OECD.<sup>5</sup> Second, they argue that as of 1992, there were clear indications that fiscal policy was unsustainable and financial investors were pessimistic concerning the ability of the government to stabilize the debt/income ratio. Third, they estimate standard consumption functions and find that their equations overpredict consumption in the early 1990s by a vast amount. They argue that this may reflect increased pessimism of consumers, caused by lax fiscal policy in the early 1990s.

When discussing whether variations in the Swedish deficit were caused by “policy” or were “cyclical”, it may be worth keeping in mind that a “change in fiscal policy” can have different meanings. Any statement that fiscal policy “changed” or was “expansionary” in a given period must, explicitly or implicitly, compare the actual development to a *reference path* for government revenues and expenditures. Depending on how we define the reference path, we may describe policy differently. If we define “policy” as *discrete policy decisions*, the implicit reference path is the government incomes and expenditures that would have materialized if no new policy decisions had been taken. In practice, it is difficult to use this definition, however, because fiscal revenues and expenditures are determined by many large and small decisions. The general stance of many small decisions may be more important than a particular, easily identified tax change or stabilization package.

If, instead, we define policy as the *change in a cyclically adjusted deficit*, many changes in revenues and expenditures which were *not* the result of discrete policy decisions are included in the measure of fiscal policy. A shift in the income distribution or savings behavior may lead to a decrease in tax revenue for a given tax system, or some social program may grow by its own logic. Using the cyclically adjusted deficit, this will be described as expansionary fiscal policy even though no discrete policy decisions were taken. Is this reasonable? In the very short run it is obviously not reasonable since the government may not even be aware of the change, much less able to do anything about it. But consider a somewhat longer period, when the government is able observe the change and respond to it. Then it may be argued that if the government does *not* react, this is best described as expansionary fiscal policy. From this point of

<sup>5</sup> The cyclically adjusted deficit is a measure of what the deficit would have been if activity had been at a normal (equilibrium) level.

view, the change in the cyclically adjusted deficit may be a reasonable measure of policy for periods of a year or more.

At the same time, the cyclically adjusted deficit, as calculated by the OECD, is probably not independent of the cycle since it is “forward looking”, calculated for some estimated equilibrium level GDP. When GDP falls, the estimate of equilibrium GDP tends to fall too, raising the cyclically adjusted deficit. Furthermore, the cyclical adjustment may not take adequate account of the progressivity of Swedish tax and transfer systems. Finally, normal policy reactions to the recession, e. g. with respect to labor market policy (Ohlsson 1995), imply two-way causality between consumption and the deficit.<sup>6</sup> For these reasons, part of the increase in the cyclically adjusted deficit between 1990 and 1993 was probably a consequence of the recession.

Still, there appears to be a substantial deterioration of the fiscal balance which cannot be explained by the cycle<sup>7</sup> and, whatever caused the deficit, it seems likely that investors and consumers started to worry seriously about the fiscal imbalance, and that this counteracted the traditional Keynesian effect of fiscal policy.

### 3. International evidence on the effects of fiscal stabilization

Large fiscal changes are relatively unusual events, and if we look at a particular episode, it is often hard to discriminate between alternative interpretations. Therefore, it is important to draw on international experience, and try to present this experience in a systematic way. This is done by Giavazzi and Pagano, in the first part of their paper, and also by **Alberto Alesina** and **Roberto Perotti** in their contribution to this volume.

<sup>6</sup> Ohlsson and Vredin (1993) find that revenue is very sensitive to cyclical fluctuations. According to their estimates, a one percent increase in production and employment raises government revenue by about 4 percent and decreases expenditure by about one percent (see Ohlsson and Vredin, 1994). Agell, Englund and Södersten (1995) find that the elasticity of nominal tax revenue with respect to nominal GDP is about 1.8. These estimated “reaction functions” include both automatic stabilizer effects and policy reactions, however.

<sup>7</sup> Agell, Englund and Södersten (1995) estimate that the 1991 tax reform was underfinanced by about 2–3 percent of GDP. Ohlsson and Vredin (1994) estimate that if the macroeconomic development in the early 1990s had followed previous trends, the deficit in the fiscal year 1993/94 would have been between 3 and 6 percent of GDP. These calculations are based on estimates by Ohlsson and Vredin (1993).

In both cases, the authors try to investigate whether the *effects* of large changes in fiscal policy have to do with the *types of changes* in fiscal policy that occur. Giavazzi and Pagano examine whether the *size and persistence* of the fiscal adjustment matter, while Alesina and Perotti focus on the *policy mix* between tax increases and expenditure cuts. Both papers utilize yearly data for the OECD countries. In order to discuss *effects* of fiscal policy, one needs to construct some measure of fiscal policy which can be taken as reasonably exogenous, and the two pairs of authors deal with this problem in different ways.

Giavazzi and Pagano use the change in the cyclically adjusted primary deficit,<sup>8</sup> calculated by the OECD, as a measure of the change in fiscal policy, the “fiscal impulse”. Next, they define a fiscal “episode” as a period during which the cyclically adjusted deficit changed in the same direction each year. They then examine the relation between the change in fiscal policy and the change in private demand (consumption and investment) over the same period.

They find a nonlinear relation: for small changes in the cyclically adjusted primary deficit, fiscal expansion is typically associated with an increase in private demand, and vice versa, as predicted by the Keynesian textbook, but for large fiscal contractions, the opposite relationship is found; several large fiscal contractions were associated with strong growth of private demand. They also argue that large fiscal *expansions* may have contractionary effects, with the Swedish deficit in the early 1990s as the prime example, but the international evidence to this effect is weaker. The nonlinearity found by Giavazzi and Pagano is consistent with theory since *large* fiscal changes are more likely to be noticed by consumers and more likely to affect expectations about the solvency of the government, the perceived risk of future inflation, etc.

These results are certainly very interesting and suggestive, but some reservations may be called for. First, the cyclical adjustment may not eliminate all reverse causation, as discussed in the previous section. Second, fiscal stabilization is often part of a stabilization *package* containing a list of actions, particularly devaluations, and the favorable growth effects may come from these other measures, or from a combination of measures.<sup>9</sup> Still,

<sup>8</sup> The primary deficit is the budget deficit excluding interest payments.

<sup>9</sup> Barry and Devereux (1995) argue that improved international competitiveness was an important factor behind the favorable economic development accompanying the fiscal consolidations in Ireland 1987–90 and Denmark 1983–86. See also Andersen (1994) for a discussion of the Danish case.

it is a striking observation that large and successful fiscal adjustments were so often associated with a good overall macroeconomic development.

In “Reducing Budget Deficits”, Alberto Alesina and Roberto Perotti slice the pie somewhat differently.<sup>9</sup> For each country, they single out a number of years when fiscal policy was *very tight* as measured by a fiscal impulse indicator. The fiscal impulse indicator is based on changes in government consumption, taxes and transfers, after correction for estimated effects of changes in unemployment on these variables (see Blanchard, 1993). Provided that unemployment is a suitable cyclical indicator, this fiscal impulse should exclude both automatic stabilizer effects and normal policy reactions to cyclical fluctuations, so it is probably more exogenous than traditional changes in the cyclically adjusted deficit.

Since the classification of Alesina and Perotti is less demanding and based on changes year by year, they select more periods than Giavazzi and Pagano as years of very tight fiscal policy.

They then classify as *successful adjustments* those cases where the debt/GDP ratio was reduced by a significant amount three years later. Next, they look for differences between successful and unsuccessful adjustments both with respect to the policy mix between tax increases and expenditure cuts, and with respect to general macroeconomic developments. The main results are that successful adjustments differ from unsuccessful adjustments in that they *rely more on cuts in expenditures*, particularly transfers and the government wage bill, and *less on increases in taxation*, relative to GDP. Moreover, successful adjustments are associated with *higher growth* than unsuccessful adjustments.

Transfers are the component of government spending that has grown most rapidly in recent decades. Having the nature of entitlements, transfers tend to grow by themselves – unless eligibility criteria and generosity of benefits are adjusted. Therefore, Alesina and Perotti argue, a lasting fiscal consolidation can only be achieved by attacking these politically sensitive parts of the budget.

As the discussant points out, the results may be affected by reverse causation. An exogenous shock that generates growth in the private sector, for given real government expenditure, will tend to reduce government expenditure as a fraction of GDP as well as the debt-income ratio. The fiscal impulse indicator is intended to take account of such effects, but there is still a question whether this adjustment for cyclical effects is

<sup>10</sup> The paper partly reviews results reported in Alesina and Perotti (1995a, b).

sufficient. More detailed studies of the various fiscal stabilization episodes would be useful.

Alesina and Perotti also examine macroeconomic developments during periods of major, *multi-year* fiscal adjustment. Because their selection criteria differ from those of Giavazzi and Pagano, the events classified as major fiscal adjustments only partially overlap with those identified by Giavazzi and Pagano. Both pairs of authors agree, however, that the following were periods of major fiscal adjustment: Denmark (83–86), Ireland (87–89), Sweden (86–87), Belgium (84–87) and Portugal (84–86). Alesina and Perotti find a mixed picture: in some cases fiscal stabilization was associated with relatively high growth (e. g. the first two cases above), in some cases, stabilization was associated with relatively slow growth (e.g. the last three cases). Thus they do not find clear support for the hypothesis of Giavazzi and Pagano (1990) that fiscal contraction is expansionary. Aside from the difference in classification, it should be noted that Alesina and Perotti examine the overall performance of the economy while Pagano and Giavazzi consider the effect on private demand.

#### 4. Case study of Israel

In the paper "Fiscal Balance During Inflation, Disinflation, and Immigration: Policy Lessons", Assaf Razin and Efraim Sadka review fiscal developments in Israel. Beginning with the Yom Kippur War and the oil crisis in the early 1970s, fiscal discipline weakened. Then followed more than ten years with deficits around 15 percent of GDP and rising inflation. Inflation increased above 300 percent, and public sector debt peaked at 175 percent of GDP in 1984, followed by a sharp and successful stabilization program in 1985.

Given the magnitude and persistence of the deficit, it is clear that the deficit was the main cause of inflation, and that curbing inflation required elimination of the deficit. The 1985 stabilization program is another instance where fiscal stabilization was associated with growing private demand and a generally good performance of the economy. A sharp depreciation of the currency helped in this respect, but it is striking that private consumption *increased* after sharp cuts in transfers and real wages.

An important effect of inflation, they argue, was a shift of the tax burden from capital to labor. Conversely, lower inflation implied increased

taxation of capital and this may help to explain the period of relatively slow growth and rising unemployment following the stabilization.

The fiscal consequences of the large immigration wave in the early 1990s are particularly interesting. Immigration meant costs for the government, but the labor market was sufficiently flexible to absorb the new immigrants: real wages decreased and employment increased rapidly in the private sector. As a result, the debt/income ratio decreased substantially. This again illustrates the close connection between government finances and general macroeconomic developments.

## **5. How governments deal with large debt – a historical perspective**

In the paper “Sustainability of High Public Debt: What the Historical Records Show”, **Albrecht Ritschl** reviews the long-run debt history of Britain, France and Germany. In this perspective, the deficits of the OECD countries during the last two decades appear quite extreme for peacetime: in the historical periods examined by Ritschl, similar deficits typically occurred in connection with wars.

The three countries handled their debts in different ways. The UK sustained a high debt/income ratio for long periods without default, while others defaulted on their debt, either explicitly or by allowing hyperinflation. Several factors affected the choice between these alternatives.

For the UK, sustaining reputation in international financial markets was a major motive for not defaulting. Ritschl views the deflation in the early 1920s, which led up to the return to the gold standard at prewar parity in 1925, as one example of how Britain committed herself to honoring her outstanding debt. Britain defaulted on inter-allied debt in 1932, but this was an “excusable” default because the repayment of this debt was linked to German reparations, which ended that year.

Ritschl emphasizes that *international financial relations* affected the way in which outstanding debt was handled. In the 1920s conflicts over reparation payments made it politically impossible for the French and German governments to balance their budgets. Under the Dawes Plan, reparation payments were maintained by recycling of US loans to Germany, but this was a temporary solution. When this arrangement broke down in 1929, Germany was cut off from the international credit market and forced to adopt a deflationary policy.

Ritschl concludes that credit and balance of payments constraints, associated with conflicts over reparations, may have aggravated the contractionary effects of fiscal restraint in the interwar period and may therefore give us an overly pessimistic picture of the effects of fiscal stabilization.

## 6. Debt management

In the paper “Reducing the Cost of Government Debt: the Italian Experience and the Role of Indexed Bonds”, **Silverio Foresi**, **Alessandro Penati** and **George Pennacchi** review debt management in Italy. They find that floating rate bonds, which were issued in large amounts in Italy, did not provide substantial savings for the government. Investors were unwilling to pay a premium relative to fixed coupon bonds for the better inflation hedge provided by floaters. They also argue that financial innovation is an unpromising avenue for debt management. Financial markets reward financial instruments that can be stripped into simple, tradeable and easily hedged components. Markets are willing to pay a premium for depth and liquidity, and debt management should therefore promote a market micro structure that concentrates trading on a few benchmark bonds.

Finally, they find indications of inflation risk premia on nominal bonds compared to indexed bonds, which translate into potential savings for the Treasury from issuing indexed bonds. Of course, it is hard to know whether observed differences in realized returns represent *ex ante* risk premia or *ex post* forecast errors, but if the government is determined to reduce inflation, there may be much to gain from issuing indexed bonds.

## 7. Tentative conclusions

To me, the papers in this volume suggest the following tentative answers to the questions posed at the beginning:

### i) Reasons for deficits

In a historical perspective, the deficits and debt of Sweden and several other OECD countries are extreme for a period of peace and relative political stability, suggesting that new political mechanisms are at work. The

Swedish budget deficit appears to be particularly cyclical, because of both strong automatic stabilizers (high marginal taxes) and cyclical policy reactions (labor market policy), but part of the increase in the deficit is hard to explain by the cycle. The correlation of the deficit with the composition of the government supports the view that coalition governments find it harder to balance their budgets.

## **ii) Effects of fiscal expansion and contraction**

The international evidence presented here shows that fiscal stabilization is typically associated with a good overall macroeconomic development. Several of the authors argue that, contrary to traditional Keynesian thinking, fiscal stabilization may have expansionary effects on private demand because of lower interest rates, improved consumer confidence, etc. I find these results extremely interesting, and there are certainly cases where the effects of fiscal stabilization appear to be non-Keynesian. On the other hand, there may also be cases of reverse causation. More detailed studies of particular episodes are needed to find out exactly when fiscal contraction is expansionary.

From a traditional Keynesian perspective, the deterioration of the Swedish fiscal balance in the early 1990s may be regarded as an adequate policy response to the recession, but several of the papers in this volume suggest that in a situation like the Swedish one, the effects of fiscal policy may be reversed. Was the expansionary fiscal policy really counterproductive, contributing to the recession? The answer depends on how we interpret high interest rates and low private consumption. Certainly, financial investors and consumers started to be seriously concerned about the fiscal imbalance, and this raised interest rates and reduced consumption. It is hard to pin down the magnitude of the effects, but it is clear that with high and rapidly rising government debt, fiscal policy is a very unreliable tool for stabilizing the economy.

## **iii) Deficits, inflation and interest rates**

Explicit default on government debt is unusual, but governments sometimes default in real terms by allowing inflation that reduces the real value of nominal claims on the government. A small perceived risk of high inflation should be enough to bring up interest rates. Based on historical experience, a debt/income ratio that increases as rapidly as it did in Swe-

den in the early 1990s, should be taken as an indication of future inflation. Interest rate differentials confirm that investors perceived, and still perceive a substantial risk of future inflation.

#### iv) Debt management

Investors may fail to appreciate financial innovation. They value liquidity, and trading on a few benchmark bonds should be promoted. Indexed bonds may bring about substantial savings, particularly when there is a policy shift that leads to lower inflation.

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