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The Speed Limit of Fiscal Consolidation

- The large fiscal adjustment needed around the world will require a delicate balancing act. Act too slowly and progress will be insufficient. Act too quickly and the economy may stumble.
- Countries are more likely to achieve sustained adjustments when initial deficits are high and the adjustment focuses on spending cuts.
- Consolidations are likely to act as a significant drag on growth regardless of whether they focus on cutting spending or raising taxes and particularly when not accompanied by monetary easing.
- The extent of the growth drag will likely vary across countries, as adjustments tend to be more painful in large, closed economies and countries with fixed exchange rates.
- The “speed limit” of fiscal adjustment—the pace of tightening after which the corrosive impact on growth starts to undermine the fiscal position itself—is therefore likely to be lower in large, closed economies (like the US or Japan) and in countries with fixed exchange rates (European periphery) than in small, open economies (UK).

Important disclosures appear at the back of this document.

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Summary

- Large fiscal adjustments are required around the world, particularly in the advanced economies. At a minimum, countries need to bring their primary (ex interest) budgets into balance in order to stabilize their debt-to-GDP ratios. The IMF projects an average primary general government deficit of more than 5% of GDP in the advanced economies in 2011. The bulk of the necessary adjustment is structural and will require deliberate fiscal tightening.
- Fiscal consolidation of this magnitude is a complicated balancing act for policymakers. Act too slowly and progress will be insufficient. Act too quickly and the economy may stumble, undermining both the fiscal position itself and political support for action to address it. In this study we explore the balancing act using a new IMF dataset on fiscal consolidations.
- Somewhat reassuringly, we find that countries are more likely to begin and continue large consolidations when fiscal imbalances are high and governments come under pressure from elevated bond yields. Moreover, consolidations that are large and focused on spending cuts (“spending-based” adjustments) tend to be more persistent than tax-based ones.
- Fiscal consolidations, however, are painful: our results—like the IMF’s—suggest that an adjustment equal to 1% of GDP, on average, lowers real GDP by 0.6% after two years. At first glance, spending-based adjustments appear considerably less damaging than tax-based ones. Much of this difference, however, is due to the behavior of monetary policy—which tends to ease during spending-based adjustments but typically tightens during tax-based consolidations. Without a monetary policy response the difference in growth damage between spending and tax-based consolidations narrows sharply, and both lower real GDP by 1-1½% after two years for every 1% of GDP of fiscal tightening.
- The drag on growth also varies with country characteristics. Adjustments tend to be more painful in large, closed economies and countries with fixed exchange rates. Moreover, the output hit is typically bigger in economies that start out with large macro imbalances, such as current account deficits and high inflation. But the drag tends to be smaller when real policy interest rates are initially high, because there is more room for central banks to ease monetary policy to support growth.
- These results point to a “speed limit” of fiscal adjustment—the pace of tightening after which the corrosive impact on growth starts to undermine the fiscal position itself. In normal times, we find that the “speed limit” is around 2% of GDP. But our results imply that the “speed limit” is considerably lower for economies at the zero bound and countries with fixed exchange rates.
- Although decisive fiscal adjustment is needed, our analysis suggests that countries should be careful not to tighten too quickly. In particular, our findings suggest that large, closed economies (like the US and Japan) and countries with fixed exchange rates (European periphery) should adjust more slowly than small, open economies (UK). In the meantime, monetary policy in these countries should remain accommodative—or indeed deliver additional easing—to cushion the growth effect. And it could be helpful to adopt or strengthen legislative commitments, like fiscal rules, to reduce the risks of acting more gradually.



Introduction

Large fiscal adjustments are required around the world, particularly in the advanced economies. The IMF projects an average primary deficit (excluding interest) of 5.3% of GDP in the advanced economies in 2011 (Exhibit 1). At the very minimum, countries need to bring their primary budgets close to balance in order to stabilize their debt-to-GDP ratios.¹ The ongoing cyclical recovery will help by boosting revenues, but the bulk of the necessary adjustment is structural and will require deliberate fiscal tightening. Moreover, in addition to closing the primary structural deficit, countries may want to return their debt-to-GDP ratios to pre-crisis levels, which would require yet larger adjustments in many countries (Exhibit 2).

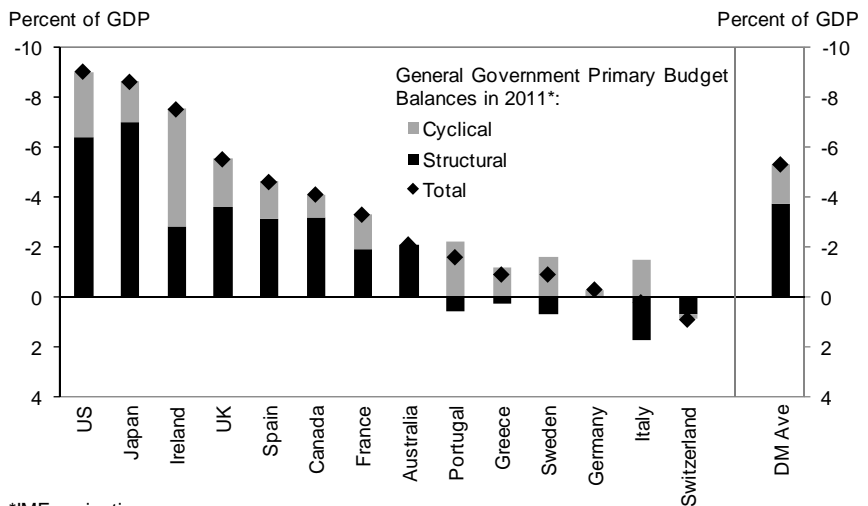
Fiscal adjustment of this magnitude is a complicated balancing act for policymakers. To make progress with the large adjustments ahead, many countries will need to take significant and sustained action. But textbook economics suggests that those adjustments would hurt growth. Act too slowly and progress will be insufficient. Act too quickly and the economy may stumble, undermining both the fiscal position itself and political support for action to address it. Many countries are already in the middle of negotiating this balance, such as Greece and the UK. Other countries, like the United States, are still debating as to how to strike this balance.

In this study we explore this balancing act.² In particular, we try to answer three related questions:

1. What determines whether consolidations are started? And once started, what factors influence the likelihood that a consolidation is sustained?

The large fiscal adjustment needed around the world will require a delicate balancing act.

Exhibit 1: Large Primary Deficits Indicate the Need for Consolidation in Many Countries



*IMF projections.
Source: IMF. GS Global ECS Research.

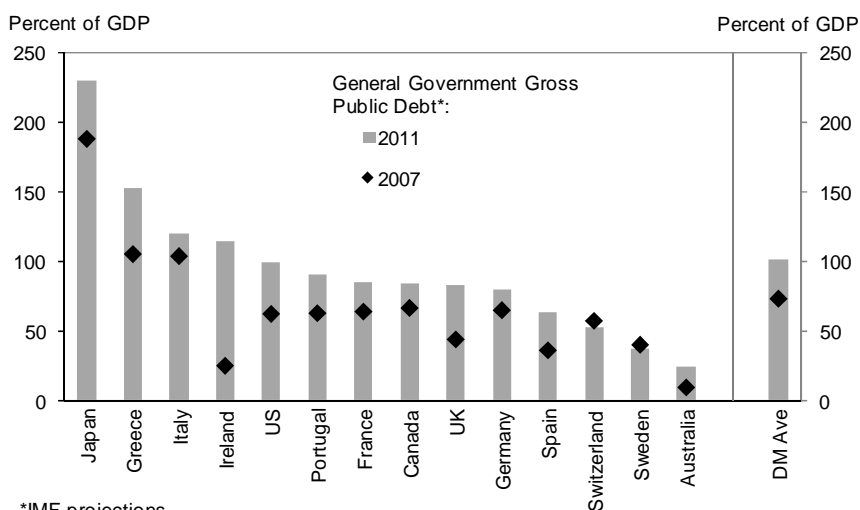
¹ This assumes that the interest rate is equal to the growth rate of GDP. If the interest rate exceeds growth, a primary surplus is needed to stabilize the debt-to-GDP ratio.

² In this paper we collect and extend results already published in three separate comments. These include Hatzius and Stehn (2011), Stehn (2011), and Stehn, Wilson and Carlson (2011). Moreover, we revise these results using an update of the IMF’s database on fiscal consolidations which has since become available; see Devries et al (2011).



2. How damaging are fiscal consolidations for growth? And how does the growth damage depend on the composition of the adjustment, monetary policy and country characteristics?
3. How quickly should countries consolidate? And how does this “speed limit” of fiscal adjustment vary across countries?

Exhibit 2: Debt/GDP Ratios Much Higher Than Pre-Crisis Levels



*IMF projections.

Source: IMF. GS Global ECS Research.

I. The Literature on “Successful” Consolidations

A number of studies—going back to Alberto Alesina and Roberto Perotti in 1995—have identified factors that determine the “success” of fiscal consolidations. Successful adjustments are typically defined as sizable and lasting reductions of the deficit or debt ratio without much damage to growth.³ These include:

A number of studies have identified factors that determine the “success” of fiscal consolidations...

1. **Composition of the adjustment.** A key result of these studies is that consolidations which focus on cutting spending (“spending-based” adjustments) tend to be much more successful than revenue-based ones, particularly if they focus on cutting transfers, entitlement spending, and public wages (Alesina and Perotti 1995; Broadbent and Daly 2010). There appear to be two reasons for this result. First, spending-based consolidations are usually more persistent. This is probably because they are often accompanied by structural reforms which tend to be politically difficult to enact and thus signal stronger commitment to continued fiscal consolidation than tax increases. Second, these studies find that spending-based adjustments are less detrimental to growth—and indeed can *boost* growth. Of course, the two reasons for why spending-based consolidations tend to be more successful are related: the better growth outcome eases the consolidation burden both directly (through higher tax revenues) and indirectly (because it makes it easier to sustain the adjustment).
2. **Initial macro conditions.** Another finding is that large deficits or debt ratios—often associated with high long-term bond yields—make it more likely that a successful fiscal consolidation is undertaken (Strauch and

³ Other studies include Strauch and von Hagen (2001), Ahrend et al (2006), Guichard et al. (2007), Kumar et al (2007), and Alesina and Ardagna (2010). For our own work in this area see Broadbent and Daly (2010) and Stehn (2010).

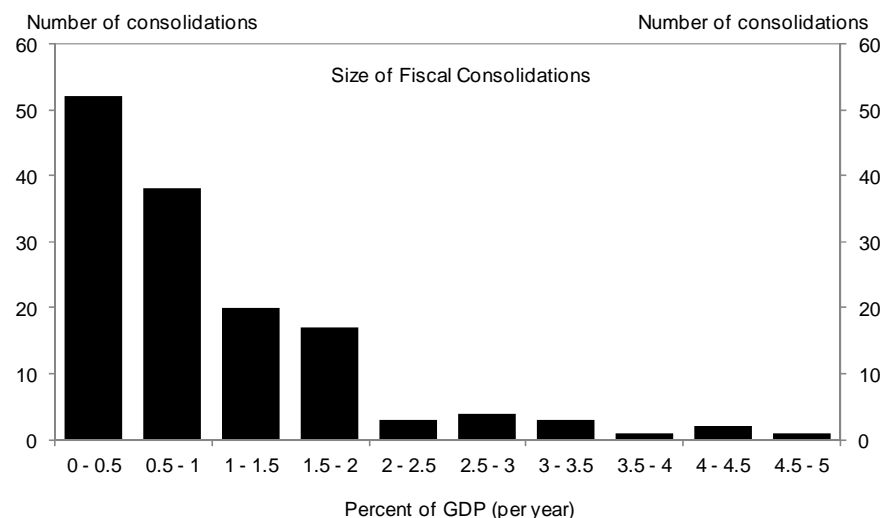
von Hagen 2001). Studies differ as to whether successful consolidations are more likely when started during periods of weak economic activity. Drazen and Grilli (1993) argue that reform is more likely when “things are going badly,” while Alesina and Perotti (1995) find that the probability of successful fiscal adjustment is lower when the economy is in recession.

3. **Monetary policy.** Evidence on the role of monetary policy during fiscal consolidations is mixed. Some studies find that consolidations are more likely to be pursued and maintained if monetary policy is eased (Ahrend et al 2006). Others, however, find no such evidence (e.g. Strauch and von Hagen 2001).
4. **Country Characteristics.** Alesina and Perotti (1997), for example, show that currency depreciation increases the chance of success, which suggests that consolidations are more challenging with fixed exchange rates. Moreover, fiscal adjustments tend to be more painful in large, closed, and high-debt economies (Ilzetzki et al. 2010).
5. **Fiscal rules.** High-quality fiscal institutions, including well-designed fiscal rules, can make an important contribution to the success of consolidations (Guichard 2007; Stehn 2010).

Recent work by economists at the IMF, however, suggests that these conclusions should be re-examined (see IMF 2010 and Guajardo et al. 2011). In particular, the IMF constructs a new database covering 17 advanced economies between 1978-2009 which allows for a distinction between ex-ante consolidation *efforts* and ex-post consolidation *outcomes*.⁴ The database identifies 173 years in which there were budgetary measures aimed at fiscal consolidation. The average size of fiscal consolidation was about 1% of GDP, but the range is wide (Exhibit 3). The dataset also distinguishes between spending- and revenue-based consolidations.

...but recent work by the IMF suggests that these findings should be re-examined.

Exhibit 3: A New IMF Dataset on Fiscal Consolidations



Source: IMF.

⁴ The countries include Australia, Austria, Belgium, Canada, Germany, Denmark, Spain, Finland, France, Ireland, Italy, Japan, Netherlands, Portugal, Sweden, the United Kingdom, and the United States.

First, the IMF argues that the distinction between adjustment efforts and outcomes is important to gauge the growth damage from fiscal consolidation. In particular, they show that all consolidations—whether spending or revenue-based—tend to act as a drag on growth when we look at consolidation *efforts* directly instead of ex-post changes in the cyclically-adjusted deficit. The authors argue that existing studies “stack the deck” against finding significant adverse growth effects. By using the cyclically-adjusted budget deficit to identify fiscal consolidations, the earlier studies include episodes that were not genuine periods of adjustment but rather one-off accounting changes. Moreover, even when such one-offs are removed, the change in the cyclically-adjusted budget deficit is often a poor proxy for deliberate changes in fiscal policy because it fails to detect attempted fiscal adjustments that result in sharp downturns and are therefore reversed quickly.

Second, the IMF study suggests that monetary policy plays an important role in shaping the consequences of fiscal adjustment. Specifically, spending-based adjustments have a less detrimental growth effect than tax-based adjustments because they are, on average, accompanied by monetary easing, while tax-based adjustments usually see monetary tightening. This suggests that the success of a consolidation in reducing the deficit or debt ratio might depend importantly on the monetary policy response. Previous findings might thus be a poor guide for countries at or close to the zero bound.

Finally, the new IMF dataset allows us to explore to what extent intended adjustments actually result in *ex-post* improvements in the fiscal situation. That is, the collected data enables us to take into account that a consolidation attempt might have been so badly designed or implemented that it actually failed to improve the budget balance. For example, Germany engaged in a sizable fiscal tightening in 1982, but this did not show up in a notable improvement in the budget deficit because the ensuing recession quickly led to the adoption of countercyclical stimulus measures. However, the IMF dataset includes this period as a fiscal consolidation effort and thus allows us to study why some consolidations are more likely to be continued than others.

Despite these advantages, the construction of the new IMF dataset necessarily involved some judgement, as the authors identify consolidation efforts using national budget documents.⁵ That said, the authors provide clear documentation as to how they chose the consolidation episodes (see Devries et. al 2011).

II. Starting and Sustaining Fiscal Adjustment

Using the IMF’s dataset we constructed two models that, respectively, explain the probability of starting and of continuing a “large” consolidation effort (defined as exceeding 1% of GDP per year).⁶ Exhibit 4 plots the probability of starting a large consolidation effort at different initial fiscal imbalances and three hypothetical scenarios.⁷ Somewhat reassuringly, we find that countries are more likely to begin a large fiscal consolidation when fiscal imbalances are high to begin with. Moreover, the probability of embarking on fiscal consolidation is higher when the economy is in bad

⁵ See Alesina (2011) for a critical discussion.

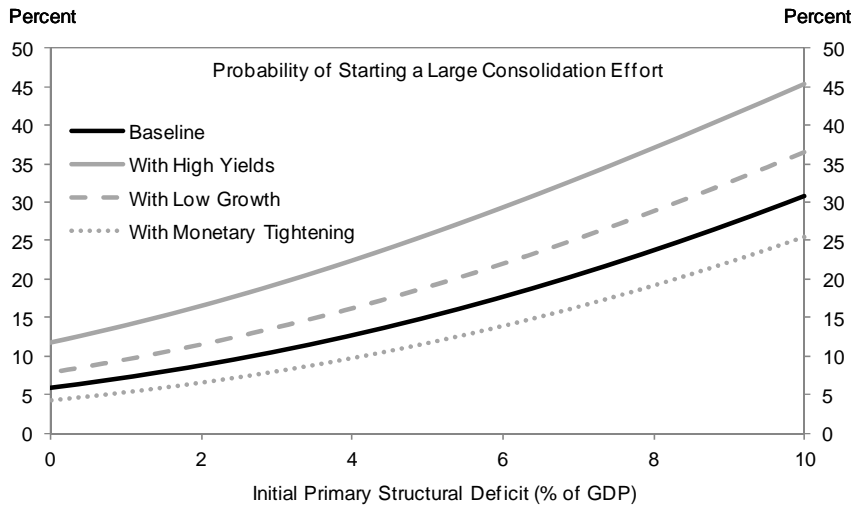
⁶ Specifically, we estimate probit models of starting and continuing large consolidation efforts for a sample that pools together the experiences of 15 countries since 1980. This approach follows Guichard et al. (2007).

⁷ The initial fiscal imbalance is measured with the OECD’s estimate of the underlying balance (which is a cyclically-adjusted budget balance excluding one-off factors). For the baseline scenario, all variables are assumed to be at their sample mean. The “high yield” scenario assumes that yields double, “low growth” scenario assumes no GDP growth, and the “monetary tightening” scenario assumes a 200 basis point increase in the real policy rate.



shape (that is, growth is low) and when long-term bond yields are high. A tightening of monetary policy, in contrast, reduces the probability that a large fiscal consolidation will be attempted (although this effect is only marginally statistically significant).

Exhibit 4: Initial Conditions Matter for Likelihood that Large Consolidations are Started...

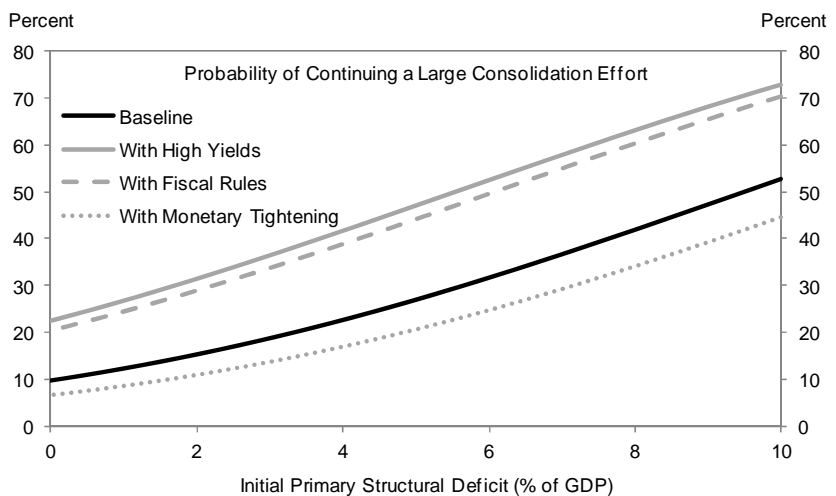


Source: GS Global ECS Research.

Large consolidations are more likely to be started and continued when fiscal imbalances are high to begin with and governments come under pressure from elevated bond yield.

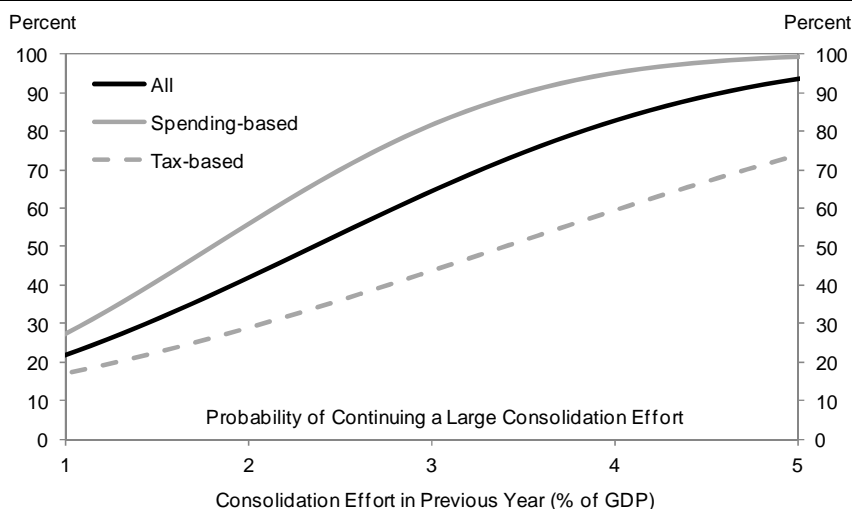
Once a consolidation has been started, what determines for how long it is pursued? First, our results suggest that large adjustments are more likely to be continued—that is, maintained in the year(s) after they are started—when fiscal imbalances remain high and governments come under pressure from elevated bond yields (Exhibit 5). Furthermore, our results confirm that fiscal rules which contain a constraint on expenditure can be helpful in sustaining adjustments.⁸ Tighter monetary policy, in contrast, diminishes the probability of sustaining an adjustment effort (although this effect is not statistically significant). Second, we find that the type of adjustment matters (Exhibit 6). The probability of continuing an adjustment is higher for larger efforts. And, in line with previous studies, the probability of continuing a large consolidation is notably higher for spending- than tax-based efforts.

Exhibit 5: ... and Subsequently Continued



Source: GS Global ECS Research.

⁸ We are grateful to the OECD for providing us with their fiscal rules dataset.

Exhibit 6: Spending-based Adjustments are More Persistent

Source: GS Global ECS Research.

Having discussed the determinants of starting and sustaining consolidation efforts, we turn to an analysis of their effects. In particular, we follow the IMF's methodology in estimating the effect of a consolidation effort on real GDP growth.⁹ We then explore how the growth effect varies with the composition of the adjustment and the response of monetary policy, as well as country characteristics and initial macro conditions.

Fiscal consolidations tend to act as a significant drag on growth...

Fiscal Adjustments Are Painful...

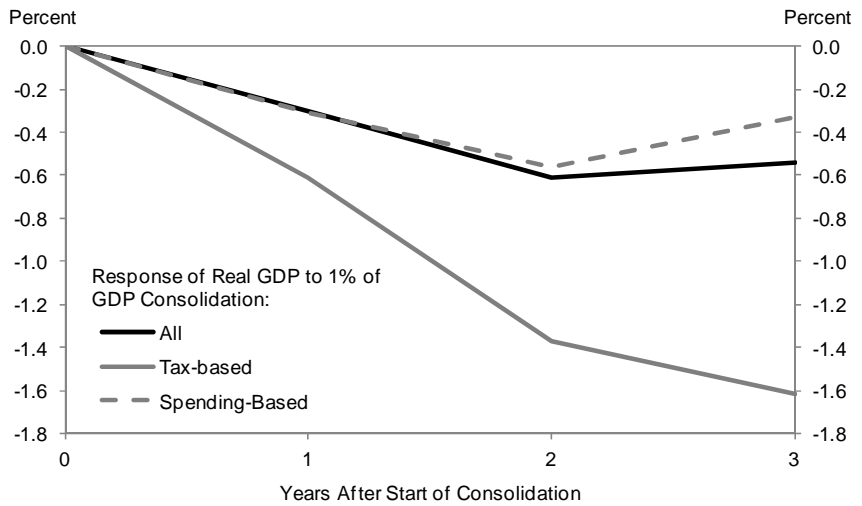
In a first step we replicate three of the IMF's findings:

- **Fiscal adjustment has a significant dampening impact on growth.** On average, a retrenchment of 1% of GDP lowers the level of output by 0.6% after two years (Exhibit 7).
- **Consolidations that are based on tax hikes typically have higher output costs than those based on spending cuts, and the difference is sizable** (Exhibit 7). On average a spending-based consolidation of 1% of GDP lowers output by a cumulative 0.3% while a tax-based consolidation reduces GDP by 1.4% after two years. The finding that both spending- and revenue-based consolidations tend to act as a drag on growth contrasts with earlier studies (e.g. Alesina and Perotti 1995).
- **The response of monetary policy is strikingly different for spending and tax-based adjustments** (Exhibit 8). In particular, the former are accompanied by monetary easing, while tax-based adjustments typically see monetary tightening. The IMF (2010) shows that the monetary tightening is driven by rate hikes in response to indirect tax increases, most likely because central banks are worried about second-round inflation effects from increases in indirect taxes. Another possible explanation is that central banks are willing to ease during spending-based adjustments because these tend to be more persistent and are thus seen as a more credible commitment to fiscal sustainability.

⁹ Specifically, we estimate panel regressions that explain real GDP growth with two of its own lags and the consolidation effort (and two of its lags). We then trace out the effect of a 1% consolidation effort on the level of real GDP. The panel model includes time and country fixed effects.

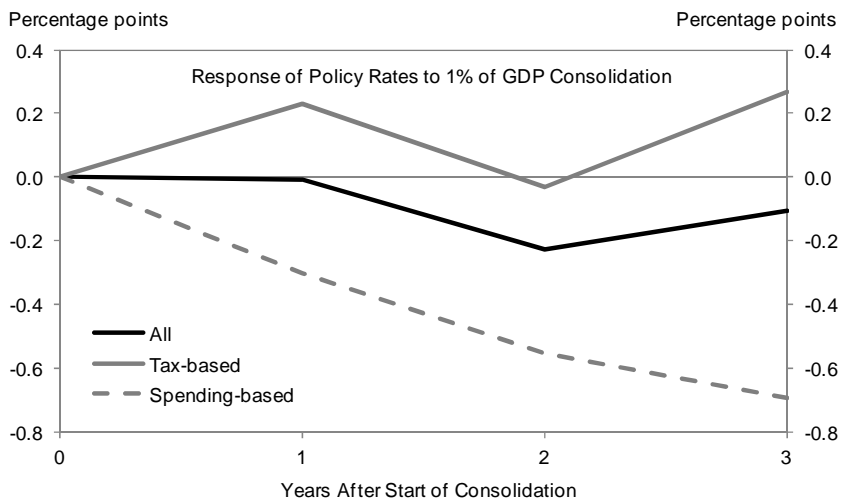


Exhibit 7: Fiscal Consolidations Hurt Growth—Especially when Pursued Through Tax Increases



Source: GS Global ECS Research.

Exhibit 8: The Response of Monetary Policy Differs Sharply...



Source: GS Global ECS Research.

...especially when not accompanied by monetary easing.

... Especially Without Monetary Easing

Taken at face value, these results suggest that spending cuts are a much more attractive option than tax increases as they are not only more durable but also much less damaging to growth (although they don't raise growth as suggested by some previous studies). Applying this conclusion to the adjustment facing countries around the world, however, would be naïve because the above results likely overstate the success that can be expected from spending-based adjustments relative to tax-based ones in the current environment. In many countries, like the United States and the United Kingdom, policy rates are already so low that it would be difficult to support spending-based consolidations with significant monetary easing (unless, of course, additional asset purchase programs were adopted). Moreover, many central banks, like the Fed, would most likely see through any indirect tax increases—were they to occur—and probably not raise interest rates in response to a revenue-based consolidation.

In a counterfactual analysis, we therefore attempt to “shut down” the interest rate response to get a better sense of the implications of the choices countries

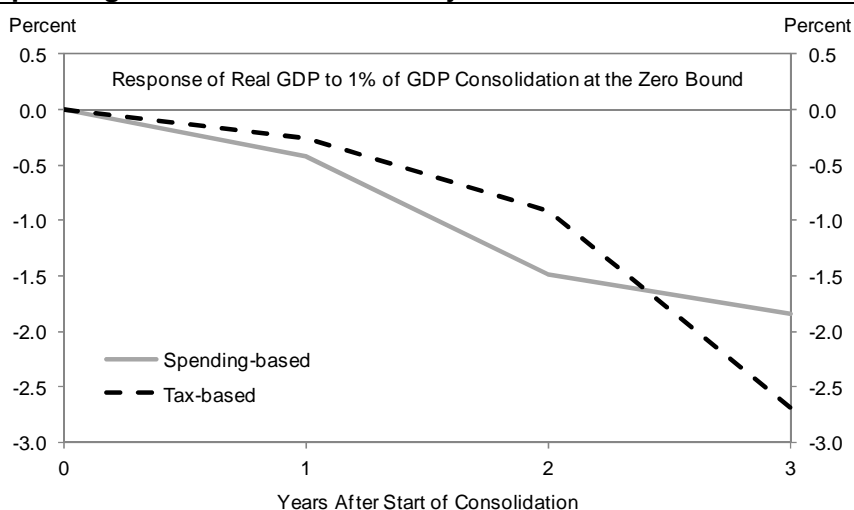


currently face. Such an experiment is fraught with difficulty as it requires an estimate of how changes in the policy rate affect output and such estimates are necessarily subject to a lot of uncertainty. To obtain such an estimate we proceed in two steps. First, we use quarterly data to estimate the effect of monetary policy shocks on growth in the United States using an approach pioneered by David and Christina Romer (see Romer and Romer 2004).¹⁰ Second, we transform these estimates into annual data and apply them to the cross-country results above to construct the “no monetary policy” scenario. Given these steps, the uncertainty surrounding the simulation is substantial.

With this in mind, Exhibit 9 suggests that the difference in output damage between spending and tax-based adjustments is less pronounced when there is no monetary policy response. In particular, the hit to output from a 1% of GDP consolidation effort is now more similar at 1-1½% for tax and spending-based adjustments during the first two years.¹¹ (After the second year, however, spending-based adjustments are still quite a bit less damaging to growth.)

These results have two implications. First, the short-term output cost of fiscal adjustment depends not so much on whether it comes via spending or taxes per se, but instead on whether it is cushioned by monetary policy. And second, both spending- and revenue-based consolidations act as a sizeable drag on growth when monetary policy does not respond. Clearly, allowing for no monetary policy response is an extreme assumption in the current context as some countries still have room to cut interest rates and could adopt additional unconventional policy steps to support a spending-based adjustment. But to the extent that policymakers are reluctant to provide significant unconventional monetary stimulus and/or this stimulus is less effective than conventional interest rate cuts, our results suggest that fiscal adjustment is likely to entail significant output damage, regardless of whether it is done on the spending or revenue side.

Exhibit 9: ... and Drives Much of the Difference Between Spending- and Revenue-based Adjustments



Source: GS Global ECS Research.

¹⁰ Broadly consistent with their estimates, we find that a 100 basis point rate cut raises the level of real GDP by 2.5% after two years.

¹¹ This is consistent with a calculation in the IMF study that suggests that most but not all of the difference between the growth effects of spending and tax-based adjustments is due to the response of monetary policy.

Variation Across Countries

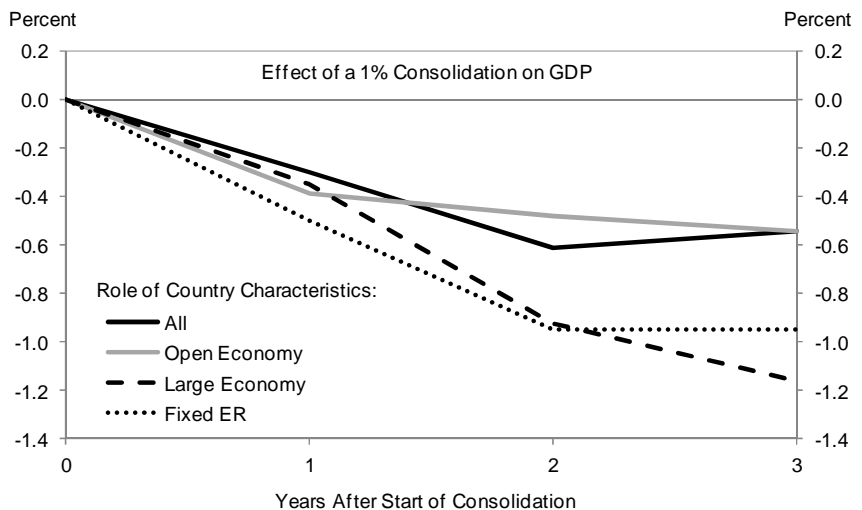
We have so far shown that fiscal retrenchment is growth-damaging and that the role of monetary policy is important in cushioning the growth impact. But the chances of sustained action and the risks to growth are unlikely to be the same across countries. Basic theory predicts that the size of an economy, how open it is, and the exchange rate regime will all determine the risks to growth from fiscal policy shifts—and so the risks to success.

To explore these variations, we split the growth effect by country characteristic and initial conditions. For example, we look at whether the growth hit from a given consolidation effort differs in a “large” economy from that in a “small” one.¹² Given the small sample of countries, splitting the responses is a difficult exercise and the differences are not always statistically significant. With this caveat in mind the “splits” reveal an intuitive pattern:

- The growth effect varies with country characteristics, as one would expect (Exhibit 10). In particular, fiscal adjustments tend to be more painful in large and closed economies. Moreover, our estimates confirm the IMF’s finding that the growth hit is larger in countries with fixed exchange rates. Both of these are consistent with the predictions of standard economic models of fiscal adjustments. For small economies with floating exchange rates, fiscal contractions are more likely to lead to an offsetting rise in net exports.
- Initial conditions also matter for how much output damage consolidation inflicts (Exhibit 11). The hit is typically bigger in economies that start out with large macro imbalances, such as current account deficits and high inflation. Moreover, the output damage tends to be smaller when real policy interest rates are initially high, presumably because there is more room for central banks to ease monetary policy to support growth.
- Lastly, the growth hit is smaller at times of negative output gaps (that is, when output is below potential), probably because such economies would normally see a rebound in growth towards potential anyway (Exhibit 11).

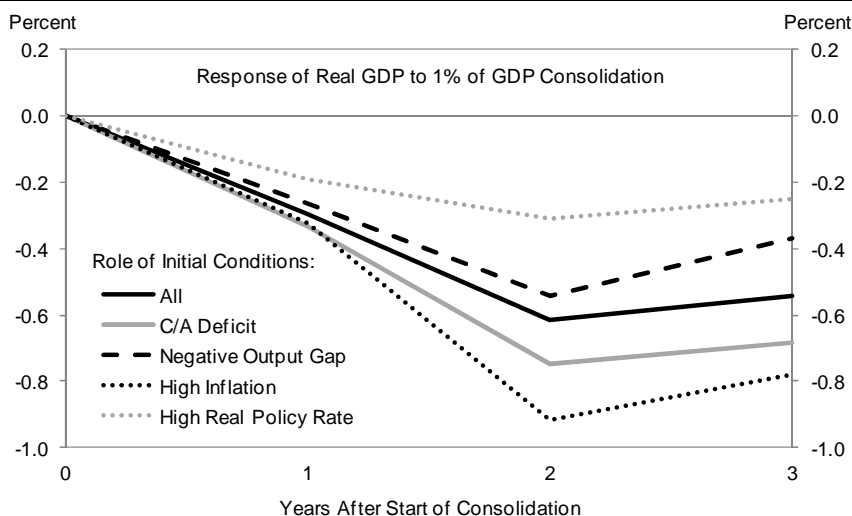
Adjustments tend to be more painful in large, closed economies and countries with fixed exchange rates.

Exhibit 10: The Growth Hit Varies with Country Characteristics...



Source: GS Global ECS Research.

¹² We interact the consolidation variable in the panel regression described above with a dummy variable that captures the country characteristic. For example, we define a “large” economy as one for which GDP exceeds the average of the other countries at that point in time. Results are qualitatively similar for splitting responses along the median instead of the mean.

Exhibit 11: ... And Initial Conditions

Source: GS Global ECS Research.

III. The Balancing Act—How Fast to Go?

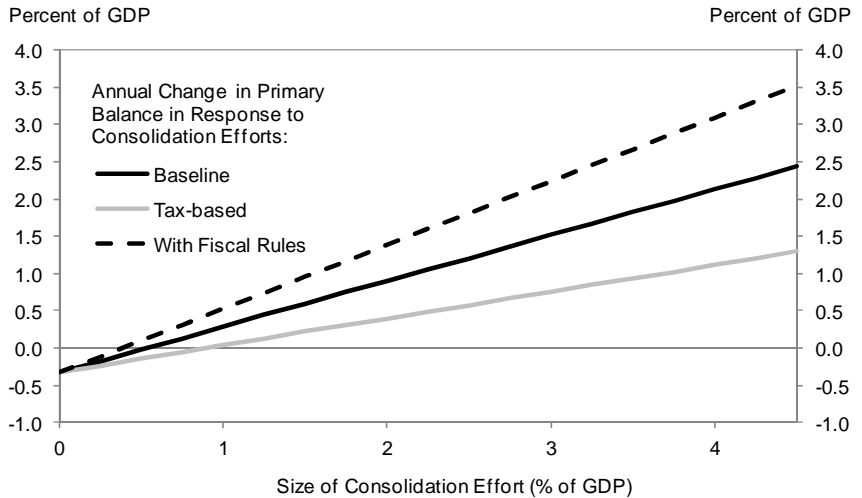
Our results suggest that countries face a delicate balancing act when designing their fiscal adjustment plans. On the one hand, rapid fiscal consolidation is desirable to return public finances to a sustainable path as soon as possible, and thereby avert rising long-term interest rates and the risk of a sovereign crisis. Rapid adjustment efforts, as shown above, also tend to be more persistent. On the other hand, fiscal adjustment acts as a drag on growth. These findings point to a “speed limit” of fiscal adjustment—the pace of tightening after which the corrosive impact on growth undermines the fiscal position itself. As the need for adjustment and the growth hit differ across countries and initial conditions, so will the “speed limit” of adjustment.

We therefore take a closer look at the link between consolidation efforts and actual changes in the budget balance. Specifically, we estimate a panel regression model that explains the annual change in the primary balance with the consolidation effort in the same year.¹³

First, we consider a “linear” specification, which simply explains changes in the primary balance with the adjustment effort made in the same year. Not surprisingly, we find that there is substantial “slippage” between the adjustment effort and the actual change in the primary balance in the same year. (This is shown by the solid black line in Exhibit 12, which has a slope of around two thirds.) Our results above suggest that this “slippage” between effort and outcome may occur because (1) adjustment efforts are often discontinued, and (2) the resulting hit to growth reduces tax revenues and thus offsets part of the tightening effort. Consistent with this, Exhibit 12 shows that tax-based consolidations are less successful in improving the primary deficit. (But we need to keep in mind that monetary tightening plays an important role here.) Given this slippage, countries should aim to do relatively more than is needed on paper. Moreover, we find tentative evidence that fiscal rules (which constrain both the budget balance and expenditure) can be helpful in limiting “slippage.” The effect is not statistically significant, but consistent with other studies (including our own) showing that well-designed fiscal rules can play a role in achieving a successful fiscal consolidation.

¹³ We include fixed effects and adjust the primary balance to exclude one-off accounting changes and capital transfers using OECD data.

Exhibit 12: Slippage Between Effort and Outcome

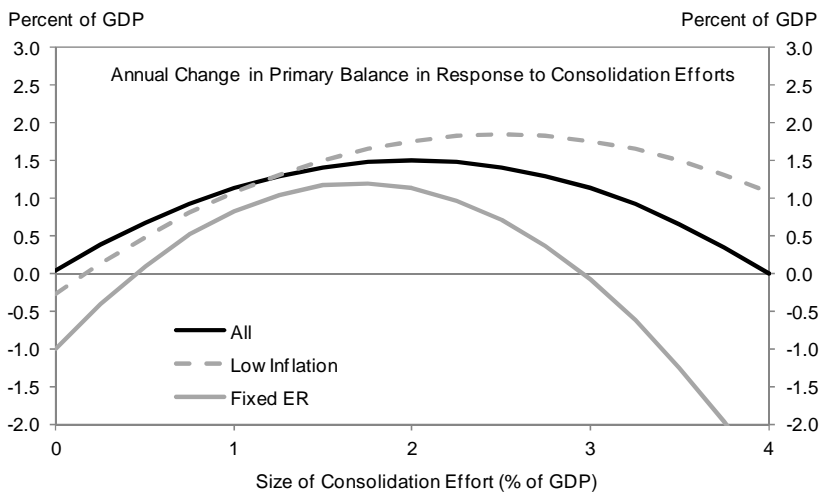


Source: GS Global ECS Research.

Fiscal adjustments are subject to a “speed limit”—a the pace of tightening after which the corrosive impact on growth starts to undermine the fiscal position itself.

Second, we consider a “nonlinear” specification, which allows for the possibility that more rapid adjustment programs could be less successful in consolidating the budget. Our regression finds evidence for a nonlinear effect, as the coefficient on the squared adjustment term is significant. The black line in Exhibit 13 shows how the “slippage” between the adjustment effort and the primary balance varies with the speed of adjustment. The chart suggests that consolidation efforts become increasingly less effective in improving the actual fiscal outlook as they grow in size. The maximum speed of adjustment—the yearly adjustment effort that results in the biggest improvement in the primary balance—is around 2% of GDP in our sample. Faster adjustments typically become counterproductive and lead to a smaller increase in the budget balance. These results point to a “speed limit” of fiscal adjustment—the pace of tightening after which additional consolidation becomes counterproductive. This calculation clearly does not describe an “optimal” speed of consolidation—which would also account for how policymakers trade off the pain caused by adjustment with the risks of delaying action—but it does describe the point where additional “effort” undermines progress and so is presumably best avoided.

Exhibit 13: A “Speed Limit” of Fiscal Adjustment?



Source: GS Global ECS Research.



The most likely explanation for this finding is that the growth hit becomes prohibitive when the speed of adjustment becomes too large. One way to test for this is to look at how the “speed limit” of adjustment varies with country characteristics and initial conditions. Splitting the responses into subgroups is again tricky because we have few observations and the splits are not always statistically significant. Nonetheless, doing so reveals some interesting insights (Exhibit 13). First, the “speed limit” appears to be lower in countries that have fixed exchange rates. Second, our results suggest that the “speed limit” is higher in low-inflation environments. Given that we have shown that the growth damage from fiscal consolidation is larger under fixed exchange rates and smaller in periods of low inflation, this pattern is consistent with the view that the growth hit drives the nonlinearity of the effectiveness of the adjustment effort.

IV. Implications for Global Fiscal Adjustment

We can draw several general conclusions from our analysis for the current context. First and somewhat encouragingly, the chances of a sustained consolidation effort across a wide range of countries are high in the next few years because fiscal imbalances are unusually large at this point. Market pressure has historically increased the chances of action.

Second and less encouragingly, fiscal adjustment is likely to act as a significant drag on growth. This is particularly likely because the economies in need of the largest adjustments are either large economies close to the zero bound on monetary policy (Japan, US) or have fixed exchange rates (the European periphery). Since our analysis suggests that monetary policy and exchange rate adjustment are the two major cushions against growth damage from fiscal restraint, this implies that the overall growth impact from fiscal consolidation is likely to be larger than normal. The need for many countries to adjust simultaneously reinforces this view—as countries will find it hard to “export their way out.” These findings caution against tightening too quickly, suggesting that countries should be mindful of “speed limits” of adjustment.

Finally, focusing adjustments on cutting spending is unlikely to be a panacea in the current environment. We do find that spending-based adjustments are preferable to tax-based ones to the extent that they tend to be more persistent. And it is possible that, as a result, central banks are more willing to provide monetary accommodation. But our results suggest that both spending- and tax-based consolidations tend to act as a significant drag on growth when additional monetary easing is unavailable. Monetary policy should therefore remain accommodative—or indeed deliver additional easing—in countries that have large adjustments to make, suggesting that average policy rates globally may stay low for some time. To ensure that consolidations are sustained—independently of whether they are pursued on the tax or spending side—it could be helpful to adopt or strengthen legislative commitments, like fiscal rules.

Although the devil is likely to be in the details for any individual economy, our analysis also has a number of country-specific implications:

The **US and Japan** are likely to face particularly challenging balancing acts because of the zero bound, their size, and limited openness to trade. Consolidation is likely to slow growth notably—by as much as 1½ percentage point per 1% of GDP adjustment. Therefore, neither the US nor Japan should go too fast—certainly slower than the 2% of GDP per annum “speed limit” that we find holds in “normal times.” In the US, we expect fiscal restraint of about 1¼% of GDP in 2012. Given the zero bound, this adjustment could be expected to lower real GDP by almost 2% by 2014—that

The “speed limit” of fiscal adjustment likely to be lower in large, closed economies (like the US or Japan) and in countries with fixed exchange rates (European periphery) than in small, open economies (UK).



is, shave off one percentage point off growth for two years. Facing a sluggish recovery, fiscal policymakers should thus be cautious to tighten any more quickly and, in the near term, additional Fed easing might be helpful to limit the likelihood of a renewed recession. Moreover, it could be helpful to consider some kind of fiscal rule or legislative commitment that is credible enough to reduce the risks of acting more gradually.

Fiscal adjustment in the **UK**—a smaller, more open economy—is likely to be somewhat less painful. The government’s current plan—involving a roughly 2% of GDP adjustment annually—is therefore unlikely to be too fast, particularly if the Bank of England remains accommodative.

The **European periphery’s** combination of large imbalances, high yields and fixed exchange rates suggest that consolidations are more likely to be sustained, but also that they are more likely to be painful (for more details see Nielsen 2011). Very large and rapid adjustments in this kind of fixed rate regime, while sometimes necessary, are risky, since the growth damage can undermine success. Our results suggest that current adjustment plans—which, according to the IMF, consist of a 3% and 5.7% of GDP tightening in Greece and Portugal in 2011, respectively—likely exceed the “speed limit” of fiscal adjustment. It is in these situations in particular that fiscal rules can improve credibility and thereby act as a substitute for a painful adjustment.

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