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Research Summaries

Macroeconomic Impact of Fiscal Policy

Giovanni Ganelli



Several countries use fiscal policy to stimulate economic activity. Research on this topic can therefore be useful in informing policy decisions. Despite this, the analysis of the macroeconomic impact of fiscal policy in the literature has received limited attention compared with monetary policy. Several authors, however, are shifting the focus of their research toward fiscal issues. This article surveys recent IMF research in this field.

Policymakers in industrial countries are showing a renewed interest in fiscal policy. The United States recently introduced a series of tax cuts aimed at stimulating the economy. Similarly, Japan has tried to escape slow growth through fiscal expansions. In Europe, the Stability and Growth Pact was recently reinterpreted in a way that facilitates the use of countercyclical fiscal policies.

What does economic research tell us about the likely impact of these policies? In a traditional Keynesian framework, a fiscal expansion has a positive multiplier effect on output. As stressed by Hemming, Kell, and *(continued on page 2)*

Pricing of Sovereign Risk in Emerging Markets

Bernardin Akitoby



It is well established that financial markets' assessment of sovereign risk is reflected in sovereign spreads. This raises a number of critical questions: What are the fundamental forces driving sovereign risk and spreads? Why are certain countries perceived as riskier than others? What is the relative importance of macroeconomic fundamentals and market sentiment in the pricing of sovereign risk?

Does financial globalization heighten the role of common factors relative to country-specific factors in sovereign risk pricing? Does the IMF's financial assistance induce moral hazard in the pricing of sovereign risk of countries undergoing financial crises? This article mainly reviews recent IMF research on these critical issues.

The empirical literature on the macroeconomic determinants of spreads has often sought to identify specific country characteristics affecting spreads. This line of analysis can arguably be traced to Edwards (1984), who shows that liquidity variables (e.g., the ratio of reserves to GDP) and solvency indicators (e.g., the ratio of debt to GDP) are the key determinants of sovereign spreads. Specifically, foreign currency reserves have a statistically negative *(continued on page 4)*

Correction

In the previous (December 2005) issue, the names of two coauthors of the country study on Turkey, which began on page 6, were inadvertently omitted. The coauthors of this study were Mark Griffith, Donal McGettigan, and Reza Moghadam.



Macroeconomic Impact of Fiscal Policy

(continued from page 1)

Mahfouz (2002), however, the traditional Keynesian literature lacked microeconomic foundations and was largely based on adaptive expectations. Introducing state-of-the-art modeling assumptions—such as intertemporal optimization and rational expectations—implies a Ricardian equivalence proposition. Since rational agents anticipate that a tax cut today will be paid off in the future, they adjust their behavior to neutralize its impact. One interesting question therefore is under which circumstances this policy retains its effectiveness when agents are perfectly rational.

Bayoumi and Sgherri (2005) develop an intertemporal model in which the consumers' rate of discount of the future is higher than the real interest rate. Consumers therefore value current tax cuts more than future tax increases and Ricardian equivalence is broken. The model implies increases in private consumption in the range of 0.15–0.4 percent of the tax cuts, depending on the assumed degree of excess discount.

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“Fiscal contractions can have expansionary effects, since they can contribute to a consumption and investment boom owing to altered expectations regarding future taxation.”

Ganelli (2005a) studies similar issues by incorporating an overlapping-generations structure (Blanchard, 1985) in an intertemporal open economy. Since the consumers who benefit from a tax cut today will not necessarily be alive to repay the resulting debt tomorrow, a debt-financed tax reduction stimulates domestic consumption. This, in turn, increases domestic money demand compared with foreign money demand, causing the exchange rate to appreciate. The expenditure-switching effect associated with this appreciation implies a positive international spillover. Foreign output increases more than domestic output. The long-run net financial position of the domestic country therefore worsens, consistent with the empirical findings of Lane and Milesi-Ferretti (2001). If the increase in debt is used to finance an increase in government spending (rather than a tax cut), these results still hold as long as the probability of dying in each period—a measure of the deviation from Ricardian equivalence—is large enough.

The IMF's Global Fiscal Model (GFM), developed by Botman, Laxton, Muir, and Romanov (2005), extends Ganelli (2005a) by introducing more general preferences, nontraded goods, and the assumption that a fraction of consumers face credit constraints. This assumption provides an additional channel through which Ricardian equivalence is broken. Simulations based on GFM show that the increase in domestic consumption compared with foreign consumption can be mitigated by low levels of the intertemporal elasticity of substitution or by a large elasticity of substitution between domestic and foreign goods. The introduction of credit-constrained consumers in GFM has a limited impact in determining the quantitative effects of public debt, consistent with findings of Bayoumi and Sgherri (2005) and Coenen and Straub (2005).

GFM has also been used to address specific policy issues. Kumhof, Laxton, and Muir (2005) calibrate it to the U.S. economy, showing that a permanent improvement of one percentage point in the fiscal balance would generate an average current account improvement of about one-half of 1 percentage point of GDP over 10 years. Bayoumi, Botman, and Kumar (2005) use GFM to simulate the impact of social security reform in the United States, finding that government debt and the fiscal deficit would significantly increase as payroll contributions were diverted to personal retirement accounts (PRAs). The macroeconomic impact would be limited because private saving through PRAs would offset government dissaving. If higher taxes were used to prevent the PRA-related increase in government debt, output would be modestly reduced in the short run, while lower government debt would reduce real interest rates and boost investment in the long run.

In all the papers referred to in the preceding discussion, Ricardian equivalence does not hold. When Ricardian equivalence holds, public debt has no real effects but balanced-budget fiscal expansions still have macroeconomic impacts. These policies typically have a negative effect on domestic consumption compared with foreign consumption. The reason is that domestic residents have to foot the tax bill, while the increase in government spending falls partly on foreign goods. Ganelli (2003) shows that the latter does not necessarily imply a reduction in domestic welfare if government spending is assumed to be useful for private consumers. In addition, an increase in the degree of home bias of government spending can, by reducing the extent to which domestic taxpayers finance the foreign expansion, mitigate the fall in domestic consumption (Ganelli, 2005b). Measures aimed at improving the efficiency of pub-

lic spending have a similar effect (Ganelli, 2004). A topic which has received little attention in the literature is the differentiation between spending for public consumption and public employment. Ganelli (2005c) investigates this issue in a theoretical model, showing that the composition of spending matters for the macroeconomic impact of fiscal policy.

The papers reviewed so far show that different theoretical models imply different macroeconomic effects of fiscal policy. The empirical evidence is also mixed. Fiscal contractions can have expansionary effects, since they can contribute to a consumption and investment boom owing to altered expectations regarding future taxation (Giavazzi and Pagano, 1990). A study of large fiscal adjustments carried out by the IMF's Fiscal Affairs Department on a wide sample of countries (IMF, 2004) concludes that positive macroeconomic developments generally accompany large fiscal adjustments. Among large adjustments, the best macroeconomic performance is associated with gradual and sustained consolidations. The possibility of expansionary fiscal contractions is confirmed by Gupta and others (2002) for a panel of low-income countries; by Gupta, Segura-Ubiergo, and Simone (2005) for a panel of transition countries; and by Kandil (2004) for the United States. Devereux and Choi (2005), however, estimate threshold VAR models using quarterly U.S. data and find that an expansionary fiscal policy is conducive to growth when the economy faces low interest rates. Hemming, Mahfouz, and Schimmelpfennig (2002) empirically analyze the fiscal response to recession episodes in advanced economies, finding that fiscal expansions stimulate economic activity during recessions but the multipliers are unlikely to exceed unity.

The fact that a consensus view on the macroeconomic impact of fiscal policy has not yet emerged confirms that this is an exciting area for further research.

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Pricing of Sovereign Risk in Emerging Markets

(continued from page 1)

effect, while debt has a statistically significant positive effect, on spreads. Catão and Sutton (2002) stress that macroeconomic volatility, as opposed to the levels of macroeconomic variables, plays a more predominant role in the probability of sovereign default. Using the history of credit events since the 1820s for more than a hundred countries, Reinhart, Rogoff, and Savastano (2003) show that default histories are associated with higher spreads. Moreover, they argue that countries with past serial defaults are likely to be afflicted by “debt intolerance”—that is, perceived as riskier at low or moderate debt levels. An alternative explanation for the debt-intolerance paradox is proposed by Catão and Kapur (2004), who argue that macroeconomic volatility not only raises spreads but also lowers a country’s debt-tolerance threshold.

Another important factor behind the pricing of sovereign risk relates to credit ratings. In a pioneering study, Cantor and Parker (1996) investigate how credit ratings affect sovereign spreads and conclude that they do so independently. Similarly, Sy (2001) uncovers a negative correlation between sovereign spreads and ratings that has increased over time. Interestingly, his findings suggest that in turbulent times, financial markets rely on factors other than ratings to differentiate between countries. Reinhart (2002) also suggests that sovereign credit ratings are a good predictor of default risk and, hence, changes in sovereign spreads. A more recent study, Andritzky, Bannister, and Tamirisa (2005), confirms that sovereign spreads respond to announcements of changes in international ratings, which are viewed as a composite indicator of country risk. It also points out, however, that in crisis times, the impact of rating changes on spreads tends to be less significant, because market participants view ratings as a backward-looking indicator in the context of rising uncertainty and volatility.

How do financial markets react to fiscal policy decisions of sovereign borrowers? Relatively few studies have focused on the effects of fiscal policies on sovereign bond spreads. A recent study, Akitoby and Stratmann (2006), investigates how the composition of fiscal adjustment is priced in sovereign bonds. Using a panel of 32 emerging market countries during 1994–2003, it finds that current expenditure-based adjustments significantly lower spreads, while fiscal adjustments that rely mostly on tax increases and drastic cuts in public investment have no statistically significant impact on the pricing of sovereign issues. This suggests that what matters for the financial markets is not a reduction in fiscal deficits per se but rather how the adjustment is brought

about. Their findings also show that debt-financed current spending increases sovereign risk by more than tax-financed current spending, suggesting that international investors prefer the latter.

Some authors also highlight the role of monetary and exchange rate regimes in determining spreads. Jahjah and Yue (2004) investigate empirically the influence of exchange rate policy on sovereign bond spreads. They show that an overvalued real exchange rate significantly increases sovereign spreads, with the size of this effect being greater under a fixed exchange rate regime. During crisis periods, however, this result is reversed, with a free-floating regime leading to higher borrowing costs.

Other studies investigate whether the IMF’s financial assistance induces moral hazard in the pricing of sovereign risk of countries undergoing financial crises. Lane and Phillips (2000) investigate the reactions of bond spreads to three categories of events: (i) announcement of new IMF-supported programs in countries undergoing financial crises, (ii) news about the IMF’s financial resources or commitments to individual members, and (iii) news regarding Russia’s IMF program in 1998. In most cases, the authors fail to uncover any significant change in spreads in response to these events. Dell’Ariccia, Schnabel, and Zettelmeyer (2002), however, argue that these negative results are due to the deficiencies in the methodologies used. In studying the 1998 Russian crisis, they find that the IMF’s decision not to bail Russia out has made spreads more sensitive to country fundamentals and led to increases in the level and variance of spreads. These findings are interpreted as supporting the presence of IMF-related moral hazard.

A number of authors focus on the determinants of debt crisis, in view of the strong correlation between default episodes and higher spreads. Kaminsky, Lizondo, and Reinhart (1997) argue that variables providing early-warning signals of banking and currency crises may play a key role in explaining changes in spreads. They suggest that variables providing early-warning signals may include deviations of the real exchange rate from trend, equity prices, and the ratio of broad money to gross international reserves. Using a sample of 59 countries, Reinhart (2002) finds that debt crises tend to be preceded by currency crises. In their analysis of the role of liquidity indicators on default, Detragiache and Spilimbergo (2001) show that for a given total external debt, the probability of crisis increases with the proportion of short-term debt and debt service coming due; moreover, they show that the share of short-term debt is endogenous. In the same vein, Manasse, Roubini, and Schimmelpfennig

(2003) develop an early-warning model of sovereign debt crises, which identifies solvency and liquidity factors that predict a debt-crisis episode one year in advance. The key factors include high levels of foreign debt relative to GDP, short-term debt relative to foreign reserves, and debt-service indicators.

The literature also points to the role of external factors—notably world interest rate shocks—in sovereign pricing. The empirical evidence on the impact of international interest rates on sovereign spreads is mixed. For example, Arora and Cerisola (2001) suggest that the stance and predictability of U.S. monetary policy are as important as country-specific fundamentals in determining country risk. They also show that the level of U.S. interest rates has had direct positive effects on sovereign bond spreads in several developing countries in Latin America, Asia, and Eastern Europe. In contrast, Eichengreen and Mody (1998a and 1998b) argue that U.S. interest rates in the 1990s were negatively associated with spreads for Latin American and East Asian countries. The authors explain this surprising finding as a result of the negative effect of a rise in U.S. rates on bond supply by emerging country issuers, which increased bond prices and, consequently, lowered sovereign spreads.

Increased financial globalization has also heightened the role of market sentiment and contagion in sovereign pricing. Many have argued that “irrational investor behavior” or a “herd mentality” often drive changes in sovereign spreads, largely because of the high costs of acquiring and processing information. In particular, using data on nearly 1,000 developing country bonds issued during 1991–96, Eichengreen and Mody (1998b) find that changes in spreads are mostly explained by market sentiment rather than macroeconomic fundamentals. Mauro, Sussman, and Yafeh (2002) also find that global events were the main driving forces behind changes in spreads in the 1990s, while country-specific events mostly explained change in spreads during the period 1870–1913.

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Country Study
United Kingdom

Dora Iakova



Robust economic growth, low inflation, and falling unemployment have marked the economic performance of the United Kingdom over the past decade. Recent IMF staff research has focused on key policy challenges during that period—implementation of the fiscal policy rules, addressing the causes of a wide productivity gap, assessing the case for joining the European Economic and Monetary Union (EMU), and monitoring financial sector risks. Staff papers have also examined the rapid rise in asset prices, the causes of low inflation, the effect of rising oil prices, and the impact of outsourcing on employment growth.

The United Kingdom's fiscal policy framework—based on a golden rule (current balance or better over the cycle) and a debt ceiling (40 percent of GDP)—is one of the strongest among industrial countries. IMF staff research has focused on both theoretical and practical issues in the implementation of the framework. Koeva (2005) points out that the asymmetry of the golden rule (which does not allow the cumulative current balance to be negative over the cycle) implies that there is a positive probability of breaching it, even if a significant safety margin is maintained. Her simulation, based on the historical distributions of output and asset price shocks, suggests that the average current surplus needed to meet the golden rule with 75 percent probability is about one-half of 1 percent of GDP, but rises to 2¼ percent of GDP if the rule is to be virtually always met. She concludes that guarding against all shocks can be too costly and that the uncertainties should be explicitly acknowledged.

The recent widening of the fiscal deficit has raised concerns about breaching the debt-ceiling rule over the medium term. Using the IMF's Global Fiscal Model, Botman and Honjo (2006) examine the output effects of different timing and composition of fiscal consolidation. They find that early fiscal adjustment, focused on containing the growth of spending, would have the most favorable impact on output. Long-term fiscal challenges strengthen the case for fiscal consolidation. Honjo (2006) estimates that health spending is likely to rise by nearly 6 percent of GDP by 2050. The projected increase in pension liabilities is relatively modest, since the current government strategy emphasizes reliance on voluntary private saving. Koeva (2004) warns, however, that there may be significant con-

tingent liabilities if the strategy is not successful and people do not save enough for retirement. In recognition of this problem, the government is now considering ways to reform the pension system.

The robust growth performance over the last decade has been accompanied by a low and steady inflation rate. That has been attributed, in part, to the credibility of the monetary policy framework. Staff research based on an open-economy Phillips curve finds that changes in import prices (especially oil prices), external competitive pressures, and changes in employment have also contributed to the favorable inflation performance (Batini, Jackson, and Nickell (2005) and Honjo (2005)). Honjo (2004) examines the effectiveness of monetary policy more generally. Her analysis suggests that the interest sensitivity of output in the United Kingdom, the United States, and the euro area are similar, but the main channels through which interest rate changes affect output differ. In the United Kingdom and the United States, consumption is highly sensitive to changes in interest rates, while investment is more responsive to interest rate movements in the euro area.

The recent increase in oil prices posed a dilemma for monetary policy as it entailed a growth slowdown and an acceleration of inflation. Using the IMF's Global Economic Model, Hunt (2006) shows that a permanent increase in energy prices leads to a spike in inflation and a reduction in the economy's supply capacity. The inflation effects are not expected to persist if the negative supply-side implications are incorporated into the policy-setting process and workers accept a decline in their real consumption wage.

House prices in the United Kingdom have risen three-fold over the last decade—faster than in almost any other industrial country. Vladkova Hollar (2003) assesses the extent to which house price increases can be explained by fundamentals. Her analysis, focused on demand-side factors, suggests that prices are currently above their estimated long-run equilibrium. Schule (2005) uses regional data to look at the effect of property taxes on house price inflation. Iakova (2006) finds a strong link between changes in housing wealth and private consumption growth. Hunt (2005) discusses the range of appropriate policy responses in the event of a slowdown in economic growth induced by a negative asset price shock. Using the IMF's Multimod model, he finds that monetary policy can effectively mitigate the

impact of the shock without having the negative effects on the stock of debt that a fiscal policy response would entail.

Although both GDP growth and productivity growth over the last decade have been higher in the United Kingdom than in most other advanced economies, a large gap in labor productivity remains. Improving the productivity performance has been the focus of active debate and numerous policy initiatives. Using growth-accounting decomposition, Escolano (2003) finds that the U.K. productivity gap can be attributed mainly to low total factor productivity (TFP). He discusses various policies that can increase TFP, including stimulating research and development, enhancing competition, and increasing human capital. The paper also argues that increasing productivity would not necessarily require a higher capital-output ratio, although the U.K. ratio appears to be lower than those of most European countries. A cross-country study of investment flows (Koeva, 2003) establishes that U.K. equipment investment—the part of aggregate investment most closely related to productivity—is comparable to those of other Organization for Economic Cooperation and Development (OECD) economies.

The U.K. economic performance has benefited from a highly developed financial sector. Recent staff research has focused on specific areas of potential risks. Rapid financial innovation has allowed banks to transfer credit risk outside the banking sector. Chan-Lau and Ong (2006) find that credit derivatives and structured credit markets do not pose a substantial threat to financial sector stability at this point, given the diversity of holdings across major financial institutions. More broadly, Ong and Andersson (2006) provide an update on developments in key areas identified in the 2002 Financial Sector Assessment Program and assess current risks facing the U.K. financial sector.

A common concern in industrial countries in recent years is that the rise in outsourcing could lead to a loss of domestic jobs. In a case study of the effects of outsourcing in the United Kingdom, Amiti and Wei (2005) find no evidence that sectors with high growth of outsourcing have lower rates of job growth.

The U.K. government policy on EMU membership includes a commitment to the principle of joining the EMU when the economic case for euro adoption is “clear and unambiguous.” Cottarelli and Escolano (2004) take a critical look at the detailed assessment of the case for euro entry published by the authorities in 2003. They suggest areas that deserve to be explored further in future assessments and point out that in several areas relevant to the entry decision, the margin of uncertainty will remain significant, regardless of any reasonable attempts made to reduce it.

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Book Summary

Emerging Markets and Financial Globalization: Sovereign Bond Spreads in 1870–1913 and Today

By Paolo Mauro, Nathan Sussman, and Yishay Yafeh

Oxford University Press, March 2006, 200 pp., £40.00/\$74.00 (clothbound)

The environment of international financial integration and bond finance in which emerging markets currently operate is in its infancy, having been in place only since the mid-1990s. To learn more about this type of environment, the authors analyze the behavior of spreads on emerging market bonds traded in London during the most recent era with similar characteristics, namely 1870–1913. During that era, London—the world’s main financial center—saw massive bond issuance by emerging markets and active trading by well-informed investors. The authors focus on the determinants and behavior of emerging market bond spreads in 1870–1913 and 1994–2004, identifying both similarities and differences between the two periods.

On the data front, the book’s main contribution is the systematic collection at the monthly frequency of country-specific news items of various categories (such as political, economic, war, and institutional news) from contemporary newspapers and financial magazines, for 18 emerging markets in 1870–1913 and 8 emerging markets in 1994–2004. The authors also compile new datasets on bond spreads at the monthly frequency and macroeconomic indicators (such as debt and exports) at the yearly frequency. Relying on case studies, systematic analysis of salient news and sharp changes in bonds spreads, panel regressions, and a study of mechanisms for creditor coordination in the aftermath of defaults, the authors obtain three main results.

First, episodes of politically motivated violence have an immediate and pronounced impact on bond spreads, whereas institutional or structural reforms are seldom found to reduce bond spreads quickly, possibly because investors need time to observe whether new institutions are respected. This finding may help explain political reluctance to undertake reforms. In making the case for reforms, expectations regarding the speed and extent of borrowing cost reductions should therefore be set at realistic levels.

Second, country-specific developments played a more important role in determining spreads in 1870–1913 than in modern times: country-specific fundamentals (news and macroeconomic variables) explain a larger share of variation in historical spreads; moreover, controlling for indicators of fundamentals, comovement of spreads across emerging markets was higher in the 1990s than in the earlier period. Today’s greater role of institutional investors may be a factor underlying these differences.

Third, the authors collect archival evidence on the workings of the Corporation of Foreign Bondholders (CFB), an association of British investors holding bonds issued by foreign governments. The CFB played a key role during the heyday of international bond finance, 1870–1913, and in the aftermath of the defaults of the 1930s. It fostered coordination among creditors, especially in cases of default, blocking capital market access to defaulting governments, and arranging successfully for many important debt restructurings though failing persistently in a few cases. While a revamped creditor association might once again help facilitate creditor coordination, the appeal of defection, compared with coordination, seems to be greater today than it was in the past. The CFB may have had an easier time than any comparable body would have today.

Paolo Mauro is at the IMF; Nathan Sussman and Yishay Yafeh are both at the Hebrew University of Jerusalem and the Center for Economic Policy Research.

External Publications by IMF Staff

Journal Articles

2005

Carare, Alina; Stone, Mark
“Inflation Targeting Regimes”
European Economic Review

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American Economic Review

Choi, Woon Gyu; Kim, Youngsan
“Trade Credit and the Effects of Macro-Financial Shocks: Evidence from U.S. Panel Data”
Journal of Financial and Quantitative Analysis

Feltenstein, Andrew; Dabla-Norris, Era
“The Underground Economy and Its Macroeconomic Consequences”
Journal of Policy Reform

Feltenstein, Andrew; Lagunoff, Roger
“International versus Domestic Auditing of Bank Solvency”
Journal of International Economics

Galbraith, J.W.; Kisinbay, Turgut
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International Journal of Forecasting

Kandil, Magda
“Countercyclical or Procyclical Real Wages? A Disaggregate Explanation of Aggregate Asymmetry in the U.S.”
Empirical Economics

Keen, Michael; Klemm, Alexander; Ivanova, Anna
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Economic Policy

Keen, Michael; Wildasin, David
“Pareto Efficient International Taxation”
Recent Developments in International Trade Theory (Edward Elgar); original published in *American Economic Review*

Lienert, Ian; Jung, Moo-Kyung
“The Legal Framework for Budget Systems: An International Comparison”
OECD Journal of Budgeting

Tokarick, Stephen
“The Impact of Trade on Wages: The Role of Nontraded Goods”
Review of International Economics

Tokarick, Stephen
“Who Bears the Cost of Agricultural Support in OECD Countries?”
World Economy

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Pacific Economic Literature

Yang, Yongzheng; Mlachila, Montfort
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Journal of Development Studies

Yohane, Khamfula; Mlachila, Montfort; Chirwa, Ephraim
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Applied Economics Letters

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European Journal of Political Economy

Beetsma, Roel; Debrun, Xavier
“The New Stability and Growth Pact: A First Assessment”
European Economic Review

Kose, M. Ayhan; Blankenau, Bill
“How Different Is the Cyclical Behavior of Home Production Across Countries?”
Macroeconomic Dynamics

Kose, M. Ayhan; Hirata, Hideaki; Kim, Henry
“Sources of Fluctuations: The Case of MENA”
Emerging Markets Finance and Trade

Other External Publications (Books, Conference Volumes)

2005

Keen, Michael
“VAT in Federal Systems”
Encyclopedia of Taxation and Tax Policy

Kumhof, Michael; Tanner, Evan
“Government Debt: A Key Role in Financial Intermediation”
in *Festschrift in Honor of Guillermo A. Calvo*, ed. by A. Velasco

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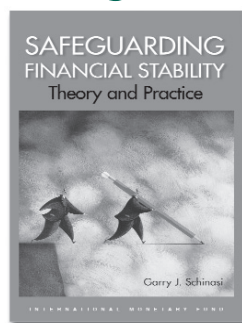
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Santanu Chatterjee; University of Georgia; 11/7/05–11/11/05

Marvin Goodfriend; Federal Reserve Bank of Richmond; 10/3/05–10/21/05

Marvin Goodfriend; Federal Reserve Bank of Richmond; 12/14/05–12/20/05

Hideaki Hirata; Hosei University, Japan; 12/27/05–1/4/06

Jiandong Ju; University of Oklahoma; 10/24/05–10/28/05

Michael Kremer; Harvard University; 12/12/05–12/16/05

Michael Kremer; Harvard University; 12/27/05–12/30/05

Douglas Russell Nelson; Tulane University; 9/28/05–12/23/05

Pedro Oviedo; Iowa State University; 11/7/05–11/11/05

Hashem Pesaran; Cambridge University; 11/28/05–2/28/06

Sergio Santoro; Bank of Italy; 11/7/05–12/2/05

Guido Tabellini; IGER-Universita Bocconi, Italy; 10/31/05–11/2/05

Mathias Thoenig; University of Geneva; 10/31/05–11/11/05

Longyue Zhao; Georgetown University; 10/24/05–12/2/05