INTRODUCTION

Policy Responses to Commodity Price Movements—2

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Between 1986 and 1998, the price of a barrel of West Texas Intermediate (WTI) oil remained quite stable, fluctuating between $16 and $42 constant 2011-U.S. dollars, with the exception of a brief spike in 1990 at the time of the first Gulf War. In December 1998, the barrel of WTI had reached a low point of $17. Almost 10 years later, in July 2008, the same barrel cost $134. By March 2009, the price of oil had plummeted back to $41, before inching its way back to $92 as of September 2012. These large swings have not been limited to oil prices. Other commodities have also experienced wild price fluctuations over the past 10 years.

Such large commodity price movements have wide ranging macroeconomic implications in advanced and emerging economies alike.

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Fluctuations in oil prices can trigger slowdowns in activity, result in higher inflation, and can have a major impact on both the fiscal and external positions of small commodity exporters. The large redistribution of wealth across countries that this entails can strain the capacity and resilience of domestic financial systems and/or trigger asset price booms and busts.

In short, dealing with volatile commodity prices remains a major policy challenge. To make progress on this topic, the *IMF Economic Review* organized, together with the Central Bank of the Republic of Turkey (CBRT), a conference on “Policy Responses to Commodity Price Movements.” The conference took place in Istanbul on April 6-7, 2012. This special issue of the *IMF Economic Review* and the previous one include some of the key papers presented at this conference. As usual, all of these papers went through a rigorous refereeing process, and benefited from extensive feedback from discussants, conference participants, members of the Editorial Board, and members of the conference organization committee.

The first three papers focus on the following central question for policymakers: “Is monetary policy different for commodity exporters/importers?” The first paper, “Is Monetary Policy in an Open Economy Fundamentally Different?” by Tommaso Monacelli answers a somewhat broader question. The article elegantly shows that optimal monetary policy in a small open economy New Keynesian model generically deviates from the canonical closed-economy principle of domestic price stability. In particular, under fairly standard conditions, it is no longer constrained-efficient to simply stabilize domestic markups so as to replicate the flexible price allocation (as would be the case in a closed economy). The reason is that, in an open economy, a domestic planner can improve upon the flexible price allocation by manipulating the terms-of-trade. This result holds even in the absence of cost-push shocks that would break down the link between price stability and efficient production in the closed economy. Openness alters the trade-off that monetary authorities face. Tommaso’s paper grew out of his excellent discussion of a paper by Constantino Hevia and Juan Pablo Nicolini, which sparked an interesting discussion among conference participants on the conduct of optimal monetary policy for small open commodity exporters and importers. While being more general, we thought it would set the stage nicely for the next two contributions by Constantino Hevia and Juan Pablo Nicolini, and by Luis Catao and Roberto Chang.

In “Optimal Devaluations,” Hevia and Nicolini consider a small open economy with nominal rigidities that trades a commodity used in the production of intermediate goods, and experiences terms-of-trade shocks. Should such a country follow a strict domestic price inflation targeting (PPI targeting), ignoring the exchange rate, or should it deviate from it when the domestic currency suffers an excessive appreciation, as Chile did in 2008? To answer this question, the paper characterizes the optimal exchange rate path consistent with the full-commitment allocation under complete markets. An important result of the paper is that price stability is indeed optimal, provided that the government has at its disposal a sufficiently rich menu of
state and time-contingent taxes (labor income, tariffs, and capital controls). The paper also finds that in a widely used configuration of the model, the optimal taxes are constant. In that environment, the “divine coincidence” holds, and monetary authorities simply want to replicate the flexible price allocation. The paper makes explicit the conditions under which PPI-targeting is optimal, even for a commodity producer/importer facing large terms-of-trade shocks.

In “Monetary Rules for Commodity Traders,” Catao and Chang explore a similar question, with a slightly different model. Like Hevia and Nicolini, they consider a small open New Keynesian economy that imports/exports commodities. Unlike Hevia and Nicolini, however, they do not assume that monetary policy can be complemented by the active management of a wide set of taxes and transfers. They consider two financial market environments: one with a complete set of contingent international claims, and one with financial autarky. The reality for emerging economies is probably somewhere in between. As in Hevia and Nicolini, the paper characterizes allocation under full-commitment (Ramsey allocations). In the light of the two previous papers, their paper can be seen as exploring various policy rules in environments where strict PPI targeting is unlikely to be optimal, either because fiscal instruments cannot be adjusted, or the “divine coincidence” does not hold. Yet, the main message of their paper is that, perhaps surprisingly, a strict PPI targeting rule performs fairly well across a broad range of environments, especially under financial autarky. Taken together, these three papers provide a compelling case that domestic price inflation targeting may indeed be quite robust for small open commodity traders. This is a conclusion that is certain to elicit further research and empirical analysis. The first three papers of this issue clearly echo the sentiment emphasized by José De Gregorio’s Policy Corner piece, “Commodity Prices, Monetary Policy, and Inflation,” in the previous issue. De Gregorio presents an assessment of the monetary policy challenges posed by commodity price shocks and argues that monetary policy should target headline inflation in order to smooth out the impact of these shocks on prices.

The next two papers explore an important question for resource-abundant economies: “How to harness commodity price windfalls?” The first paper “Public Investment in Resource-Abundant Developing Countries” by Andrew Berg, Rafael Portillo, Shu-Chun Yang, and Luis-Felipe Zanna considers the situation of developing countries that face strong needs for public infrastructure, have limited domestic tax base, and are often borrowing constrained. While potential returns to public investment can be high, policymakers may be concerned that excessive public investment in the short run may run into absorptive capacity constraints, or put excessive pressure on the domestic economy thereby pushing up domestic prices. Exhaustibility constraints may also put limits on public investment, since capital expenditures need to be funded from other sources in the medium/long run. Finally, policymakers need to take into account revenue volatility arising from terms-of-trade shocks. The paper presents a dynamic stochastic general equilibrium
model that allows the authors to explore these issues. The model indicates the optimal amount of public investment as well as the amount of resources that should be set aside in a resource fund, which can help cover future recurrent costs of public investment. It is applied to the Central African Economic and Monetary Community and to Angola. The paper demonstrates how careful theory can be used to address an important policy question and provide quantitative answers.

The next paper, “Managing and Harnessing Volatile Oil Windfalls” by Ton van den Bremer and Frederick van der Ploeg, investigates a similar question. The paper observes that countries may want to save a windfall for three different reasons: to provide resources for future generations, to provide liquidity against macroeconomic shocks, and to finance public investment. The paper proposes a simple continuous time model of an oil-exporting economy. It shows that the different motives interact in determining the use of the windfall: if the windfall is permanent, there is little need for an intergenerational fund, so liquidity and public investment motives will dominate. If, on the other hand, the windfall is temporary, most of it needs to be saved, which reduces the need for a liquidity fund. The model is then used to evaluate the optimal size of the resource funds for three different countries: Norway, Iraq, and Ghana. Again, the paper illustrates how careful use of simple theory and data can provide answers to challenging policy questions.

The paper by Yusuf Soner Baskaya, Timur Hulagu, and Hande Kucuk, “Oil Price Uncertainty in a Small Open Economy,” considers the cyclical implications of oil prices using a small open economy model. The model is designed for an oil-importing small open economy that uses oil for both consumption and production purposes. The model shows how highly volatile oil prices can affect cyclical dynamics through two different channels. First, it makes the marginal product of capital riskier, creating an incentive to substitute away from capital. Second, it increases the demand for precautionary savings. Their model shows that international financial markets play an important role for the transmission of oil price volatility shocks. In particular, higher precautionary savings demand because of increased oil price uncertainty has different effects on output and investment depending on whether households can have access to international financial markets. Under financial integration, for example, the investment decline due to higher oil price volatility is almost twice as much as the decline under financial autarky. In addition, the interaction between shocks to the level and volatility of oil prices appears to be quantitatively important. They show that when there is a simultaneous rise in the volatility of oil prices, initial responses of output, investment, and consumption to a jump in oil prices are almost doubled.

The last paper of this issue by David M. Arseneau and Sylvain Leduc, “Commodity Price Movements in a General Equilibrium Model of Storage,” focuses on the sources of commodity prices. Specifically, the paper examines the roles played by variations in stocks and changes in supply and demand as drivers of commodity prices in a general equilibrium framework augmented
by the canonical rational expectations competitive storage model. This framework allows the authors to study interactions between the nonlinear commodity price dynamics implied by the competitive storage set up with the broader economy. This is a significant improvement over the earlier modeling approaches that relied on partial equilibrium settings of commodity markets. In the model, the price of commodities is endogenously determined and there are risk-neutral speculators who buy and sell commodities. The paper finds that the endogenous movements in interest rates implied under general equilibrium amplify the impact of competitive storage on commodity prices and lead to more persistent commodity prices. The endogenous link between the ability of the household to smooth consumption over time and the level of storage in the stochastic equilibrium reduces the frequency of stock-outs in the model.

The evolution of commodity prices over the past four decades clearly shows the importance of designing appropriate policy responses to commodity price movements. In the mid-1970s, supply-driven commodity price shocks pushed the global economy into a recession. The lingering effects of that recession were also felt in the early 1980s when major advanced economies implemented contractionary monetary policies to control inflation. In the 2000s, demand from rapidly growing emerging markets changed the dynamics of commodity markets and led to gyrations in prices. The papers presented in this issue, and the previous one, enhance our understanding of the dynamics of commodity prices and provide policymakers a lot of material to consider when they formulate their responses to wild movements in commodity markets. Moreover, the papers in these two issues clearly illustrate the high quality and policy relevance that have come to characterize the IMF Economic Review.