

“How to Cope with Volatile Commodity Export Prices: Three Proposals”

Jeffrey Frankel, Harvard Kennedy School

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Abstract

Countries that specialize in commodities have in recent years been hit by high volatility in world prices for their exports. This paper suggests three ways that commodity-exporters can make themselves less vulnerable. (1) They can use option contracts to hedge against short-term declines in the commodity price without giving up the upside, as Mexico has shown. (2) Commodity-linked bonds can hedge longer-term risk, and often have a natural ultimate counter-party in multinational corporations that depend on the commodity as an input. (3) The well-documented pro-cyclicality of fiscal policy among commodity exporters can be reduced by insulating official forecasters against optimism bias, as Chile has shown.

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Introduction

Countries where exports are relatively concentrated in oil, gas, minerals and agricultural commodities experience terms of trade that are highly volatile. This volatility is one of the possible explanations for the famous Natural Resource Curse.¹

This chapter offers three policy proposals to help countries manage commodity volatility and thereby help make sure that commodity wealth is a blessing rather than a curse. Two of the ideas fall in the area of microeconomic policy: specific financial contracts structured so as to hedge risk. One of the ideas fall in the area of macroeconomic policy institutions: ways to make fiscal policy counter-cyclical rather than pro-cyclical. (Institutions to make monetary policy counter-cyclical in commodity-exporting countries rather than pro-cyclical are proposed in a companion chapter of this volume.)

It is always hard to make policy proposals that are convincing and at the same time original. I will try to strike a balance between being convincing and being original.

Let us first pause to ask: Don't commodity-exporters already use financial markets to smooth trade fluctuations? It is true that if international financial markets worked well, countries facing temporary adverse trade shocks could borrow to finance current account deficits, and vice versa. But they don't work that well. Capital flows to developing countries tend not to be counter-cyclical, as in intertemporal optimization theory, but rather to be pro-cyclical.² The more realistic theory usually builds on the assumption that creditworthiness is imperfect and therefore borrowing requires collateral in the form of commodity export proceeds. For this reason, the supply of funds increases during commodity booms and falls during commodity busts. The important point for policy-makers is that some careful thought is required to design institutions that can protect against the volatility.

A variety of policies and institutions for dealing with commodity volatility have been proposed and tried in various countries. Some have been successful, some much less so. Many of the ideas that tend to work poorly can be described as seeking to suppress price volatility rather than manage it. I see them as akin to King Canute commanding the tide not to come in.

¹ Brueckner and Carneiro (2016), Blattman, Hwang, and Williamson (2007), Hausmann and Rigobon (2003), Mendoza (1997) and Poelhekke and van der Ploeg (2007). Terms of trade volatility hurts growth in the presence of investment irreversibilities and credit constraints (Aghion, Angeletos, Banerjee & Manova, 2010). Frankel (2012) surveys the Natural Resource Curse.

² E.g., Kaminsky, Reinhart and Végh (2005).

I am thinking, for example, of price controls, commodity marketing boards, and controls on exports. Better to accept fluctuations in demand and supply as a fact of life, and to devise policies and institutions to equip the economy to cope with them.

1. Idea for financial hedging of short-term risk: Options

The general theoretical case for hedging is clear. Hedging allows for efficient sharing of risk.³

Of my two suggestions for ways to hedge risk, one having to do with derivatives has been tried and proven successful in protecting against short-term declines in the world price of the export commodity. I have in mind the options market. Mexico annually buys contracts for put options on a large scale to protect itself against a decline in the dollar price of oil.⁴ This strategy proved especially useful when global commodity prices fell abruptly in 2009 and 2014-15.

Why not use the futures or forward market? Ghana has apparently tried this for cocoa, with some success.⁵ But the futures strategy has a major potential drawback, which might be described as an incentive compatibility problem. The minister who sells the commodity forward is likely to get meager credit if the dollar price of the commodity subsequently goes down, but lots of blame if the price goes up. Better to use options to eliminate the downside risk while keeping the upside potential, although of course one must pay a price for the latter.

A possible limitation in practice for both futures and options contracts is that they are not always readily available for some commodities, particularly at the long-term horizons needed to hedge development of new oil or mineral resources or to hedge the asset-value of existing resources. This observation leads to proposal number two.

2. Idea for financial hedging of long-term risk: Indexing debt to the commodity price

For those countries that borrow, e.g., a West African country that is developing new deposits of iron ore or offshore oil, I propose indexing the terms of the loan, not to dollars nor

³ E.g., Borensztein, Jeanne and Sandri (2013).

⁴ Duclaud and García (2012).

⁵ IMF SPRD and World Bank PREM (2011, p.47).

to the local currency, but to the price of the commodity itself.⁶ The advantage of such bonds is that in the event of a decline in the world price of the underlying commodity, the debt-to-export ratio need not rise. The cost of debt service adjusts automatically, without the severe disruption that so often results from crisis, debt restructuring, loss of confidence, and so forth. When debt crises hit Indonesia, Russia and Ecuador in 1998, or Ghana, Ecuador, Nigeria and Venezuela in 2015, one reason was that low dollar prices of their oil exports had driven up their debt service ratios. This would not have happened if their debts had been indexed to the oil price.

The indexation idea has been around for a long time⁷, but has seldom been put into practice. Why not? Potential issuers worry that there is not enough demand for such commodity bonds. Who would want to take the other side of the trade, they ask? There is a good answer to the question who the ultimate potential customers are. Airlines and power utility companies have reason to go long in oil, steelmakers have reason to go long in iron ore, chocolate makers to go long in cocoa, etc.⁸

It must be that bonds denominated in a particular kind of oil and carrying the credit risk of a particular country are too specialized a niche to generate the necessary liquidity to make a viable market. A power company or airline wants to go long in oil, not long in exposure to Azerbaijan, Nigeria or Ecuador, whose credit risk it is not equipped to evaluate. But then the World Bank might be able to make the market: It would lend to interested oil-producing countries – which is its job -- in terms of oil in place of lending to them in dollars. It would then offset its collective exposure to oil markets by selling to investors a World Bank bond denominated in a standard oil price index. (Certain major private banks might also be able to play this role of intermediary.) Similarly, countries that export iron ore, cocoa, gold, coffee, and other commodities would borrow from the intermediary in terms linked to the price of the commodity in question and the intermediary would then lay off that commodity risk. The ultimate holder of the commodity exposure would be someone, like a manufacturing corporation who has a good reason to go long in the commodity in question. All three parties – the borrower, the intermediary, and the ultimate buyer – get exposure to what they want

⁶ Frankel, "Barrels, Bushels and Bonds: How Commodity Exporters Can Hedge Volatility," *Project Syndicate*, October 2011.

⁷ E.g., Caballero (2002) or Attah-Mensah (2004). There are earlier precedents.

⁸ Logically, commodity bonds should be "an easier sell" than GDP-linked bonds, which have received more attention (e.g., Borensztein and Mauro, 2004). The first reason is that they have natural customers, as noted. The second reason is that the commodity price index is not subsequently revised and is less liable to government manipulation than are GDP or inflation statistics.

exposure in and protection against what they don't.

3. Institutions to overcome pro-cyclical fiscal policy in commodity-exporting countries.

The third proposal is in the area of fiscal policy. Government spending has historically been notoriously pro-cyclical in commodity-exporting countries. Governments have tended to increase spending during the boom and have then been forced to cut back when commodity prices go back down. Many authors have documented this historical pro-cyclicality.⁹ An important cause of procyclical spending is that government receipts from taxes or royalties rise in booms, and the government cannot resist the temptation or political pressure to increase spending proportionately, or more than proportionately, as if the boom will last forever. Two large budget items that account for much of the increased spending from oil booms are big construction projects and the government wage bill.¹⁰

It is not enough to observe that policy-makers should follow wiser policies. What is wanted are institutions that make it more likely that future fiscal policy will be counter-cyclical, or at least less pro-cyclical, even when carried out by officials who suffer from the common political and human frailties.

Some commodity-exporting developing countries managed after 2000 to overcome their historical pattern of pro-cyclicality. They achieved fiscal counter-cyclicality: taking advantage of the 2002-08 expansion to strengthen their budget balances, which then gave them the "fiscal space" to ease up when the global recession hit in 2009. Which countries managed this achievement? Generally those with "good institutions" judged by the standard measures such as the rule of law.¹¹

What institutional innovations, more specifically, can a country adopt to fight fiscal pro-cyclicality? The conventional answer is budget rules, for example legally entrenched ceilings on budget deficits. But such rules alone won't do the job, as the failures of Europe's Stability and Growth Pact have amply demonstrated. To begin with, fixed ceilings on budget deficits operate pro-cyclically: when the economy is hit by a recession and so the budget is hit by a loss in tax

⁹ Cuddington (1989), Gavin and Perotti (1997), Tornell and Lane (1999), Kaminsky, Reinhart, and Vegh (2004), Talvi and Végh (2005), Alesina, Campante and Tabellini (2008), Mendoza and Oviedo (2006), Ilzetski and Vegh (2008), Medas and Zakharova (2009), Arezki, Hamilton and Kazimov (2011), Arezki and Brückner (2012a, 2012b), Erbil (2011), and Avellan & Vuletin (2015).

¹⁰ Gelb (1986) and Medas and Zakharova (2009), respectively.

¹¹ Céspedes and Velasco (2014) and Frankel, Végh and Vuletin (2013).

revenue, a budget balance rule will force the government to cut spending or raise tax rates which will worsen the recession. Phrasing the target in cyclically adjusted terms helps solve that problem in theory. But most such rules are violated in practice, even more so for developing countries than for advanced countries. One major reason is overly optimistic forecasts by official agencies.¹²

A study of Chile's successful fiscal institutions¹³ concluded that the key feature was not by itself the adoption of cyclically adjusted budget balance. Others have tried this and failed. It was, rather, the delegation to independent committees of the responsibility to estimate the long-run trends in the copper price and GDP. This delegation avoided the systematic over-optimism that plagues official forecasts in most other countries. It could be a useful model for others to emulate.

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¹² Frankel (2011) and Frankel and Schreger (2013).

¹³ Frankel (2013). Summarized in "Chile's Countercyclical Triumph," *Foreign Policy*, June 2012.

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