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Research Summaries

Oil Market Developments and the Global Economy

Selim Elekdag

Although oil prices are below their peaks of August 2006, they remain higher than they were in the recent past, heightening concerns that oil price variability will continue to pose significant risks for the global economy. In combination with the current widely held belief that oil markets will continue to be tight, the threat of shocks that could trigger further oil price variability has brought about a resurgence of interest in oil market issues, their implications for member countries, and appropriate policy responses. This article briefly surveys recent IMF research on oil market developments and issues.

Over the past few years, extensive research has been conducted at the IMF on oil market developments and issues. Many of these studies have become Executive Board papers and documents for internal circulation. Although numerous working papers have complemented these documents, they focus mostly on particular countries. This article surveys IMF studies that examine a wide range of questions or investigate core issues regarding the oil market that are relevant for a broad range of members.

One of the most prominent features of the oil market is that both supply and demand are highly inelastic in the short run, with the result *(continued on page 2)*

What Do We Know About Credit Booms?

Marco E. Terrones

In several emerging market economies, credit has expanded rapidly in recent years. Although rapid credit expansions are often associated with financial deepening, favorable external financing conditions, or cyclical upturns, they frequently raise concerns because of the role of excessive credit expansions in some financial crises. What do credit booms look like? What are the macroeconomic effects of a credit boom? How is firms' behavior affected by a credit boom? How should policymakers respond to a credit boom? This article surveys recent IMF research on these topics.

Credit booms are generally defined as periods of unusually sharp, above-trend expansions in real credit. More specifically, a credit expansion is identified as a boom if it exceeds some multiple of the standard deviation of a given country's credit fluctuations around trend (Terrones, 2004; and Mendoza and Terrones, 2007). Alternatively, credit booms can be defined *(continued on page 4)*

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Oil Market Developments and the Global Economy

(continued from page 1)

that even small shocks can trigger large price fluctuations. On the supply side, Sommer (2005) starts off by presenting some basic stylized facts and then moves on to assess the longer-term oil market prospects. After highlighting that spare capacity is near historically low levels, he concludes that there are significant risks that the oil market will continue to be tight. In particular, Kochhar, Ouliaris, and Samiei (2005) focus on structural impediments that hinder investment in the oil sector, and a recent study by Mercer-Blackman (2006) finds evidence that real investment by international and national oil companies remains below the levels of the early 1990s—a key explanation of the current low production capacity levels.

Approaching longer-term oil market prospects from the demand side, Dargay, Gately, and Sommer (2007) investigate the relationship between vehicle ownership and income growth. Although interesting in their own right, this study's findings also suggest that vehicle ownership will increase rapidly in developing and emerging market countries, with China stealing the limelight with a projected twentyfold increase by 2030. This breakneck expansion of vehicle ownership implies rapid growth in oil demand.

But can we attribute all of the recent oil price volatility to fundamentals? Antoshin and Samiei (2006) pose an interesting question by asking if speculation has contributed to the recent rise in oil prices. They do not find compelling evidence that speculative activity has affected short- and long-run price fluctuations but argue instead that speculative positions seem to follow oil price movements.

With the tightness in the oil market expected to continue well into the future, the natural question to ask is to what extent higher oil prices affect the global economy. In an attempt to answer this question, both theoretical and empirical strategies have been employed, and these are reviewed in turn.

On the theoretical front, the IMF has benefited from its macroeconomic models. Using the IMF's first-generation model, MULTIMOD, Hunt, Isard, and Laxton (2002) quantify the impact of higher oil prices on industrial countries. Furthermore, they consider alternative scenarios to investigate the role of monetary policy and the structure of the labor market. Hunt (2006) extends the IMF's latest model, the Global Economy Model (GEM), to include an oil sector, which he uses to investigate the role of oil shocks in the U.S. stagflation of the 1970s. Bebee and Hunt (2007) use the same model to examine the macroeconomic impact of the rise in energy prices since the end of 2003 in the euro area, the United Kingdom, and the United States.

Most recently, Elekdag and others (2007) have further extended GEM to a multicountry setting with a well-articulated energy sector. In turn, Elekdag and Laxton (2007) used this latest version of GEM to analyze the causes and consequences of oil price fluctuations with the intention of trying to distinguish the role of supply and demand factors. One of their findings is that a supply-induced 100 percent increase in oil prices generates a decline in world GDP by 1.4 percent below the baseline and a rise in global inflation of about 1.5 percentage points. They also consider the global macroeconomic impacts of higher gasoline taxes.

Although the modeling approach offers a distinct structural perspective, most of the studies focusing on oil market issues have been empirically oriented. The recent run-up in oil price fluctuations has raised many issues, including its implications for global imbalances and the role of petrodollar recycling and its impact on world interest rates.

The first issue is addressed by Rebucci and Spatafora (2006), who examine the implications of the rise in oil prices for global imbalances. They argue that some of these imbalances have been exacerbated by higher energy prices. Because oil exporters only gradually increase their spending of oil revenues—a view supported by Berkmen and Samiei (2006)—global imbalances are likely to remain at elevated levels for longer than would otherwise have been the case.

In a related paper, Kilian, Rebucci, and Spatafora (2007) study the impact of oil shocks on countries' external balances. One of their main results is that the effect of oil shocks on the current account depends critically on the response of the *non-oil* trade balance. Furthermore, the effect systematically differs between the United States and other importing countries. Similarly, Samiei (2007) finds that U.S. dependence on oil comes largely from gasoline consumption, which, as a share of GDP, is about five times that in other large industrial countries, owing primarily to lower prices and lower fuel-efficiency standards.

Kodres and Warnock (2006) ask how the recycling of oil export revenues affects global financial markets. The hypothesis is that because higher oil prices increase world net savings, and saved petrodollars are used to purchase securities, this triggers lower interest rates. Their study is not able to detect such a significant channel among other competing influences on U.S. yields, however, potentially because of data limitations.

This brings us to the research intended to guide countries in formulating the appropriate policy responses to developments in the oil market. Many notable studies have been released that cover issues including the pricing of petroleum products, taxation, revenue management, coping with dwindling oil reserves, investment in the oil sector, oil funds, transparency initiatives, implications for real exchange rates (Dutch disease effects), and impacts on external balances.

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One of the most comprehensive studies of these core issues was compiled by Davis, Ossowski, and Fedelino (2003), whose book focuses on developing and implementing appropriate fiscal policy frameworks for oil-producing countries. Similarly, Husain and Davoodi (2005) argue that Middle Eastern and Central Asian countries that have benefited from higher oil revenues should use them to foster employment opportunities and to further promote the development of the private non-oil sector. Interestingly, Cheng, Mercer-Blackman, and Samiei (2007) find that oil exporting governments rely on traditional methods rather than on financial hedging to manage volatile oil revenues.

In the context of low-income countries, Katz and others (2004) try to answer the question of how to improve petroleum revenue management in sub-Saharan Africa. They emphasize that initiatives to increase transparency promote more effective oil revenue management, which is needed to lift the oil curse for these countries. More recently, Dudine and others (2006) consider the impact of the 2003–05 oil price shock on low-income countries with a focus on potential balance of payments needs.

This brings us to an issue critically relevant for the IMF: external financing considerations, including the use of Fund resources. A comprehensive paper, IMF, Policy Development and Review Department (2005), provides an overview of some of the key policy issues already discussed, along with a detailed review of financing issues that may be triggered by higher oil prices. In this context, Elekdag (2006) finds that oil price fluctuations are a robust global factor that significantly affects the likelihood that countries may seek recourse to Fund resources, even after controlling for other global factors and country-specific variables.

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What Do We Know About Credit Booms?

(continued from page 1)

as episodes where the credit-to-GDP ratio deviates from its rolling trend, which uses information until the boom is identified, by a given factor (Gourinchas, Valdés, and Landerretche, 2001). The former definition seems to be superior to the latter because it allows real credit and real GDP to have different trends and cyclical properties, which is important if countries are undergoing a process of financial deepening. In addition, the use of a rolling trend, instead of a long-term trend, could affect the characterization of the boom by distorting its timing and duration.

Credit booms can be the result of various factors, such as explicit or implicit government guarantees, herding behavior by banks, information asymmetries, and agency problems. (Dell'Ariccia and Marquez (2006) show that as information asymmetries across banks decrease, banks loosen their lending standards and increase aggregate credit.) They can also be associated with hasty financial liberalization and large capital inflows, particularly in countries with weak prudential regulation and supervision. One important mechanism that could lead to a credit boom is the financial accelerator, by which shocks to asset prices are amplified through balance-sheet effects. For example, excessive optimism about future earnings could boost asset valuations and incomes, which would enhance the net worth of the households and firms that hold the assets and, in turn, increase their capacities to borrow and spend. Thus, the expansion phase of the credit boom is characterized by the leveraging of households and firms. (This is a key feature of the transmission mechanism emphasized in the literature on emerging market crises—see, for instance, Arellano and Mendoza, 2003.) This process may be unsustainable, however, and when the overly optimistic expectations are revised downward, asset prices and incomes fall, pushing the financial accelerator into reverse. These large and rapid changes in credit, which occur as the quality of funded projects declines and misperceptions about risk increase (Borio, Furfine, and Lowe, 2001), could often lead to crisis, particularly in countries with weak legal and financial institutions.

What do credit booms look like? Many countries around the world have experienced credit booms during the postwar period. These booms have the following characteristics (Mendoza and Terrones, 2007). First, they are synchronized and occur in bunches. (They are centered around "big events," including the debt crisis, the exchange rate mechanism (ERM) crisis, and sudden stops.) This suggests that common influences in capital flows and financial liberalization played important roles. Second, the amplitude of credit booms is larger and more asymmetric (with downturns sharper than upswings) in developing countries than in industrial countries. Not surprisingly, credit booms in developing countries are associated with a higher incidence of crises (banking crises, currency crises, or sudden stops). Indeed, there is evidence that some credit booms have a significant effect on the likelihood of banking crises, especially when accompanied by current account deficits (Barajas, Dell'Ariccia, and Levchenko, 2007), and the probability of default (Segoviano, Goodhart, and Hofmann, 2006). (Kroszner, Laeven, and Klingebiel (2007) study the growth effects of banking crises. They find that during banking crises, sectors highly dependent on external finance experience greater contraction of value added in countries with deeper financial systems than in those with shallower ones.)

Credit booms generally coincide with large macroeconomic fluctuations, particularly in developing countries (Mendoza and Terrones, 2007). Real output, consumption, and investment rise above trend as credit expands, and fall—indeed, some countries have experienced outright recessions—as credit collapses. The output of nontradables and the real exchange rate both rise during the upswing of the boom and fall sharply during the downturn, and these effects are particularly important in developing countries. Finally, credit booms often end with current account reversals and collapses in the stock markets. Property price booms and busts have often been closely linked to credit booms—this link was particularly strong during the Asian crisis (Collyns and Senhadji, 2002).

Firm-level data show striking patterns consistent with those observed during macro credit booms (Mendoza and Terrones, 2007). In particular, firm leverage (i.e., the ratio of total debt to market value, or of total debt to book value) increases significantly during the buildup phase of the credit boom and is followed by rapid deleveraging during its ending phase. In contrast, firm profitability (measured by the gross return on assets) and external financing (as measured by the Rajan-Zingales coefficient) peak earlier than the credit boom and collapse when the boom reaches its peak. Since the nontradable sector is more dependent than the tradable sector on external financing, it is not surprising to observe larger swings in the former in leverage and the Rajan-Zingales coefficient. The consistency between firm-level data and macro credit booms—in contrast to studies where these associations have not been established—is evidence supporting the definition of credit booms based on real credit.

Dealing with credit booms is a challenging task for economic policymakers because of the difficulties involved in distinguishing episodes of rapid credit growth from full-blown credit booms. The recent episode of rapid credit growth in the transition economies of Central and Eastern Europe highlights the difficulties in identifying credit booms in countries with short histories as market economies and low initial levels of financial deepening.

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For instance, Cottarelli, Dell'Ariccia, and Vladkova-Hollar (2003) conclude that although the rapid credit expansion in some of these countries seems consistent with a process of financial deepening, credit booms could not be ruled out there. Similarly, Hilbers and others (2005) find that although the rapid credit expansion in these countries is consistent with a catching-up process, the macroeconomic implications of rapid credit growth (particularly, increasing inflation and continued deterioration of the current account) entail important risks. Additionally, Duenwald, Gueorguiev, and Schaechter (2005) find that recent credit expansion in Bulgaria, Romania, and Ukraine has been excessive.

What should policymakers do if the preponderance of the evidence suggests that there is a significant risk of a credit boom developing? They should conduct a detailed assessment of the characteristics of the credit boom, including its sources, sectoral composition, and the extent of currency mismatches (see Hilbers and others, 2005). They should also evaluate the soundness of the financial sector and the quality of financial regulation and supervision. Based on these analyses, policymakers could consider implementing various policy measures if credit is deemed excessive. First, macroeconomic policies could be tightened, even when inflation is quiescent (Terrones, 2004). In particular, policymakers could try to restrain credit growth by tightening monetary policy. Second, prudential and supervisory policies should be upgraded whenever possible. These measures, however, should be justified only by prudential considerations (Hilbers and others, 2005). Third, scrutiny of corporate and household borrowing and the monitoring of risks could be intensified. In particular, the monitoring of lending in foreign currency to unhedged borrowers should be a priority. Fourth, if the source of the credit boom is external financing, adoption of temporary administrative measures should be carefully considered. Fifth, and finally, all explicit and implicit government guarantees and fiscal distortions that result in overborrowing or overlending should be eliminated.

More generally, to reduce the potential risk of future credit booms, policymakers should strive to improve institutional frameworks, including their countries' legal systems. In particular, measures to develop financial markets and improve corporate governance and transparency are needed. (Bruno and Claessens (2007) examine how corporate governance and countries' regulatory regimes affect company valuation. They find evidence that corporate governance increases valuation, particularly for companies that rely more heavily on external financing.) Also, financial systems should increasingly rely on arm's-length transactions while minimizing the risk of financial instability. The recent experience of the advanced economies suggests that this is likely to happen as a result of deregulation, technological advances, and financial globalization (see Lall, Cardarelli, and Tytell, 2006). These efforts will not only serve to reduce the likelihood of a credit boom but also help to foster economic growth.

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Country Study

India

Hélène Poirson

There can be little doubt that India is emerging as a global economic power: growth has accelerated; fiscal consolidation has reduced public indebtedness; and global integration has brought a number of benefits, including by helping to restrain inflation. Growth has also reduced poverty, and a prolonged economic takeoff could lift hundreds of millions more out of poverty. Significant constraints remain, however, including growing regional inequalities; underdeveloped parts of the financial sector; and supply-side barriers, including massive infrastructure gaps. Progress made in addressing these challenges and the road ahead have been the main focus of recent IMF research.

India's recent economic performance has been impressive. Growth has averaged 8½ percent over the last three years, placing it among the world's fastest-growing economies. In contrast to much of Asia, growth has been led by domestic demand. Services and industry are driving the economy and have been growing at annual rates of 10 percent and 9 percent, respectively. Growth has been supported by an increase in investment and savings of 11 percentage points of GDP since 1998/99. From the supply side, India has experienced a surge in productivity, reminiscent of the 1980s, that Rodrik and Subramanian (2005) attributed to an "attitudinal shift in government" and India's distance from its income-possibility frontier. The poverty rate has dropped from 26 percent in 1999–2000 to less than 22 percent in 2004–05.

Such success has elicited speculation among investors, academics, and policymakers on what the rise of India and China as economic powerhouses means for the world. Tseng and Cowen (2005) present an overview of research on the policy and institutional lessons to be learned from each country's unique development path. More recently, Aziz, Dunaway, and Prasad (2006) focus on India and China's financial sector and other pro-growth reforms, drawing lessons on how the two giants can support and learn from each other. A recent IMF book, *India Goes Global: Its Expanding Role in the World Economy* (Purfield and Schiff, eds., 2006) summarizes IMF research conducted during 2004–06 on the macroeconomic aspects of India's emergence on the global stage.

India's growth acceleration has coincided with a marked opening of its economy. More liberalized trade policies since 1991 have boosted export competitiveness. In addition, services exports—largely information technology (IT)—have boomed, thanks to the opening up to the private sector and foreign investment (Fernandez and Gupta, 2006). Trade liberalization appears to have reduced wage inequality by boosting the unskilled wage premium (Mishra and Kumar, 2005). As India gains market share in Asia, it is becoming a regional growth engine (Schiff, 2006; Lim, 2006). India is also reaping the benefits of higher foreign direct investment (FDI), which has increased in net terms from $0.1 billion in 1991/92 to $5.6 billion in 2005–06 and an estimated $11 billion in 2006–07. Sustained competitiveness, however, will require enhanced infrastructure, lower tariffs, and an improved business climate; the exchange rate is not an obvious bar, since there is no evidence that the rupee is misaligned at present (Purfield, 2006b). A related finding by Jain-Chandra (2006) is that difficulties of doing business, rather than the FDI regime (which is not overly restrictive by international standards), are limiting India's FDI potential.

China's World Trade Organization (WTO) accession and the recent lifting of quotas on textiles and clothing have made competitive challenges more pressing for India. Cerra, Rivera, and Saxena (2005) document the trade diversion from India owing to previous reductions in U.S. tariffs on Chinese imports. With the extent of third-party competition at only 25 percent of products and both countries specializing in different aspects of textile exports, however, they predict a relatively small decline in India's market shares in the United States and the European Union; moreover, intermediate exports from India to China are likely to increase as China expands its exports of finished products, cushioning the economic welfare loss. Jain-Chandra and Prasad (2006) observe that following the lifting of quotas, India has gained market share in the United States, though less sharply than China owing to its rigid labor laws and deficient infrastructure.

Along with trade liberalization, gradual opening of the capital account has been a keystone of India's success. Kohli and Wattleworth (2006) find that the opening to trade and capital have been mutually reinforcing. For instance, easing restrictions on external borrowing has increased trade by lowering corporate borrowing costs. Increased trade, in turn, has increased demand for the hedging and financial deepening that capital account liberalization can bring. India's heavy reliance on more volatile portfolio and debt inflows has declined recently, with inflows shifting to more stable sources of financing. FDI inflows are poised to exceed portfolio inflows this year for the first time. India also remains one of the largest recipients of remittances in

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the world: these tend to be countercyclical and depend little on variables such as political uncertainty, interest rates, or exchange rates (Gupta, 2005).

As India continues its global integration, a healthy and vibrant financial sector is becoming a pillar of the country's development strategy. Prasad and Ghosh (2005b) use annual data on scheduled commercial banks for 1996–2004 and find that competition in banking has increased since the inception of reforms in 1992. By studying the effect of monetary contraction on corporate borrowing from banks, Prasad and Ghosh (2005a) show evidence that the interest rate transmission channel has strengthened since 1998.

The authorities are now seeking a significant transformation of the Indian financial system, through pension and insurance reforms, and measures to develop the corporate debt and derivative markets. Poirson (2007) benchmarks India's new pension plan against the experience of earlier emerging market reformers; the study finds that such reforms can be a significant factor in India's financial market deepening, provided they build sufficient critical mass and the regulatory framework is not overly restrictive.

Recent growth in India has been accompanied by booming asset prices and credit, a welcome sign of financial deepening. Although such fast credit growth poses potential risks, the financial sector has become increasingly healthy. Despite recent rapid growth, the credit-to-GDP ratio and the public's access to banking services remain low, and the banking system is dominated by less efficient public sector banks. Rozkhov (2006) highlights the need for more private ownership in the banking system—domestic as well as foreign—and addressing structural constraints to lending to small enterprises and agriculture. Purfield (2007) finds that rising asset prices largely reflect structural changes; targeted prudential measures are better tools than monetary policy to address potential risks, given the weak relationship between monetary policy and asset prices. Meanwhile, Sy (2005) shows evidence that public sector banks (and some old private banks) are more exposed to interest rate risk than foreign and new private banks; a key priority for the authorities will be to scrutinize the risk-management practices of individual banks.

Continued fiscal reforms are needed to channel savings to more productive uses. Consolidation efforts reduced the general government deficit from 10 percent in 2002/03 to an estimated 6 percent of GDP at the end of March 2007, while public debt declined from 86 percent to 79 percent of GDP during the same period. Drawing states into the adjustment effort by means of reforms in center-state relations was a keystone of the adjustment strategy, as analyzed in Purfield and Flanagan (2006). With the government's spending needs unlikely to decline for some time, tax reform, examined in Flanagan (2006) and Poirson (2006), is essential to achieving a pro-growth consolidation. These papers lay out a strategy to generate revenues solely by broadening the tax base. In fact, lowering tax rates further could generate revenue via better compliance: Mishra, Subramanian, and Topalova (2006) estimate that the 67 percent reduction in average tariffs during 1988–2001 contributed nearly 90 percent of the decline in customs evasion.

Realizing India's growth potential will require reforms to leverage the demographic dividend. Kochhar and others (2006) and Jaumotte and others (2006) have documented India's idiosyncratic development pattern: India's past growth has been driven by services, with a pool of engineers and scientists giving India an edge in higher-value-added activities. Within manufacturing, India has emphasized skill-intensive activities. With its working-age population expected to rise over the next 40 years, the country's long-term growth prospects should receive a further boost. India needs to broaden its expansion to encompass labor-intensive manufacturing, however, including by tapping export markets, to realize this potential (Bosworth, Collins, and Virmani, 2006). Indeed, Purfield (2006a) finds that richer and faster-growing states are more effective at generating jobs and reducing poverty, which is resulting in growing regional inequality; other states, however, can catch up, if they make the right policy choices.

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Special Section: IMF Seventh Jacques Polak Annual Research Conference

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Matias Berthelon; Pontificia Universidad Católica de Valparaiso, Chile; 4/23/07–5/1/07

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