



Economic Premise

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Food, Financial Crises, and Complex Derivatives: A Tale of High Stakes Innovation and Diversification

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The 2008 food price crisis was an integral part of the financial crisis. In fact, the food price crisis was the second crisis in a chain of events that began in 2007 with the mortgage crisis, and culminated in the worst financial crisis since the Great Depression. Contrary to what was generally believed in 2008, developing countries, particularly food-importing countries, were part of the early wave of the financial crisis via food price increases, and later suffered another wave via the real sector. The events leading up to the food crisis were global and complex in nature. As a result, as the G-20 discusses solutions to the financial crisis, any new framework must include developing countries, especially low-income countries. In addition, developing countries, especially in Africa, must pay close attention to the work of the Financial Stability Board (FSB) and its recommendations on financial market reform, and over-the-counter (OTC) derivatives in particular, because these reforms will have important consequences for their housing, food, fuel, financial markets, and ultimately their growth and poverty reduction objectives.

In the summer of 2008, food prices, which had been rising steeply over the last year, reached historic highs. The prices of wheat and rice doubled; corn prices more than tripled. The rapid rise in food prices in 2007–8 led to social unrest and/or civil conflict in over 40 countries. Meanwhile, during 2008–9, the number of hungry people increased globally, from around 896 million to over 1.023 billion; in 2010, it dropped to 925 million (FAO and WFP 2009).¹ As a result of these developments, attainment of the Millennium Development Goals (MDGs), especially MDG1, to halve poverty by 2015, which was in sight for a number of low-income countries (LICs) in Africa in early 2007, has been severely compromised (World Bank 2010). According to the recent World Bank *Food Price Watch* (October 2011), global food prices remain high and volatile three years after the food

price crisis. The persistent fragility of the global economy requires more vigilance on this front, and also a better understanding of the links between the food and financial crisis.

A large body of literature exists on the causes and impacts of the 2008 food crisis (von Braun 2008; World Bank 2008a; Timmer 2009; FAO and WFP 2009; Prakash 2011). However, it is rarely acknowledged that in 2007, “No Street”²—even before “Main Street”—was already feeling the pain of the impending financial crisis: the food crisis was foreshadowing the financial crisis. For nearly a decade, the developing countries had benefited from favorable monetary and regulatory policies in the West. In 2008, developing countries shared the downside risk of these policies, and therefore should be part of the discussion on resolving the problem.

This note has three objectives: first, to establish the connections between the food price crisis and the financial crisis; second, highlight the beneficial impacts financial market globalization, financial innovation, and diversification had on many developing countries; and third, propose that infrastructure to support globalization of financial markets needs to be designed to respond to the needs and specificities of developing as well as developed countries. A lack of understanding of the intimate link between the events precipitating the financial crisis and the food crisis will undermine policy proposals intended to help LICs address this new reality.

This note recommends that all solutions to issues of commodity price volatility must be part of a comprehensive financial market regulation package and, in particular, must include the regulation of commodity markets, financial products, and institutions linked to trade in agriculture commodities. Africa and other LICs need functioning and innovative financial markets to manage volatility and to support more inclusive growth. Regulation should facilitate and not undermine this objective.

Rapid Globalization, Deepening Market Links, and Unprecedented Growth: 2000–2007

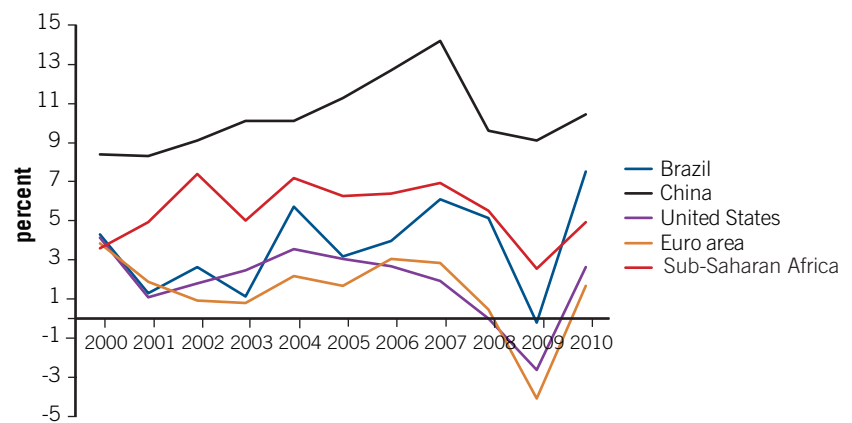
Interest rates, the housing market, and growth. The sequence of events leading up to the food price crisis of 2007–8 began with the Federal Reserve Bank’s easing of monetary policy in 2001. This was followed by rapid financial innovation, taking place in an already favorable regulatory environment in the United States, which was in place from the mid-1990s through 2008. Following the recession of 2001, the Federal Reserve Bank expanded the money supply in a bid to stimulate demand and restore growth. As a result, the Federal Funds Rate—the interest rate at which depository institutions lend balances to each other overnight—was lowered from 6.25 percent in January 2001 to 1.75 percent by the end 2001: this was one of the most aggressive interest rate reductions ever taken by the Federal Reserve (Piger 2002). By mid-2003, nominal rates were lower than the rate of inflation. As a strategy for reviving growth in the United States, this monetary policy stance was highly successful. By the end of 2004, the growth rate of the U.S. economy had more than tripled.³ This growth was largely fueled by growth in the housing sector.

The second-related event was the change in mortgage policies in the housing industry. The lowering of short-term interest rates not only fueled growth in the dollar volume of mortgage lending, but also changed buyers’ preferences for mortgage types. With short-term rates lower than the traditional 30-year rates, buyers opted increasingly for adjustable rate mortgag-

es (ARMs),⁴ assuming that rates would stay low for a long time. This increase in risk taking by consumers was matched by an increase in the complexity of the innovative financial sector products offered and purchased by investment firms, among themselves and to and by other institutions. With the increase in the volume of ARMs, banks needed to spread and diversify their risk. A new instrument—the mortgage-backed security (MBS)—became very popular. After a mortgage was sold, it was bundled with other subprime mortgages and immediately resold as part of a complex portfolio of MBSs, often involving OTC⁵ financial derivative contracts (as opposed to exchange-traded derivatives).⁶ In the early to mid-2000s, growing quantities of MBSs were sold to financial institutions the world over. Firms used MBSs to diversify their portfolio while carrying highly rated debt instruments that were insured by other derivative instruments known as credit default swaps (CDSs). MBSs and CDSs were again bundled into another asset class called collateralized debt obligations (CDOs) and sold to other financial investment firms, essentially globalizing the risks of U.S. homeowners. These new risk-management instruments allowed banks to accelerate lending to housing sector.

From 2000 to 2006, the number of subprime mortgages grew threefold (Shiller 2008), as new innovative instruments for managing risk developed. By 2006, subprime or near-prime mortgages had grown to 34 percent (US\$1 trillion) of all mortgages, from 12 percent of all mortgages in 2000. In fact in 2006, one-quarter of all mortgages were conventional nonprime loans (GAO 2009), with an associated increase in risk. About 45 percent of subprime borrowers in 2001 had less than 20 percent equity in their houses at the time of purchase; by 2006, this proportion had increased to an unprecedented 60 percent (Wallison 2008). As the demand for houses grew, so did the price of houses. Between January 2002 and June 2006, housing prices increased by 87 percent.⁷ The increase in housing prices raised the purchasing power of U.S. households. Rising housing de-

Figure 1. Growth in the United States, Sub-Saharan Africa, the Euro Area, and BRIC Countries 2001–10



Source: World Bank Development Indicators.
Note: BRIC = Brazil, the Russian Federation, India, and China.

mand helped push demand up in the United States, igniting a period of strong export-led growth in China. By 2006, global gross domestic product (GDP) had expanded by 4 percent as Europe, Asia, and Africa all grew on the back of this favorable economic push fueled by the United States and China.

Unprecedented growth in Africa and the world. From 2001–7, Africa experienced unprecedented economic growth, with GDP increasing from US\$307 billion to US\$817 billion, in current dollar terms.⁸ By 2005, Africa was experiencing the first five-year period since 1960 in which per capita growth for Africa remained positive in every year. The poverty rate went from 59 percent in 1995 to 50 percent in 2005 (Sala-i-Martin and Pinkovskiy 2010).

In the early 2000s, many African countries focused on getting the fundamentals of economic management right. They worked to reduce their debt, control inflation, and establish sustainable fiscal policies. Foreign exchange reserves, including gold, increased more than 300 percent, from US\$37 billion in 2001 to US\$154 billion in 2008. In addition, African countries also began to address some of the fundamental structural rigidities in their economies; policies to crowd in the private sector were increasingly being adopted and the opening up of hitherto publicly dominated sectors, such as telecommunications, and the reduction of public sector borrowing from the banking sector helped support growth.

These reforms, coupled with an overall favorable external economic environment, produced quick results. Net foreign direct investment (FDI) flows more than doubled, and, for the first time, FDI flows into Africa exceeded overseas development assistance (World Bank 2008b). Much of this growth was driven by increased commodity exports to developed countries and to newly emerging economies such as Brazil, the Russian Federation, India, and China (the BRIC countries). Nigeria, for example, bolstered by robust oil revenues, nearly doubled its share in world markets from 0.27 percent to 0.50 percent. South Africa, improved its export share from 0.46 percent to 0.63 percent. This pattern of export growth from emerging to developed countries and from developing to emerging countries created a “virtuous circle” of global economic growth.

However, this rapid increase in world growth drove up nonoil commodity prices, which rose by about 30 percent, while oil prices shot up over 40 percent.⁹ Then, the U.S. economy began to overheat.

The Crisis: Interest Rates, Biofuels, and Commodities

By early 2006 in the United States, core inflation reached an average rate of 3.2 percent. The United States responded to the threat of high oil prices and high inflation by raising interest rates and passing a biofuels law to encourage increased diversification in energy sources. The Federal Funds and one-year Treasury Bill interest rates peaked at 5.3 percent in June 2006.¹⁰

With the rise in interest rates, the housing market witnessed a sharp contraction, demand for ARMs dried up, and the rate of increase in housing prices leveled off (Office of Federal Housing Enterprise Oversight 2010). By the third quarter of 2006, the growth of U.S. residential investment swung from 0.5 percent in 2005 to negative -1.1 percent. This decline, in addition to a drop in household consumption, ushered in a slowdown in U.S. growth. U.S. GDP in the third quarter of 2006 dropped for the first time in five years (figure 1).¹¹

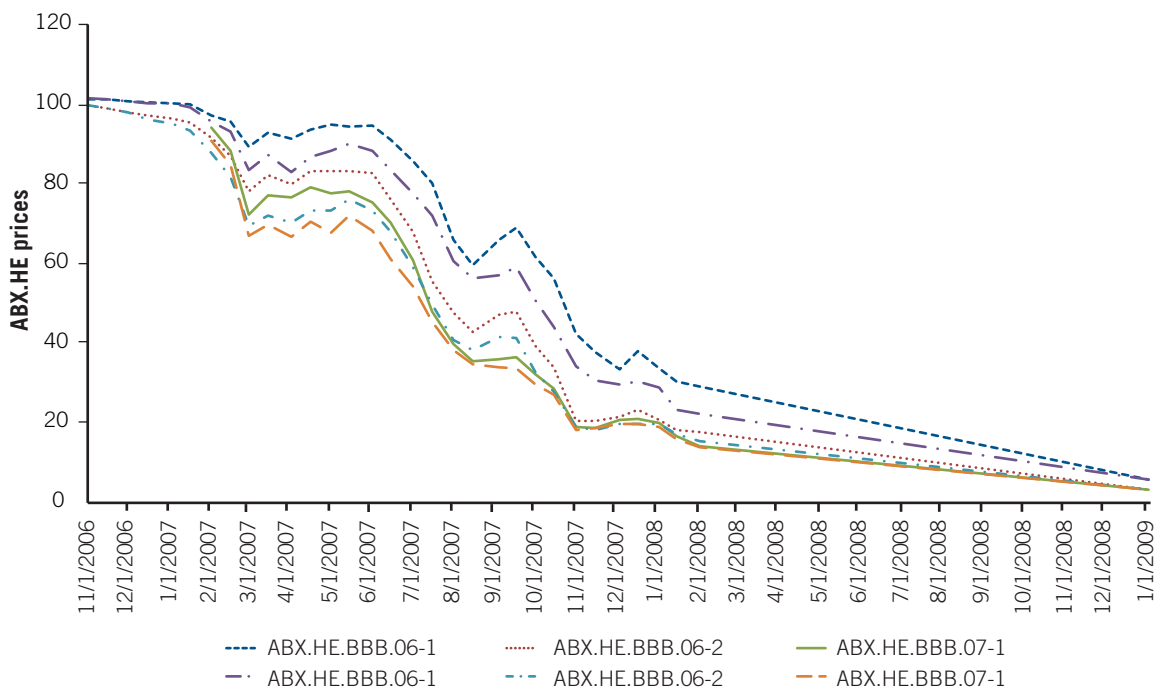
The impacts on the residential MBS (RMBS) market are shown in figure 2. The ABX.HE indices are equally weighted indices of the 20 largest volume subprime RBMSs. The ABX indices are based on credit derivatives written on MBSs that are backed by subprime mortgage loans. They help investors track the price of credit default insurance on a basket of subprime mortgage deals. The ABX index family served as a barometer of the stability of the subprime mortgage market when it was launched in 2005, and later, in 2007, it helped track the collapsing valuations in the U.S. subprime mortgage market. By early 2008, America’s leading banks had all absorbed substantial losses from the mortgage market. Citigroup absorbed a US\$60 billion default, while Merrill Lynch announced a US\$50 billion write off.¹² The Bank of International Settlements (BIS) estimates that in 2008, the value of MBSs in the system was over US\$2 trillion.

By early 2007, Wall Street began to feel the first tremors from the derivatives markets. Defaults were rising in the mortgage market. The market for CDOs’ underlying assets also began to disappear and investors tried to divest and diversify into other asset classes. A similar situation is underway today with sovereign debt. One asset class continued to yield positive returns: commodities.

Diversification into commodity markets

Relative to consumer prices in developing countries, internationally traded agriculture commodity prices were broadly stable until 2007, when prices of internationally traded food commodities (maize, wheat, and soybeans) rose very rapidly (World Bank 2008b). On the other hand, global agricultural futures markets experienced rapid growth starting in late 2004. The open interest for many agricultural futures markets doubled or even tripled from late 2004 through 2006. For example, the Chicago Board of Trade (CBOT) wheat futures market saw open interest increase 275 percent from June 2004 to June 2006.¹³ There are many reasons for this growth in commodity futures markets, including improved trading infrastructure on futures markets—electronic trading made it easier for noncommercial and index funds to interact in these markets; better and faster access to information; an inflationary environment for many commodity markets also made it an attractive market for traders and increased the demand for commodities; and rising costs of production for many commodities, as inputs costs rose, put pressure on prices.

Figure 2. Evolution of Credit Default Swap Indices with Subprime Mortgage Components Monthly Data, 2010–12



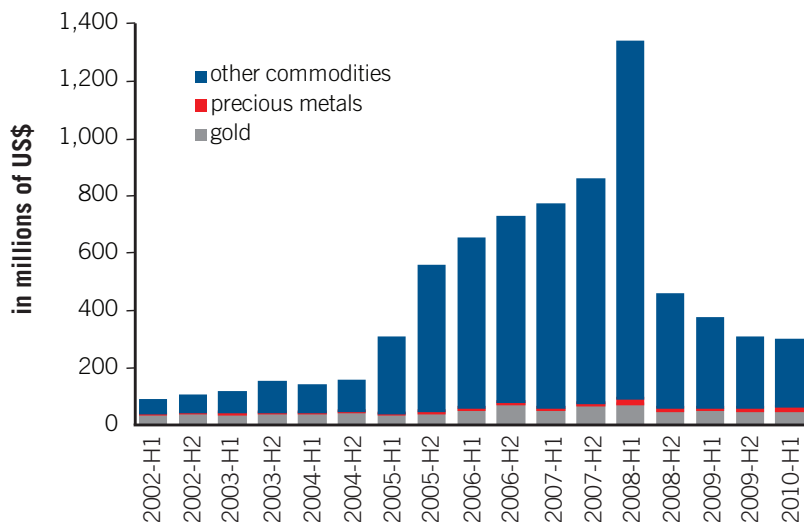
Source: Markit Housing Index 2010 and author's calculations.

Another reason for the increase in commodity prices in 2007 is directly related to the crisis in the housing market. As the credit crisis hit, more institutional investors further diversified into the commodity futures market. Trade in agricultural commodities and futures increased by 32 percent in the first two quarters of 2007 (BIS 2010b), and the value of OTC commodity derivatives in that period increased by over 150 percent.¹⁴ Index funds and other noncommercial financial institu-

tions diversified out of derivatives with U.S. mortgage instruments into commodity derivatives.

Commodity index funds trade on a basket of up to 20 or more commodities, primarily oil and metals (ores), but also agricultural commodities. While agricultural commodities usually account for 10–20 percent of the index, between 2003 and 2008, the volume of index fund trade increased by 1,900 percent, from US\$13 billion to US\$260 billion (CFTC 2008). These amounts can be traded by index funds because index fund trades are not linked to real promissory notes to purchase a commodity from anyone.

Figure 3. Notional Outstanding OTC Commodity Derivatives 2002–10



Source: <http://www.bis.org/statistics/derstats.htm>.

More diversification from oil to grain

In response to continued increases in oil prices and a faltering U.S. economy, the U.S. Congress passed two pieces of legislation: the Energy Policy Act of 2005 and the Energy Independence and Security Act (EISA) of 2007. Initially, the Energy Policy Act called for 5.4 billion gallons of biofuels to be blended with gasoline by 2008, increasing to 7.5 billion gallons in 2012. In addition, the EISA mandated 36 billion gallons of biofuels be blended by 2022. These two bills created incentives for U.S. producers to sharply increase ethanol production over the next two decades. The immediate consequence of the Energy Policy Act was that once oil prices rose above about US\$75 per barrel, it became profitable with subsidies to

switch to corn-based ethanol (Mitchell 2008). As a result, ethanol production increased by an average of almost 22 percent per year through 2007. The number of ethanol plants more than doubled.

This diversification away from oil and into corn-based ethanol was one of the causes of the food price crisis. Increased demand for biofuels has been estimated to account for as much as 70 percent of the increase in corn prices and 40 percent of the increase in soybean prices during 2007–8 (IMF 2009a). These policies also helped turn corn and other grains into an asset class. Corn trading by index traders increased as the production of ethanol and the demand for corn increased. For example, the net notional values associated with corn commodity index trading increased by over 30 percent from March 2007 to June 2008.

The trend in ethanol plant expansion leveled off in early 2009 because of declining ethanol profitability, and because the expansion of U.S. ethanol production was approaching the U.S. government's renewable fuels standard mandate of 15 billion gallons for the year 2015. However, with oil prices increasing again, the trend has been reversed. According to data from the U.S. Energy Information Administration (EIA), in 2009, 10.75 billion gallons of ethanol were produced. Production rose to a record of 13.23 billion gallons in 2010.

Africa's Food Market and the Crisis

Trends in agriculture exports and imports, 2000–2008. For close to a decade, Africa—No Street and its farmers—benefited from the low interest rates, a favorable exchange rate, with the United States in particular, and a favorable financial regulatory policy environment; this led to an increase in exports and growth in incomes.

During this period, Africa's economic structure changed. In 2001, agriculture represented over 22 percent of total GDP in Sub-Saharan Africa (SSA); this dropped to an average of 16 percent by 2008 as other sectors grew, especially the mining and service sectors, as well as finance. Another reason for the drop in agriculture as a share of GDP was the drop in agriculture production and productivity in Africa, which began declining in the early 1980s and continued through the 2000s in many African countries (World Bank 2008c). World food stocks were also high during this period, and helped keep agriculture prices low.

Despite the drop in contribution to GDP, a significant number of people, over 70 percent of the rural population in SSA, depends on agriculture for their livelihood. This figure masks the wide heterogeneity of the region. In 2001, agriculture as a share of GDP was over 50 percent in Liberia, Nigeria, the Democratic Republic of the Congo, Guinea-Bissau and the Central African Republic, and over 25 percent of GDP in another 25 countries on the continent.¹⁵ Whereas, agriculture contributed to less than 5 percent of GDP since the early 2000s in other

countries such as Mauritius, the Republic of Congo, South Africa, the Seychelles, and Botswana.

With the drop in agriculture production, many countries in SSA increased their food imports (table 1). Between 2001 and 2008, raw food imports (defined as imports of meat and dairy products, grains, and cereals such as wheat, rice, barley, maize/corn and other cereals, vegetables, fruits, and dried fruits) in SSA grew substantially. In 2001, only five SSA countries imported 3 percent or more of GDP of raw foods. By 2008, the number rose to 12 countries, and the share of raw food imports as a percentage of GDP increased by over 100 percent in 14 countries.¹⁶

The food price increase came at a time when world stocks had fallen to their lowest levels since the 1980s. Despite the fact that the total stocks of commodities such as grains was very low and demand by commercial buyers was high, index traders such as hedge funds could continue to invest in this market via the derivative market, pushing prices even higher. Food stocks dropped from 700 million tons in 2000 to less 500 million tons in 2008, the lowest levels in many decades.

The impact of food price increases varied by country and by commodity. From 2006–8, the price increases in African markets were highest for maize (87 percent), followed by wheat (65 percent) and rice (62 percent), while commodities that are less widely traded in international markets saw smaller price increases in African markets (Minot 2010). As a result, the food price crisis had an immediate impact on the balance of payments of many African countries such as Tanzania, Benin, Guinea, Burundi, and Liberia. In Tanzania, the current account deficit increased from 4.5 percent of GDP in 2001 to 11.9 percent in 2008; in Benin, it increased from a 3.8 percent of GDP deficit in 2001 to an 8.8 percent deficit in 2008.¹⁷

In many SSA countries, governments responded to the crisis by providing general subsidies or tax reductions rather than targeted safety nets. In 2006, when food prices began to rise, many of these countries had some built-up reserves and could respond to the price increases. Between 2006 and 2008, nearly 57 percent of countries reduced taxes on food, while 27 percent reduced taxes on fuels. On the expenditure side, 18 percent of SSA countries increased food subsidies, while 22 percent increased fuel subsidies (IMF 2008a). In Liberia, Senegal, Benin and Gabon, governments reduced taxes on fuel products, while Senegal, Mauritius, Swaziland, and Ethiopia increased food subsidies. According to IMF (2009b), the median fiscal impact of policy responses to rising food prices was around 0.9 percent of country GDP in 2008. By the end of 2008, a number of these countries could no longer subsidize staple food consumption without external balance of payments support. By early 2009, many SSA countries were struggling to cope with a spiraling food price crisis as civil unrest broke out.

In face of this unrest, some countries imposed export bans, traders hoarded what grain was left, and elevator providers

Table 1. Exports and Imports of Raw Food and All Agricultural Products and Their Shares in GDP by SSA Countries

SSA country	Food imports as % GDP			Agriculture imports as % GDP			Current account balance as % GDP		
	2000/01	2006/7	2007/8	2000/01	2006/7	2007/8	2000/01	2006/7	2007/8
Angola	1.5	0.9	1.0	2.1	1.0	1.1	-3.7	20.8	13.2
Benin	4.4	6.8	9.2	5.6	8.3	10.8	-3.4	-7.1	-8.8
Botswana	0.1	0.0	0.0	0.1	0.1	0.2	9.8	15.9	9.0
Burkina Faso	0.3	0.4	0.4	0.7	0.9	0.9	-11.3	-12.7	-18.5
Burundi	0.6	1.6	1.4	1.2	2.3	2.4	-6.4	-12.8	-16.6
Cameroon	0.6	0.8	1.0	1.0	1.2	1.4	-3.2	1.3	-0.3
Cape Verde	2.1	2.6	3.4	3.0	3.3	4.1	-10.5	-11.2	-14.2
Central African Republic	0.0	0.1	0.1	0.3	0.3	0.3	..	..	..
Chad	0.0	0.1	0.1	0.2	0.2	0.3	..	..	..
Comoros	3.9	6.2	6.3	4.6	6.8	6.8	..	..	..
Congo, Dem. Rep. of	1.2	1.8	1.8	2.0	2.7	2.7	..	..	..
Congo, Rep. of	1.6	1.6	1.9	2.5	2.3	2.6	9.6	-12.3	-26.1
Côte d'Ivoire	2.6	3.1	3.2	3.6	3.6	3.7	-1.5	1.1	0.6
Equatorial Guinea	0.5	0.3	0.3	0.7	0.5	0.4	..	..	..
Eritrea	3.7	1.7	1.6	4.6	2.5	2.2	-16.5	..	..
Ethiopia	1.1	0.4	0.9	1.2	0.6	1.1	-2.2	-8.1	-5.7
Gabon	1.0	1.0	1.1	1.1	1.3	1.3	15.4	22.9	..
Gambia, The	2.4	5.9	7.4	4.7	8.8	10.0	..	-9.0	-5.1
Ghana	2.0	2.1	2.7	2.9	3.1	3.9	-7.0	-6.9	-10.6
Guinea	0.7	2.5	3.1	1.0	3.1	3.9	-3.3	-9.1	-20.5
Guinea-Bissau	1.3	3.5	4.7	1.8	3.9	5.0	-5.6	-5.6	-3.9
Kenya	0.9	1.0	1.2	2.4	2.2	2.7	-2.1	-3.1	-5.2
Lesotho	0.1	0.2	0.1	0.2	0.7	0.5	-17.1	9.3	13.3
Liberia	4.1	9.6	9.8	6.0	11.1	13.1	..	-29.3	-36.3
Madagascar	0.5	1.1	1.2	0.9	1.5	1.5	-4.9	..	..
Malawi	0.8	0.9	0.8	2.3	2.3	2.4	-3.9	..	..
Mali	0.4	0.7	0.6	1.2	1.1	1.0	-11.2	-5.9	-10.2
Mauritania	2.6	4.5	6.0	3.9	5.8	7.4	..	..	..
Mauritius	1.6	2.1	2.0	2.3	3.0	3.0	2.7	-7.6	-8.2
Mozambique	1.5	3.4	3.1	3.1	4.9	4.4	-17.1	-10.4	-10.9
Namibia	0.2	0.3	0.3	0.4	0.3	0.3	2.6	11.1	5.5
Niger	0.4	0.3	0.3	1.2	1.2	1.1	-5.3	-8.5	-10.3
Nigeria	1.2	0.6	0.7	1.4	0.8	1.0	10.7	20.9	15.3
Rwanda	0.3	0.2	0.3	0.9	0.9	1.0	-5.8	-5.4	-5.0
São Tomé and Príncipe	2.0	1.5	1.7	2.7	2.6	2.5	-35.3	-45.4	-49.2
Senegal	4.0	4.3	5.3	6.4	5.4	6.6	-6.1	-10.4	-13.0
Seychelles	1.6	2.2	2.7	2.7	4.1	4.1	-15.8	-19.8	-34.9
Sierra Leone	2.5	2.5	3.5	3.5	3.3	4.3	-14.9	-8.2	-10.6
South Africa	0.4	0.6	0.6	0.9	1.0	1.0	0.1	-6.3	-7.3
Sudan	0.6	0.7	0.8	1.0	1.1	1.2	-4.1	-10.1	-4.7
Swaziland	0.2	0.1	0.1	6.9	3.2	1.0	-1.2	-4.8	-5.2
Tanzania	0.4	1.1	0.9	1.0	1.5	1.4	-4.5	-9.3	-11.9
Togo	2.5	4.5	5.1	6.2	6.7	8.2	-11.6	-8.3	-8.2
Uganda	0.1	0.6	0.5	0.4	0.9	0.8	-5.9	-4.0	-4.8
Zambia	0.6	0.3	0.6	1.1	0.5	0.8	-18.3	-2.4	-6.6
Zimbabwe	0.1	4.2	7.9	0.6	6.1	9.3	..	..	..
All above SSA Countries	0.8	0.9	1.1	1.4	1.4	1.5	-5.6	-5.3	-9.0

Source: Based on partner data from UN COMTRADE Statistics (trade data) and World Bank WDI database (GDP data).

struggled to find corn, rice, and wheat to deliver to markets. In the summer of 2008, No Street was struggling to manage the food crisis and the macroeconomic instability that it caused, while policy debates in the West focused on the causes of the mortgage crisis and its resolution.

In September 2008, Wall Street met No Street: Lehman Brothers collapsed, and the once separate food crisis in Africa and mortgage crisis in the United States transformed into a global financial crisis.

With the U.S. housing crisis underway, the food crisis ongoing in developing countries and rising fuel prices straining world economies, the three basic elements necessary for a crisis—*vulnerability, globalization, and illiquidity*—were fully aligned.

Dealing with Financial Crisis in a Globalized Age: Innovation, Markets, and Regulation

As the crisis unfolded, policy analysts classified its impact in waves (World Bank 2009b): the meltdown of Wall Street and other financial markets; the collapse of the banking and financial sectors; and the freezing of the real sector. Policy analysts concluded that only the third wave would impact LICs, and SSA in particular. As a result, much of the debates about the solutions needed to tackle the food price crisis remain divorced from the debate around the financial crisis and its solutions. A lack of understanding of the intimate link between the two events continues to undermine policy proposals for LICs as they emerge from these crises.

In September 2008, in response to calls for action, the G-20 leaders met at the Washington, DC, Summit on Financial Markets and the World Economy and launched a broad dialogue on financial regulation and reform. In 2009, in London, the G-20 leaders created the Financial Stability Board, which was tasked with addressing vulnerabilities and developing and implementing strong regulatory, supervisory and other policies in the interest of financial stability.¹⁸ Specifically, the FSB was asked among other things to: (i) assess vulnerabilities affecting the global financial system and identify and review, on a timely and ongoing basis, the regulatory, supervisory, and related actions needed to address them and their outcomes; (ii) promote coordination and information exchange among authorities responsible for financial stability; and (iii) monitor and advise on market developments and their implications for regulatory policy.

The crisis exposed fundamental weaknesses in the structure of the OTC derivatives markets that contributed to the buildup of systemic risk across continents, markets, and financial instruments. The trading of OTC derivatives and other financial instruments had linked No Street corn, soy, and wheat farmers and consumers with first-rate markets, such as the Chicago Board of Trade and other renowned financial houses, in an unprecedented way.

At the Pittsburgh G-20 Summit, the FSB was asked to investigate possible weaknesses in the infrastructure of OTC derivatives. In June 2010, the G-20 leaders met in Toronto and agreed that by the end of 2012, all OTC derivative contracts should be traded on exchanges or electronic trading platforms (where appropriate) and cleared through central counterparties (CCPs), and that OTC derivatives contracts should be reported to trade repositories.¹⁹ The G-20 leaders' commitments concerning standardization, central clearing, exchange or electronic platform trading, and reporting of OTC derivatives transactions to trade repositories are important steps in improving the transparency of the commodity trading system. They must be linked to markets in the developing economies.

On the agriculture front in Africa, the response to the food crisis has been to tackle costs, production, and productivity issues as well as put in place safety net systems and secure stocks for humanitarian assistance to support the most vulnerable people. Countries, as part of their response, are also trying to improve commodity trading systems and infrastructure by supporting the development of warehouse receipts systems and national commodity exchanges. Some countries, for example, Ethiopia, have developed commodity exchanges, while other countries, like Tanzania, Ghana, Uganda, Zambia, Kenya and Malawi, either have nascent commodity exchange platforms or are looking to create them. Commodity exchanges would help farmers improve their links to global markets, hedge price risks, and have access to better market information. They would also help countries develop and deepen their domestic financial sectors. These exchanges must now comply with FSB requirements. In the United States, the Dodd-Frank Law, the most comprehensive financial regulation in 30 years, outlines a framework that should be analyzed and understood by developing countries that plan to develop commodity trading platforms to ensure that the lessons from the 2008 financial crisis are learned and not repeated.

In parallel to the debate on the causes and implications of the financial crisis, many financial institutions are developing new financial instruments to help developing country governments and farmers manage the next crisis. Africa would continue to need new and innovative financial instruments to support its growth. Any new financial regulations must take these innovations into account.

The increase in innovative financial instruments in LICs has a number of implications for the current response to the financial crisis. First, this means that the new emerging financial architecture must be inclusive of developing countries needs and must be transparent. Second, FSB recommendations should be discussed at a broader level and consultations should extend beyond G-20 countries. Third, the regulatory framework and agency monitoring system of the FSB should extend to offshore activities in LICs. Fourth, the new Agriculture Market Information System (AMIS) should be linked to and monitored by

the FSB as part of the financial market surveillance system if it is to be effective. In addition, market information available must be relevant for smallholder farmers across the developing world. Fifth, the capacity of national regulatory agencies in LICs should also be assessed and provisions made to strengthen them. In the presence of globalized markets, financial product regulation should be comprehensive and integrated so that interdependencies are transparent. In this case, one key role of the FSB would be to highlight emerging gaps in the system and to propose remedies, taking into consideration how they relate to LICs. Finally, regulators must acknowledge the truly global nature of financial markets and instruments. No country should be too small to fail.

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Notes

1. Between 2008 and 2009, prices remained high. For example, the average price of rice in 2009 was 90 percent higher than the average price in 2006 (FAO 2009d).
2. "No Street" is a term used to refer to poor and largely rural areas in LICs.
3. World Bank Group, 2010 World Economic Indicators.
4. A home loan, where the interest rate and the resulting monthly payment is tied to a short-term rate, like the one-year Treasury Bill rate. Typically, the mortgage interest rate will be two or three percentage points above the related short-term rate. In addition, the interest rate at time of purchase could be adjusted annually or based on payment history.
5. OTC derivatives are privately negotiated financial contracts whose market value is determined by the value of an underlying asset, reference rate, or index.
6. With exchange-traded derivatives, credit risk is borne by clearinghouses that serve as intermediaries between the parties to all transactions by becoming the buyer to every seller and the seller to every buyer. Clearinghouses guarantee the performance of exchange-traded contracts so that parties to these transactions do not have to evaluate the creditworthiness of each other.
7. <http://Mbaa.org>.
8. World Bank Group, 2009 World Economic Indicators.
9. Commodity Price Index, IMF data and statistics (2010), and author's calculations.

10. U.S. Department of the Treasury, <http://www.treasury.gov/resource-center/data-chart-center/interest-rates>.
11. <http://www.bea.gov/scb/pdf/2007/>.
12. See <http://www.investorsinsight.com/.../additional-thoughts-on-the-continuing-crisis.aspx>.
13. CFTC Commodity Index Trader Supplement Statistics (2010).
14. BIS (2011) and author's calculation.
15. UN Comtrade statistics; author's calculations; and World Integrated Trade Solutions (WITS), World Bank.
16. World Development Indicators (2009) and UN Comtrade data (2009).
17. Author's calculations, with data from United Nations Comtrade Statistics (trade data) and World Bank WDI database (GDP data).
18. http://www.financialstabilityboard.org/publications/r_090925d.pdf.
19. See June 2010, Toronto Summit Declaration, paragraph 19. In addition, annex II to the Declaration provides: "We pledged to work in a coordinated manner to accelerate the implementation of over-the-counter (OTC) derivatives regulation and supervision and to increase transparency and standardization. We reaffirm our commitment to trade all standardized OTC derivatives contracts on exchanges or electronic trading platforms, where appropriate, and clear through central counterparties (CCPs) by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories (TRs). We will work toward the establishment of CCPs and TRs in line with global standards and ensure that national regulators and supervisors have access to all relevant information."

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