ENERGY AND COMMODITY MARKETS WORKING GROUP

G20 Commodity Markets subgroup summary report on the impacts of excessive commodity price volatility on growth

Summary

Commodity price volatility is expected to continue to be a feature of commodity markets. To the extent this reflects or facilitates relative price adjustments it represents normal developments in commodity markets and could be welfare enhancing. However, excessive commodity price volatility has significant, though varied, implications for all countries, both commodity exporters and importers, increasing uncertainty for actors in the economy and potentially hampering efficient investment decisions. Exporting countries can be negatively affected by the impacts of rapid changes in price on fiscal revenues, investment and confidence in the economy, and Dutch Disease-style impacts on non-commodity sectors of the economy. Importing countries continue to suffer the negative inflationary and growth effects of excessive volatility and high prices. Low income countries tend to face higher volatility and are particularly vulnerable, including to food price shocks.

Monetary and fiscal policy responses to support inclusive growth in the face of commodity price volatility need to be country specific. Diversification and industrialisation are important goals for exporting developing countries to reduce their vulnerability to the adverse growth effects of commodity price volatility. There are a range of policy interventions countries can consider, of which this report focuses on some in particular. Evidence points to the benefits of building and maintaining central bank credibility to manage inflation pressures arising from changes in commodity prices. A number of exporting countries have successful experiences with countercyclical fiscal policies and there may be scope for more countries to learn from these experiences.

Building on the conclusions of the G20 Study Group on Commodities in 2011, and in order to mitigate excessive volatility, it is important to enhance the efficient functioning of markets and take account of international impacts of domestic policies. Existing G20 commitments on enhancing market transparency and rationalising and phasing out inefficient fossil fuel subsidies that encourage wasteful consumption need to be met, while there are a number of potential areas for further work by the G20.
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Introduction

1. At the Cannes Summit in 2011, G20 Leaders recognised the importance of mitigating and reducing the effects of excessive price volatility to achieve strong growth that is both sustainable and inclusive. In February 2012, G20 Finance Ministers agreed to “produce a report on the effects of commodity price volatility on economic growth” that assesses “policy options that countries could consider that would reduce excessive commodity price volatility or otherwise mitigate the effects on growth and on the wellbeing of vulnerable sections of the population, or seize opportunities for economic growth that commodity markets present”. Under the French Presidency in 2011, the G20 Study Group on Commodities thoroughly assessed the drivers of volatility and supply-demand balances. This paper builds on the report of the Study Group and further analyses the policy relevant conclusions emerging from the report. The paper also draws on inputs received from the IMF, World Bank, UNCTAD and the IEA. These are listed at the end of the report, and provide more detailed analysis of the issues than it is possible to present here. This report focuses on energy and food, covering metals and other raw materials in less detail.

Section 1: Trends in price volatility

2. Evidence on commodity price volatility indicates recent levels are high by historic standards, with large amplitude swings across a broad range of commodities. But as the report of the G20 Study Group on Commodities under the French Presidency in 2011 noted, recent price fluctuations are not unprecedented for certain individual commodities (Figure 1). To a certain extent, periods of high volatility are to be expected in commodity markets. Indeed, given the low demand and supply elasticity of many commodities, even relatively modest shocks can require large price movements to clear markets. No attempt is made here to define what level of volatility may be ‘excessive’, as this is context-specific and depends on the capacity of market participants – producers, consumers or nations – to cope.

![Figure 1: Rolling one-year volatility of daily returns](image)

1 G20 (2011)
3. By the end of 2011, average nominal prices for energy (oil, natural gas and coal) and base metals were three times as high as a decade ago. Food and raw materials prices have also risen markedly, although in real (US$) terms they remain well below levels reached in the 1970s. The World Bank food price index increased almost threefold between 2000 and 2008, and regained this 2008 peak in 2011 following a sharp decline in 2009. In line with these trends, aggregate commodity terms of trade (the prices of commodities relative to prices of manufacturers) have recovered since 2003, following a long-term decline over the twentieth century.

Figure 2: World commodity prices in real terms, 1957-2011, IMF commodity price index

4. Indices constructed to assess the incidence of price volatility of commodity export and import baskets for specific countries and country groups show that the level of volatility of commodity export baskets depends greatly on the composition of goods exported and especially the degree to which these exports are diversified. UNCTAD analysis for developing countries indicates that countries with exports concentrated in copper and fuels (e.g. Bolivia, Chile, Nigeria and Zambia) have experienced particularly high price volatility. At a country level, those with more diversified export baskets (Argentina, Brazil and the United Republic of Tanzania), have experienced lower price volatility. However diversification does not appear to be associated with lower price volatility when considering regional groupings of developing and emerging countries.

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2 Based on the IMF Commodity Price index.
3 UNCTAD (2012) provides a detailed discussion of terms of trade issues, as well as country specific evidence on their recent evolution.
4 UNCTAD (2012)
5. **Low income countries** are particularly vulnerable and tend to experience higher price volatility.\(^5\) For low income food deficit countries (LIFDCs) price volatility of commodity imports baskets is highest where oil and wheat are an important share of imports.

6. The 2011 G20 Study Group on Commodities assessed the drivers of volatility. The key conclusions of the group are set out in Section 3.1. Addressing the outlook for prices, terms of trade or volatility is out of the scope of this paper. Instead, the information presented above is taken as evidence that volatility tends to remain high and, building on that, the paper analyses how such excessive volatility poses challenges for macroeconomic policy.

**Section 2: Macroeconomic impacts and consequences of excessive commodity price volatility**

2.1 *Implications for growth (including terms of trade)*

7. As noted above, some volatility in commodity markets can be considered normal, and to the extent that volatility reflects or facilitates relative price adjustments, can be welfare-enhancing. However, excessively volatile commodity prices can have negative impacts on all countries. Excessive volatility creates uncertainty over future price levels, and complicates long-term planning and investment which leads to producers and consumers of commodities underinvesting in physical assets that support growth.

8. Some sources of uncertainty in decision-making include i) medium- and longer-term commodity supply and demand conditions are subject to unknown factors, such as undetermined depletion rates of exhaustible resources, unknown effects of climate change on agricultural production and rates of economic growth; (ii) inventory data, which provide valuable signals for short-term price expectations, suffer from significant measurement omissions and delays; and (iii) data on current global commodity supply and demand conditions are published with long time lags and are frequently revised.\(^6\)

9. For importing countries and exporting countries\(^7\) excessive volatility can increase challenges of maintaining output, and fiscal and monetary stability. Responding to volatility in a way that protects and promotes global growth and stability should be a shared objective.

10. Commodity price shocks can have negative effects on commodity importers’ growth, a key mechanism being the impact of price increases on inflation leading to reductions in real incomes. The source of the shock matters\(^8\) - in general shocks to commodity supply will have greater negative impacts than those arising from increased demand, if demand arises from buoyant economic growth. Offsetting effects include the extent to which commodity revenues are recycled through demand for goods or other financial flows from commodity exporters. The impacts on growth will also depend upon the commodity, its share in the domestic consumption basket and the percentage imported, among other factors. A range

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\(^5\) IMF (2012a)
\(^6\) Mayer (2011)
\(^7\) In practice, all countries will be both exporters and importers. The concept of the net position of countries as exporters or importers is used in this paper.
\(^8\) Kilian (2006)
of studies have estimated empirical impacts of oil prices on growth\(^9\). For instance, a doubling in oil prices is estimated to have reduced GDP by 2-5% on average for key OECD oil importing countries, based on data for 1971-2001.\(^{10}\) Brent oil prices of a $105 per barrel may have reduced growth in developing economies the Asia Pacific region by 0.5 percentage points in 2011, compared to a scenario of $90 a barrel, with higher impacts on India’s economic growth.\(^{11}\)

11. Notwithstanding the above, the impacts of oil price shocks appear to have declined since the 1970s. It has been estimated that a 10 percent increase in oil prices reduced U.S. real GDP growth by 0.15 percentage points in the period between 1984 and 2007, relative to 0.4 percentage points between 1970 and 1983. This has been explained as possibly being due to recent price increases being driven mainly by demand, monetary policy forestalling damaging second-round effects on wages, real wage rigidities diminishing, and the oil intensity of advanced economies falling.\(^{12}\)

12. Other commodities tend to account for a smaller share of consumption (except food in low income countries) and hence changes in prices are likely to have smaller effects on growth for most countries.

13. Macroeconomic performance in commodity exporting countries (where exports represent a significant share of GDP) tends to move with commodity price cycles. This behaviour is generally more prominent for energy and metal exporters than for exporters of food and raw materials. This may be because energy and metals sectors are more sensitive to the global business cycle and typically account for higher shares in total exports and GDP. Across commodity exporters, median real GDP growth is ½ to 1¼ percentage points lower during downswings than during upswings. Figure 3 below differentiates between different types of swings indicating that in general upswings or downswings in the top quartile for duration or amplitude tend to have more pronounced effects.\(^{13}\)

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\(^{10}\) Jimenez-Rodriguez and Sanchez (2004)
\(^{11}\) UNESCAP (2011)
\(^{12}\) Blanchard and Gali (2007)
\(^{13}\) IMF (2012a). Based on individual commodity data series beginning between 1957 and 1993 and ending in 2011
14. A number of macroeconomic indicators on average tend to deteriorate in downswings compared to upswings. According to IMF analysis, credit growth is 1 to 2 percentage points lower during typical downswings than during upswings for energy and metal exporters, while the difference is sharper for food exporters at 6 percentage points. The current account balance of commodity exporters deteriorates during downswings compared with upswings. The sharpest difference is for energy exporters, whose current account falls from a surplus of ¾ percent of GDP in an upswing to a deficit of 2¼ percent of GDP in a downswing. The fiscal position is weaker in downswings compared with upswings, while the real effective exchange rate (REER) is generally stronger in the course of a commodity price upswing compared with a downswing.

15. The short run growth performance in response to a change in prices, and hence terms of trade, depends, *inter alia*, on the economy’s openness to international trade, the macroeconomic and exchange rate policies pursued, and the use of income gains (or form of adjustment to losses of actors in the economy).

16. The source of the commodity price change matters in terms of its economic effects on commodity exporters. In particular, commodity prices underpinned by unexpected changes in global activity (and hence demand for commodities) have a significant effect on exporters’ real activity and external and fiscal balances, while those driven by unexpected changes to global commodity production (supply) are not always significant. This effect is generally stronger for oil exporters than for exporters of other commodities.

17. Greater capital account openness for energy and metal exporters is associated with more comovement between commodity prices and macroeconomic indicators. Economies with greater access to international capital markets may be better able to smooth output volatility when commodity prices fluctuate—for instance by borrowing in international

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14 These are statistical relationships and do not necessarily indicate causality.
15 IMF (2012a)
16 IMF (2012a)
17 IMF (2012a)
markets during downswings. However, markets can be procyclical for some—with capital flows increasing during commodity price upswings and declining in downswings. Procyclical impacts appear to dominate for energy and metal exporters, but not for exporters of agricultural commodities.

18. A number of countries, in particular advanced economy commodity exporters, have found that exchange rate flexibility can help to mitigate the procyclicality of capital flows. During a commodity price boom, an exporter’s exchange rate appreciates, and assets tend to become more expensive. Eventually this reduces the rate of return on those assets and hence reduces the incentives for capital to flow.

19. However, procyclicality of capital flows can pose challenges for the level and volatility of exchange rates with implications for non-commodity exporting sectors of the economy. Today’s experience of capital flow and currency movements experienced by some emerging and developing commodity exporting countries may relate to the Dutch Disease episodes of the past. In this case, the pull factor is exacerbated by the push factor of international carry trade, leading to large and volatile capital inflows. The effects are the same: distorted exchange rates and frustrated efforts of countries trying to diversify their industry and diversify domestic productions and exports.

20. Many countries have pursued successful growth strategies based on effective management and exploitation of natural resources to create wealth and jobs. There is also some evidence that countries where natural resource extraction accounts fora high share of GDP have tended to see lower growth over the long term\textsuperscript{18}. Such findings conceal a wide degree of variation in country experiences. Literature has suggested a number of main categories of reasons (not explored in detail here), including impacts of volatility, crowding out of manufacturing and Dutch disease effects, and the types of institutions that develop in endowed countries.

21. A large part of the variance in developing countries’ growth performances can be explained by external shocks, where instability in the terms of trade plays an important role.\textsuperscript{19} While improvements of commodity terms of trade tend to enhance real output per capita for commodity exporting countries, price volatility risks exerting a negative impact on economic growth through discouraging investment and reducing accumulation of physical capital. There is some evidence that the share of natural resource extraction in GDP in and of itself tends to have a positive effect on economic growth, but the volatility of the prices of these natural resources can have a negative growth effect and may even offset the positive impact from price booms.\textsuperscript{20} Shocks can also disrupt government budgets if these depend heavily on fiscal revenues from commodity activities and do not include mechanisms to smooth such dependence (such as hedging approaches or sovereign wealth funds), causing substantial challenges to macroeconomic management.

\textsuperscript{18} Sachs and Warner (1995), (2001)
\textsuperscript{19} Easterly et al (1993)
\textsuperscript{20} van der Ploeg and Poelhekke (2009), Cavalcanti et al. (2012)
22. These shocks are particularly important for low income countries (LICs), which as a group, and given their dependence on commodity exports, have faced much higher terms-of-trade volatility relative to other countries, with median volatility nearly twice as high as in the rest of the world. Sharp swings can seriously affect growth and balance of payments positions.

23. Increases in the terms of trade such as those recently experienced by a number of exporters can bring increased policy space and improved balance of payments. However, in some cases terms-of-trade effects favouring natural-resource sectors may cause adverse distributional effects, including because natural-resource activities do not generate much employment compared to manufacturing and services. As such, commodity exporters need to seek an adequate share of the rents from extractive industries and to consider how to use these revenues efficiently, including, where feasible, pursuing strategies to diversify commodity dependent economies.

24. In the long run, diversification and industrialization remain some of the best means for developing commodity exporting countries to reduce their vulnerability to the adverse growth effects of excessive commodity price volatility. One way to achieve this is by integrating commodity policies into a country’s overall macroeconomic and development strategies. Enhancement of economic and social inclusiveness policies can help mitigate negative effects of volatility on growth. A key challenge for commodity exporting countries is how to use export-related revenues to support rapid and inclusive growth.

2.2 Implications for inflation

25. The recent spikes in commodity prices have pushed up consumer prices in many countries. In general volatility in commodity prices can feed through to increasing volatility in headline inflation, given the important share of commodities in many countries’ consumption baskets. Further, if prices are ‘sticky’ (particularly downwards) for example due to inadequate competition in domestic markets, volatility itself could have an inflationary impact. It may also may that different types of commodity price volatility have different impacts on inflation. There is evidence that the link between food prices and headline inflation is stronger than the link between fuel prices (a key route for the pass through of oil prices) and headline inflation.

26. Commodity price shocks tend to have larger effects on headline inflation in emerging and developing economies than in advanced economies. There are three main reasons for this:

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21 UNCTAD (2010)
22 UNCTAD (2012)
23 Berg, Ostry and Zettelmeyer (2011)
24 IMF (2011)
25 IMF (2012a)
i. The pass-through from international food commodity prices is higher in emerging and developing economies on average. Estimation results\textsuperscript{26} indicate 34 percent pass through of a one percent food price shock, as compared to 18 percent pass through in advanced economies. This conceals wide variation – the World Bank estimates the average pass-through rate of the world price of cereals ranges from 20 to 70 percent in emerging and developing countries.\textsuperscript{27,28}

ii. Food consumption shares tend to be higher at a median of 31 percent in emerging and developing economies, versus 17 percent in advanced countries. In 2008 food prices contributed about 5 percentage points to headline inflation in emerging and developing economies on average, but only 1 percentage point in advanced economies.

iii. Medium-term inflation expectations may be less well anchored in emerging and developing economies, when compared to advanced economies, although emerging markets which target inflation fare better than those which do not. Figure 4 indicates that in advanced economies, commodity shocks have a negligible impact on medium term (5 year) inflation expectations, whereas in emerging and developing economies not targeting inflation, inflation is still expected to rise compared to the baseline in response to a shock.

\textbf{Figure 4:} Response of inflation expectations to inflation surprises

27. Global commodity price shocks tend to create strong inflationary pressures in developing countries especially LICs as food prices, which account for nearly half of the consumption basket in LICs, are highly correlated with other commodity prices. Under flexible exchange

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\textsuperscript{26} IMF (2011)
\textsuperscript{27} World Bank (2012d)
\textsuperscript{28} The negative impacts on commodity markets and price volatility of low pass-through of prices are discussed in Section 3
rate regimes, a 1 percentage point increase in global food prices could increase the headline rate of inflation by 0.45 percentage points over two years.

28. Monetary policymakers face challenges in dealing with commodity price surges in discerning the extent to which changes in headline inflation from commodity price rises will feed through into core inflation and push up prices of other goods and services. Some empirical studies for recent years have found that strong second-round effects of higher commodity prices on inflation have generally been absent or less pronounced than in previous decades in a majority of countries and that headline inflation has converged to core inflation, but this issue continues to be a concern in particular for a number of emerging economies. 29

29. The role of central bank credibility in anchoring inflation expectations has been identified as an important factor in the implementation of monetary policy against commodity price fluctuations. Imperfect credibility of central bank policies may substantially amplify the trade-off between stabilising inflation and stabilising the output gap.

30. The level of the real exchange rate (RER), particularly where economic production is not diverse has had important macroeconomic impacts on emerging economies. 30 The influence of commodity prices on the RER is therefore a key concern. In many emerging economies, raising interest rates to counter inflation can risk incurring further capital inflows, exacerbating overheating pressures. This task may be easier for those economies with flexible exchange rates, where currency appreciation can take some of the adjustment burden, with corresponding impacts on export competitiveness of other sectors of the economy.

2.3 Implications for fiscal stability

31. The excessive volatility of commodity prices complicates fiscal policy in both commodity-exporting and -importing countries because adjusting fiscal expenditures to changes in external environment usually faces significant time lags... This applies in particular for countries in which the size of fiscal revenues is highly dependent on the level of commodity prices.

32. Countercyclical fiscal policies—which build buffers during commodity price upswings that can be used during downswings—can help insulate small commodity exporters that are exposed to economic volatility induced by commodity price fluctuations. Whether or not the price increase is driven by global demand or commodity supply, such a stance is shown to dampen the macroeconomic volatility in response to temporary commodity price shocks. However, macroeconomic stabilization in the face of excessive commodity price volatility is only one of many policy priorities for commodity-exporting emerging and developing

30 Frenkel and Rapetti (2010)
economies. Others include resource exhaustibility, intergenerational equity, and Dutch disease challenges associated with resource discoveries.

33. National governments can also try to manage price risk (to the extent that national revenues or national expenditures on safety nets are sensitive to commodity prices), through market-based instruments. There are a range of possible ways to manage price risk, such as hedging commodity revenues in futures or options markets, or developing stabilisation funds (which can also be a form of countercyclical fiscal policy). However availability and affordability of such instruments may limit their use by many developing countries.

34. Some of the major challenges for market-based commodity risk management by sovereigns include:
   iv. many governments are not focused on ex ante management of commodity price shocks and are not carefully quantifying and assessing the risks and impacts; Developing countries, and low income countries in particular, may lack the capacity to measure and manage risk.\(^\text{32}\)
   v. governments often lack the necessary legal and institutional frameworks to support hedging transactions;
   vi. In developing or low income countries, governments may not have funds to invest in risk management solutions (such as insurance or hedging transactions)
   vii. If funds are available, governments are often reluctant to make the investment in hedging since such decisions are vulnerable to ex post criticism (and associated political risk);
   viii. There is a lack of technical capacity to manage hedging programs in many developing countries
   ix. It may be difficult to establish whether an observed price change is transitory or permanent.

35. The use of subsidies to prevent full pass-through of prices, particularly for fossil fuels, can pose a sizable fiscal risk, particularly in middle- and low-income countries.\(^\text{33}\) IMF analysis indicates that many have struggled to pass recent price increases through to domestic consumers, with most countries having allowed less than 70 percent pass-through over the last three years. This has led to a significant fall in fuel taxes or increase in fuel subsidies. Pass-through levels for fuel are especially low in oil exporting countries, with a median pass through below 55 percent.

36. The median annualized fiscal cost of incomplete pass-through over the last three years was 2.3 percent of GDP in Middle East and Central Asia, and 1.3 percent of GDP in most African countries. If international prices were to increase by 10 percent in 2012—the IMF World

\(^{31}\) World Bank (2012c)
\(^{32}\) IMF, World Bank (2011)
\(^{33}\) IMF (2012b)
Economic Outlook (WEO) baseline projection—the median fiscal cost would increase to 2.7 percent of GDP in Middle East and Central Asia, and 1.8 percent in sub-Saharan Africa. A 50 percent increase in petroleum prices (the WEO “tail risk” scenario) would raise median costs to over 4.2 percent of GDP in Middle East and Central Asia and 2.5 percent of GDP in sub-Saharan Africa.34

37. Other forms of support, particularly agricultural subsidies in advanced economies, have important fiscal impacts. According to the OECD, in 2006-08, despite increases in agricultural prices, total support to the agricultural sector was estimated at $368 billion per annum. This includes price support paid by consumers as well as fiscal transfers, and is equivalent to 0.9% of OECD GDP.

Section 3: Spillovers, interactions and inefficiencies in commodity markets affecting price volatility

38. The G20 Study Group on Commodities in 2011 assessed the drivers of prices and volatility. The report of the Study Group noted the following.

- Over the longer run, the key issue is to ensure that commodity supply growth keeps track with the needs of a growing and more integrated global economy. Meeting this challenge is a precondition for sustained improvements in economic and social welfare worldwide.

- Marked shifts in the physical supply-demand balance for major commodities have been the main driver of the price fluctuations over the past ten years. For many commodities, the expansion of supply has fallen short of buoyant demand growth. As a consequence, inventories and spare capacities have fallen, increasing the exposure of commodity markets to shocks.

- Shocks and a long period of underinvestment in response to a prolonged period of low commodity prices have constrained supply growth. Shocks to major food and raw materials markets – including more frequent weather-related disruptions and geopolitical uncertainties – have triggered commodity price fluctuations in the short run. More fundamentally, low investments in commodity production and infrastructure for a long time have reduced the ability of commodity producers to respond to growing commodity demand.

- Assessments of the impact of financial investors on commodity prices remain inconclusive. Large changes in physical supply and demand provide plausible explanations for commodity price trends over the past several years and existing literature finds limited signs of investors causing sustained deviations from fundamentals. At the same time there are views that greater investor participation has at times affected commodity price volatility and correlations between commodity and stock markets.

- Stronger global growth has been a major driver of commodity prices. In addition, accommodative global monetary condition could also have contributed to the rise in

34 IMF (2012b)
commodity prices especially during the period since 2009. First and foremost, monetary policy has affected aggregate demand for all goods, including commodities. Other channels may also have been at work and have affected commodity markets. Considering global, in addition to domestic monetary conditions, appears to be important for a full understanding of the linkages between monetary policy and commodity prices.

39. Key issues to take forward are addressing limitations in the efficient functioning of commodity markets to support efficient allocation of scarce resources, especially investment in commodity production to ensure long-term supply capacity; and taking into account the international dimension of domestic policies related to commodity markets.

3.1. Limitations in the efficient functioning of commodity markets

40. All commodity markets have limitations which prevent them from operating efficiently, with repercussions for the volatility of prices. Commodity markets are often characterised by imperfect competition, oligopolies, monopolies and barriers to entry affecting both supply and demand sides, constraints to supply, uncertainty and risk and lack of transparency.

Long-term supply constraints

41. The outlook for supply differs across commodity markets. A general theme is that there are limitations to the responsiveness of supply to changes in demand, particularly in achieving timely and adequate investment in supply to keep pace with growth in demand. Low investments in commodity production and infrastructure resulting from prolonged periods of low prices have reduced the ability of commodity producers to respond to growing commodity demand. As noted above, shocks and this long period of underinvestment have constrained supply growth and have triggered commodity price fluctuations in the short run.

42. The income elasticity of demand for manufactures tends to exceed that for primary commodities, so that in the long run manufactures usually face more favourable global market and price conditions, while expanding commodity production often faces a risk of oversupply and declining prices, which can limit incentives to invest.

43. The responsiveness of the global supply of oil, is heavily influenced by the objectives of, and constraints on, the companies and countries involved. All oil companies confront, in varying degrees, challenging issues of risk and uncertainty. Government has an important role in creating the right enabling conditions to stimulate energy investment, while considering the adequate distribution of resource rents between the government, private investors and other segments of the population. Shortages of skilled staff and lack of expertise or access to advanced technologies as well as competing and diverging priorities that range from prioritising resource recovery to national wealth creation may also play a role depending on particular circumstances.35

35 IEA (2012)
44. Gas could play an increasing role in meeting global energy needs. The outlook for gas supply depends greatly on the success of the industry dealing with the environmental and technical challenges to extraction, in particular of unconventional (e.g. shale) gas. The market is mostly regional, with little linking between regions. In North America, development of unconventional gas resources has resulted in significant reductions in prices. These resources have shown flexibility in responding to changes in demand including as in some areas, co-production of liquids can take advantage of higher oil prices. The potential for rapid redeployment of resources indicates potential elasticity of supply response going forward.

45. In Europe and Asia, unconventional gas has yet to make a significant mark, with uncertainty over the role of shale gas in these regions in future. In many cases, prices for existing and forthcoming supply are linked to oil prices, which can provide stability and certainty for investors, but indicates that supply could be less responsive to changes in demand that feed through into gas prices. The potential for greater linking of regional markets through Liquefied Natural Gas trade could reduce overall volatility, and have implications contracting models in gas markets.

46. Supply response is limited by long lead times and high capital investment requirements in upstream and downstream infrastructure. Gas fulfils a balancing role in many countries energy plans, hence there is demand uncertainty linked to the penetration of low emission technologies in electricity and heating.

47. Another related factor constraining oil and gas supply growth has arguably been rising costs of commodity production. Geological constraints limit the production of mineral resources, and as oil and mining fields mature marginal costs of production increase. Major oil fields have already passed their peak output, and newly discovered reserves can often only be exploited at much higher production costs. Overall, recent nominal investment increases have been largely offset by rising exploration and maintenance costs.

48. In agricultural markets, binding land and water constraints, rising inputs costs, and lags in development of improved cereal varieties have made productivity gains harder to achieve. Adverse weather, especially in the major exporters, has played a particularly significant role in recent price spikes. Crude oil and gas prices have an impact on the production costs of agricultural products relying on inputs such as fertilizers, pesticides, fuel, and transport costs. The demand for bioenergy is also correlated with other energy prices and could, in specific circumstances, exacerbate volatility in food markets.

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36 IEA (2011)
37 IEA (2012)
38 IEA (2011)
39 World Bank (2012b)
40 The impact of trade barriers and subsidies on investment in supply is assessed in Section 3.2 on policy interventions.
Lack of transparency in commodity markets

49. Lack of consistent, accurate and timely commodity market data such as prices, stocks and trade flows can create uncertainty and risk for market actors. It can hamper the formation of price expectations and can contribute to excessive price volatility. Currently, such data are often incomplete, inconsistent and published in a non-synchronised manner. Given the structure of most commodity markets trading activities, significant information may be withheld under commercial confidentiality claims. The preceding factors can limit efficient and timely responses of supply, demand and investment. Market players in all regions of the world have an interest in seeing an improvement in the quality of information and data that is freely available.

Excessive risk

50. Excessive volatility in prices introduces risks for producers and consumers. A key question is whether producers have the ability and tools to manage price risk. This may be more difficult for smaller producers, in particular farmers. In developed countries, large-scale, commercially orientated and well equipped farmers are more able to manage price risks through market-based instruments. Smaller farmers may lack access to the knowledge, assets, technologies, market instruments and governance structures to adequately manage their risks. In developing countries, smallholders with little capital, and limited access to markets, often have no possibility to protect themselves against a variety of risks which characterise less developed agricultural sectors.\textsuperscript{41} Excessive price volatility can have the effect of limiting supply response to higher prices if they are not able to adequately manage that risk when taking production decisions. Other sorts of risks, ranging from weather-related risks to political and financial uncertainty can also hamper commodities production, especially in sectors that demand high upfront investments and have long rates of return. As noted in the macroeconomic section, at a national level excessive price volatility creates budgetary risk for Governments.

\textit{3.2 Spillovers: The international implications of domestic policies}

Existing policy interventions in commodities markets

51. There are a wide range of different policy interventions across commodity markets, with different stated objectives.\textsuperscript{42} Particularly in developed but also in developing countries, national agricultural sectors are subject to a range of subsidies and other very significant

\textsuperscript{41} FAO et al. (2011)
\textsuperscript{42} World Bank (2011a)
interventions that respond to different national objectives including food security, rural development and territorial planning and natural resources planning. These often result in very substantial welfare transfers within those economies from taxpayers and consumers to farmers and others who own or control access to agricultural land. Some of these interventions distort relative prices, inhibit processes of agricultural adjustment and development that underpin improvements in the efficiency of agricultural production, and make world markets thinner and more residual. Some of these interventions render the world’s agricultural sector less effective in bringing forward a supply response in the face of a price spike, implying that the policy environment has a material impact on the size and duration of any given price spike.

52. Biofuel policies driving the use of grains and oilseeds for biofuels are a significant recent addition to the mix of policies affecting agricultural markets, and the flexibility of such policies will affect international price volatility. To the extent that biofuel consumption is mandate driven, inflexible mandates have the potential to exacerbate price volatility in grain and oilseed markets because higher agricultural prices may not trigger a contraction in that part of global demand derived from biofuels mandates. By the same token, appropriate policy responses including flexible biofuel policies could serve to reduce excessive price volatility. This is an area that could benefit from more detailed analysis, building on the 2011 report of the International Organisations to G20 Agriculture Ministers and the conclusions of Agriculture Ministers’ meeting which agreed on the need to further analyse factors that influence the relationship between biofuels production and agricultural price volatility, while recognizing the role biofuels can play in reduction of greenhouse gases, energy security and rural development.

53. In energy markets, fossil fuel subsidy policies can dampen responsiveness to price, and can also be a critical uncertainty for demand prospects and for potential investment returns. The removal of subsidies, while ensuring adequate targeted support to the poor, could have fiscal benefits as noted above, and increase the elasticity of demand. IEA estimates put fossil-fuel consumption subsidies at $409 billion in 2010, with subsidies to oil products representing almost half of the total.43

54. International and domestic market structures, for example the extent to which supply is concentrated, can also impact the responsiveness of supply to market prices.

Interventions in response to price spikes or drops

55. When domestic food prices rise sharply, there are significant impacts in low income countries with high proportions of people spending a large percentage of their income on food. For a number of staple foods, governments have intervened on an ad-hoc basis to manage movements of domestic prices relative to world prices in order to limit these impacts.

43 IEA (2011)
56. In the wake of growing price pressures in staple grain markets in 2007/2008, a significant number of countries engaged in ad-hoc policy responses such as export restrictions, temporary reductions in import restrictions and sales of stocks at subsidized prices. 25 countries restricted or banned exports and 43 countries temporarily reduced import duties on staple food products. In 2010, some countries introduced export restrictions (especially in wheat), but the degree to which such measures were used was much less than in 2007/08.44

57. A global perspective is required when assessing the impacts of domestic policy responses to excessive price volatility. While such policy responses may respond to domestic concerns, they entail the risk of impairing the functioning of global markets and amplifying commodity price fluctuations, especially if pursued by a number of countries simultaneously. These policies often do not stabilise domestic prices as much as hoped for by domestic policy makers, and may cause damage to the domestic productive sector. But on a global scale, as more countries apply them, and global markets become more residual, prices can become more volatile. Under some assessments almost half the increase in the world price of rice in 2008 can be explained by countries attempts at insulation.45 In agricultural markets, the result of such polices is that the poor in least developed importing countries experience the largest price increases and the greatest burden of reducing consumption. Further, export bans (or ad hoc tariff reductions in importing countries) that reduce prices for consumers, also reduce prices for domestic producers, thereby potentially reducing the incentive for supply response.

Section 4: Macroeconomic policy responses to the impacts of excessive commodity price volatility

58. Growth and macroeconomic stability in the face of excessive commodity price volatility are key policy priorities for all countries. However, the appropriate responses are inherently country specific and need to be tailored reflecting countries’ position as exporters or importers along with level of income and other related factors.

59. Minimizing the adverse macroeconomic growth effects of excessive commodity price volatility requires a combination of national and international mutually consistent policy measures (monetary, fiscal and incomes policies – supported by appropriate exchange rate policy). This section picks out some particular areas in which International Organisations have provided analysis and policy options.

60. The G20 can play an important role as a forum for sharing analysis and understanding.

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44 G20 (2011)
45 Martin and Anderson (2012)
4.1 Fiscal policy responses to manage excessive volatility and maximise growth and diversification opportunities

61. For exporters, diversification and industrialisation are likely to remain the best means in the long run for countries to reduce their vulnerability to the adverse growth effects of excessive commodity price volatility. In designing and implementing their policies, countries also need to consider the relative priority of challenges such as resource exhaustibility, intergenerational equity, and Dutch disease concerns. This, and the assessment of the extent to which prices changes may be temporary or permanent are crucial in driving use of revenues. It is important to design appropriate fiscal frameworks that anchor fiscal policy and allow expenditure scaling up without ignoring the exhaustibility and volatility of the resource revenue.

62. Countercyclical fiscal policies can help insulate small commodity exporters that are exposed to economic volatility induced by commodity price fluctuations. Buffers built during commodity price upswings can be used during downswings. A crucial aspect is to clearly define the contingent liability that the buffer is supposed to hedge. There is evidence that countercyclical fiscal policy is more effective under an inflation-targeting regime with a flexible exchange rate because monetary policy helps reduce inflation volatility. A challenge for countercyclical fiscal policy is that fiscal contraction in times of high prices may be more difficult to achieve than expansion in times of low prices, highlighting the importance of a well designed and credible fiscal rule. There may be benefits to further sharing of the lessons learnt from policy approaches already in place in order to identify best practice transposable to different countries.

63. Given continued uncertainty over the future direction of prices, exporters face a challenge in discerning where price changes and developments in terms of trade may be temporary or permanent. This may mean a cautious approach is advisable for exporters, who could use fiscal space where prices are currently high to upgrade policy frameworks and institutions where necessary and build fiscal buffers help manage volatility. Governments need to find a balance between translating supplementary income into higher productive investment and a more equal income distribution, on the one hand, and pursuing countercyclical policies on the other. There are a range of potential uses for increased revenues, including public investments in infrastructure, health and education to raise private sector productivity, reduction in labour or capital taxes, increases in general transfers and reductions in debt positions.

64. Increased saving by exporting countries in times of high prices may contribute to lower global interest rates and partly offset the negative demand shock on importers. However in circumstances when global interest rates are near their lower bound, or price volatility is driven by supply-side shocks, global circumstances may recommend a less countercyclical policy response by major commodity exporters to help counteract the effects of price shocks

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46 IMF (2012a)
on the global economy. Clearly, there is no fixed rule, and both domestic and international circumstances need to be taken into account.

65. Governments, particularly commodity exporters, can consider implementing approaches to manage the impacts of price risk on fiscal stability. Mexico (hedging oil revenues) Chile (stabilisation fund for copper revenues and other cyclical activity factors combined with countercyclical fiscal policy), and Colombia (stabilisation fund enhanced with regional resources from royalties) are countries that have pursued such strategies.

66. The G20 Commodities Seminar in Los Cabos on 5-6 May\textsuperscript{47} included a session on implementing market-based risk management to attenuate the effects of commodity price volatility, especially for government fiscal budgets. The session noted that hedging instruments can be helpful in mitigating the impacts of short-term price unpredictability, as opposed to those of long-term price trends; identified the importance of conducting risk assessments and prioritising risks before carrying out interventions; and the need for a mature commodity market and a clear regulatory framework to support an effective use of market-based tools.

\textsuperscript{47} Presentations from the seminar are available online at: http://www.g20.org/en/financial-track/426-seminario-de-materias-primas-del-g20
Managing Copper Price Volatility in Chile

Copper plays an important role in the Chilean public finances. Although copper activities represented approximately 17% of total fiscal revenues in 2011, a recent study carried out by the Chilean Ministry of Finance indicates that mining fiscal revenues, most of which comes from copper activities, are responsible for 90% of total fiscal revenue volatility.

Since 2001 Chile’s fiscal policy has been anchored in a structural or cyclically-adjusted balance rule in order to reduce the impact on public finances of cyclical fluctuations, principally the price of copper, economic activity (tax revenues), and other secondary variables. This structural balance rule sets its fiscal expenditures based on the permanent revenues which must be consistent with a structural fiscal balance target. As a result, this determines the application of a countercyclical fiscal policy. Permanent revenues are largely determined by the estimation of long-term value of two parameters: the GDP growth and copper price. In order to provide credibility and independence to this process and avoid the manipulation of these important variables, two independent panels of experts are utilized to estimate their values.

The resources saved as the result of the structural balance rule are saved in a sovereign wealth fund, the Economic and Social Stabilization Fund (ESSF) whose main objective is clearly defined: to fund fiscal deficits. From this perspective, the ESSF is the buffer utilized to reduce the impact of fiscal revenues fluctuation. The Fund’s investment policy is designed taking into account its objective with an emphasis in selecting asset classes that benefit when the resources are most needed and compensating, at least partially, fiscal revenue surprises over an investment horizon. Thus, fiscal deficits are the contingent liability defined for the fund. The institutional and legal framework has supported the success of this mechanism facilitating accountability and protecting the fund from political pressures that could exist to utilize its resources.

According to Chilean fiscal authorities, the fiscal policy and the ESSF have effectively decreased vulnerability to abrupt changes in external conditions such as the copper price. They have smoothed out the economic cycle and also reduced the volatility of GDP growth. Dependency on foreign capital financing has been reduced since the structural balance rule allows for the accumulation of savings when there are fiscal surpluses. At the same time predictability and credibility to the government policy have improved fiscal discipline since there is a better understanding across different sectors of the importance of funding permanent expenditures with permanent revenues.

67. Developing countries, especially LICs, which tend to be more vulnerable to commodity price volatility, could look to take actions to reduce their exposure or create space for more robust responses. This includes looking to make their budgets more structurally robust, by strengthening domestic revenues and improving systems for managing public spending and debt, ensuring adequate foreign exchange reserves when needed and able and putting in place more flexible and targeted social safety nets. The international community has a role in supporting growth and resilience, including to volatile commodity prices in developing
countries and LICs. The G20 can play an important role here, including through the Development Working Group.

68. The evidence on the fiscal costs of incomplete pass through of fossil fuel prices suggests that many countries may need to reassess their current approach to petroleum pricing to contain fiscal costs. Possible ingredients for successful reform include:
   i. an effective public information campaign identifying the fiscal cost of fuel subsidies, highlighting that, if not well designed, most of the subsidy could be misdirected to high-income groups;
   ii. the identification of public expenditure programs that will expand as a result of the budgetary savings from lower subsidies; and
   iii. immediate implementation of measures aimed at mitigating the adverse impact of price increases on the poor. In order for the whole reform to be worthwhile in terms of reducing fiscal expenditure, targeted measures need to have significantly lower fiscal costs than the subsidies they replace.

69. Avoiding the recurrence of subsidies requires the eventual full liberalization of fuel prices. Until then, countries could adopt a fuel pricing mechanism that smooths domestic price increases over time.

70. Such strategies may be applicable for countries looking to reform other subsidies imposing fiscal impacts, for example agricultural subsidies. While also having sizable fiscal impacts, these may have different objectives from fossil fuel subsidies and tend to be paid to producers and thus may face different barriers to reform or elimination. Strategies to reform or eliminate inefficient agricultural subsidies could benefit from the current cycle of high agricultural prices.

4.2 Monetary policy

71. Countries pursue a range of monetary policy approaches. Two common models are inflation-targeting combined with a floating exchange rate, and a managed exchange rate coupled with capital controls and accumulation of foreign currency reserves. They bring different policy challenges and benefits. For example managed exchange rates combined with capital controls could avoid potential procyclicality from capital inflows, while a number of countries have developed successful inflation-targeting frameworks where the floating exchange rate seeks to insulate the economy from impacts of excessive volatility and terms of trade shocks. There is a range of variations possible, all with their own benefits and challenges. Recently, some countries with floating exchange rates considered overvalued or facing upward pressure used capital controls to mitigate the procyclicality of capital flows.

72. For countries targeting inflation, a key factor in managing the impacts of excessive commodity price volatility is developing and maintaining credible monetary policy framework to anchor inflation expectations. Many countries target headline inflation, using core inflation as a guide. In practice, this means looking through transitory shocks to
headline inflation that are not expected to persist beyond the usual target horizon. This can mitigate the potential impacts on output and employment from targeting headline inflation.

73. As noted in last year’s G20 Study Group on commodities, global monetary conditions could have implications for commodity prices. International spillovers of monetary policies by G20 countries are considered through the Framework Working Group. While some members feel that these issues were sufficiently addressed in the G20 Study Group report and the FWG is the proper forum to discuss these issues, other members believe that there is a need for further analyzing the specific linkages between global monetary conditions and excessive volatility of commodity prices.

Section 5: Policy options to address limitations to the efficient functioning of markets

74. There are a range of possible policy options to address limitations to efficient functioning of markets and effects of policy interventions, a number of which are being taken forward in international fora or domestically. In considering further work, it would be important to consider complementarily with other international organisations, the appropriate organisations to undertake this work and acknowledge the G20 Agricultural and Development Working Group processes.

5.1 Strengthening the functioning of commodity markets

Facilitating Investment

75. Maintenance of clear, rules based frameworks for energy investment including issues regarding licensing, upstream contracts, royalties and production sharing agreements can reduce impacts of perceived political and legal risk on commodities production and incentives to invest.

76. Countries might also assess the potential impact on investment in production when considering taxation and/or regulatory policy decisions. Resource exploitation may be maximized by a fiscal regime which recognises the evolution in investment requirements, and balance between risks and rewards, for new, established and mature or declining resources. The need for governments to receive a fair share of resource rents needs to be taken into account alongside these issues.

77. In agricultural markets, key recommendations in the G20 “Action Plan on food price volatility and agriculture” have already endorsed well functioning land labour and capital markets, which are required to facilitate processes of structural change, efficiency improvements, and long-term supply response. Land sales and rental markets, accompanied by strengthened property rights, may to some extent facilitate the allocation of land to the most efficient farmers, so improving the productivity of available agricultural land. Particularly in
developing countries, attention is needed to ensure adequate safety nets to poor farmers and to ensure, according to national legal frameworks, responsible agro-investment from the rising interest from foreign investors, which, under the right conditions, may spur agricultural productivity growth. G20 countries have committed to encourage the country-level implementation of “Voluntary guidelines of the responsible governance and tenure of the land” and uphold the Principles of Responsible Agricultural Investment (PAI).

78. Public investment has a central role to play in the development of the infrastructure, research and development and market conditions to promote private investment and ensure a sustainable increase in commodity production. More investment is needed in the generation and adoption of improved, weather-tolerant food crop varieties, through both national research systems and initiatives like the Consultative Group on International Agricultural Research (CGIAR).

Transparency

79. G20 Finance Ministers have committed to enhance the transparency and functioning of energy markets, work to improve the Joint Organisations Data Initiative for oil (JODI-Oil) database and work on applying the same principles to JODI-Gas. JODI seeks to improve transparency in energy markets, while the Agricultural Markets Information System will provide a similar function in agricultural commodities. As per the Cannes Leader’s Declaration, the IEF, IEA and OPEC will present recommendations to the G20 in the second half of 2012.

80. JODI for oil was set up in 2001, and JODI-gas has recently been launched to some IEF members. At the Cannes summit in 2011, G20 countries reaffirmed their commitment to improve the timeliness, completeness and reliability of JODI-oil.

81. In metals, UNCTAD has proposed that the G-20 could investigate the need for a base-metals market information system (BAMIS) to encourage information sharing, improve data reliability and enhance data analysis and market transparency. International Commodity Organisations, such as the three International Study Groups based in Lisbon on copper, nickel, and lead and zinc, are intergovernmental forums with existing mandates to increase market transparency by promoting an exchange of information. UNCTAD also produces the annual publication reports “Iron Ore Market Report and Statistics”.

82. A number of countries have introduced mandatory reporting requirements on disclosure of payments by extractive industry companies to government agencies. The G20 Cannes declaration in 2011 welcomed initiatives aimed at increasing transparency in the relationship between private sector and government, including voluntary participation in the Extractive Industries Transparency Initiative (EITI). Nine G20 members formally support EITI, but the initiative does not have universal support amongst G20 countries.
Managing price risk through market based instruments

83. Market-based instruments can provide governments and private market actors with options to reduce the negative impacts of excessive volatility. In energy markets, the existence of benchmarks creates opportunities for financial hedging since the prices of many refined products (e.g. the products actually imported) are well-correlated to benchmark indices. In contrast, while there are opportunities for hedging, including in some emerging markets, for many agricultural products the commodity and geographical coverage of futures and options markets is patchy. Even for staple foods such as wheat, maize, and rice local prices are often not well-correlated with international commodity exchanges, creating “basis risk” that reduces the efficiency of hedging.48

84. Technical assistance from the international community to many developing countries, particularly on risk measurement and management could enhance familiarity with, and interest in, market hedging instruments. Furthermore, the international organisations also play a role to help developing countries identify and implement sound risk management strategies and tools. G20 Agriculture Ministers at their meeting in June 2011 encouraged multilateral, regional and national development banks to develop risks management tools for governments and firms in developing countries. The World Bank has created tools such as the Agricultural Price Risk Management implemented by the International Finance Corporation in Latin America, the Mediterranean region and Sub-Saharan Africa. Moreover, the World Bank, the International Fund for Agriculture Development, the Agence Française du Développement and the Inter-American Development Bank, have conducted efforts to create the Platform on Agricultural Risk Management.

85. For private producers or consumers with access to markets to manage price risks, normal variations in prices should not require policy responses, and producers should directly manage these risks as part of their business strategy. However, in some developing and emerging economies, risk management faces numerous challenges. Often, financial and insurance markets are under-developed or do not exist, or participants lack the sophistication to access them. Where agricultural futures and options markets do exist, improved access may be a function of farmer training and better functioning capital markets. It will be also be important to consider the cost-effectiveness of financial risk management solutions, particularly for small producers. There is a clear need to help to educate and improve awareness amongst the agricultural sector of the most effective solutions for different situations.

86. Processes of policy reform need to be managed in a way that facilitates increased liquidity in existing contracts and the establishment of new contracts and exchanges (e.g. South Africa in the mid 1990s). This may imply a process of dialogue between the public and private sector during processes of agricultural policy reform.

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48 For example India’s Commodities Futures Market
87. In countries where such markets do not exist, it may be possible to manage price risk on an exchange in a different country, either because the price of the contract in question moves in step with local market prices, or through a contract based in the country in question, but traded on an exchange in a different country. For example, the launch (subject to regulatory approval) of US Dollar denominated CBOT Black Sea Wheat Futures was announced recently. Designated delivery points for the contract will be in Russian, Ukrainian and Romanian ports on the Black Sea.

88. Governments have a role to provide an enabling environment and facilitate development of financial and insurance markets. There are important conditions for facilitating the establishment of new contracts or exchanges. In particular agricultural and broader economic policy needs to be run in a facilitative way.

5.2 Taking into account the international implications of domestic policies

Existing policy interventions in commodities markets

89. Existing policy interventions have international spillovers. Countries should take account of these spillovers in designing and reforming policy interventions, aiming to reduce negative distortions and increase the role of the market in the transmission of price information. Reducing international spillovers requires domestic policy change coupled with international cooperation. To increase the responsiveness of the commodity markets to price variations, efforts are needed to better integrate producers with markets and ensure world price signals reach more producers to induce supply response.

90. G20 countries have already committed to rationalise and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption, while providing targeted support for the poorest, and the G20 continues to mobilise efforts to meet this commitment.

91. Some agricultural subsidies and barriers to trade, notably export subsidies and export restrictions and other export measures with equivalent effect distort world markets, increase volatility, and inhibit efficiency improvements and investments in developing countries with high agricultural potential. The G20 could confirm the WTO commitment to the parallel elimination of all forms of agricultural export subsidies and disciplines on all export measures with equivalent effect provided the completion of the modalities of the Hong Kong declaration is achieved and reaffirm its commitment to work towards a conclusion of the Doha round "consistent with the mandate of the Doha Development Round and built on the progress already achieved". Some members believe that the G20 could commit to the elimination of all forms of agricultural export subsidies and measures

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49 The Hong Kong declaration is available at: http://www.wto.org/english/thewto_e/minist_e/min05_e/min05_e/html_text_e.htm
with equivalent effect by the end of next year even in the absence of the conclusion of the Doha Round. Others believe that this elimination could only take place in the context of the conclusion of the Doha Round.

**Interventions in response to price spikes or drops**

92. Countries should consider developing and strengthening social safety nets targeted on the poor and most vulnerable to mitigate the impact of domestic price spikes, while allowing domestic prices to move to facilitate a supply response. This approach can avoid negative international spillovers of domestically pursued policies and the potential fiscal sustainability impacts of untargeted support, which can lead to large amounts of scarce public resources flowing to higher-income consumers. Social safety nets can be better targeted and more efficient than trade measures. The long lead times in implementing safety net policies indicate these need to be put in place before a price spike occurs.

93. The international community plays a role in supporting developing countries, in particular LICS, to respond to the challenges of commodity price volatility so as to improve these countries’ resilience and capacity to increase domestic food production. Technology transfer and financial assistance are among the tools to help meet these goals, as well as other development goals including reducing poverty, accelerating structural reform and promoting energy and resource efficiency. In this context, important progress has been made on the Action Plan on Food Price Volatility and Agriculture through the work of the Development Working Group and the Agriculture Ministers’ Working Group.

**Section 6: Conclusions, key messages and areas for further work**

94. Commodity price volatility is at historically high, though not unprecedented, levels, and is expected to continue to be a feature of commodity markets. Excessive commodity price volatility has significant implications for all countries, both exporters and importers, increasing uncertainty for actors in the economy and potentially hampering efficient investment decisions. Exporters can be negatively affected by the impacts of rapid changes in price to fiscal revenues, investment and confidence in the economy as well the inflationary effects of high prices. Importers continue to suffer the negative inflationary and growth effects of high prices. Low income countries tend to face higher volatility and are particularly vulnerable, including to food price shocks.

95. Macro level responses need to be country specific, and could be aimed at supporting growth and bolstering monetary policy credibility and macroeconomic stability. Building and maintaining central bank credibility can be a key feature of approaches to managing expectations and control inflation. There are arguments for appropriate countercyclical fiscal policies, but countries’ approaches could also take account of multilateral issues and the state of the global economy. This forms part of the discussion under the G20 Framework for Strong, Sustainable, and Balanced Growth.
96. The international community has a role in helping LICs to address the challenges of commodity price volatility and improve their resilience and capacity to produce, given these countries vulnerability, in particular to food price shocks. Technology transfer and financial assistance are among the tools to help meet these goals, as well as other development goals including reducing poverty, accelerating structural reform and promoting energy and resource efficiency.

97. Building on the conclusions of the G20 Study Group on Commodities in 2011, and in order to mitigate excessive volatility, it is important to enhance the efficient functioning of markets and take account of international impacts of domestic policies. There is a strong role for countries domestic policies such as regulation, taxation, and public investment in facilitating responsiveness of supply to demand. The G20 could focus on where there are spillovers, and where coordination may be beneficial.

98. Going forward, the G20 should make efforts to meet existing commitments to improve the transparency and data availability of commodity markets, for example improving JODI-oil and working on contributing to JODI-gas. G20 countries have already committed to rationalise and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption, while providing targeted support for the poor.

99. Greater transparency, better information and well-functioning financial markets, including OTC derivatives, can support producers and consumers to transfer risk and hedge against price volatility, strengthen price discovery and enable producers and consumers to make well-informed decisions, as well as support long-term investment and consumption planning. The Financial Stability Board has been monitoring the implementation of the commitments made by members regarding aspects towards more transparency of OTC derivatives. The G20 welcomed IOSCO’s Principles for the Regulation and Supervision of Commodities Derivatives Markets at the Cannes Summit in 2011.

100. The Energy and Commodities Working Group was tasked to develop policy options that countries could consider to mitigate the impacts of excessive volatility. Potential areas for further work identified in this report are set out below. In taking these options forward it would be important to ensure complementarity with existing initiatives.

(i) Review the effectiveness and impact on oil and gas market transparency of the JODI databases.

(ii) Support ongoing work to build the capacity and capability of producers, in particular agricultural producers, to use market-based risk management instruments as planned in the G20 Action Plan on food price volatility and agriculture.

(iii) Further information sharing on good practices on national level policies to manage fiscal risk arising from excessive commodity price volatility.

(iv) Noting the work of the G20 agricultural workstream, investigate the impacts on food and energy markets of different options for the introduction of greater flexibility into policies for biofuels.

(v) Further investigation of the role for the G20 in facilitating investment in long-term supply response, particularly in agricultural commodities.
Key Inputs from International Organisations


International Monetary Fund (2012a): Macroeconomic challenges from commodity price volatility. Washington

International Monetary Fund (2012b): Recent developments in fuel pricing and fiscal implications. Washington


World Bank (2012b): Facilitating short and longer-term supply response to higher and more volatile food prices. Washington


World Bank (2012d) Transmission of Global Food Prices to Domestic Prices in Developing Countries: Why it matters, how it works and why it should be enhanced. Washington


Selected Additional References

A more comprehensive set of references can be found in the key inputs listed above


