

UNDERSTANDING COMMODITY MARKETS TO EFFECTIVELY ADDRESS PRICE INCREASES AND VOLATILITY IN A POST-COVID WORLD

Susan Newman, Sophie van Huellen

INTRODUCTION

Commodity dependent economies, that is countries that are heavily reliant on the production or extraction and export of a few primary commodities to generate foreign exchange earnings,¹ are particularly vulnerable to global shocks such as COVID-19 (see Tröster/Küblböck 2020; Franz 2020; Perry 2020; Asante-Poku/van Huellen 2021), and global recessions. A large geographical concentration of export partners adds to these vulnerabilities. With few exceptions, commodity dependent economies in the Global South – former colonies are particularly prominent in this group – and most commodity dependent economies have been unable to diversify their export portfolio into higher value-added products since the early 20th century (UNCTAD 2019; Weber et al. 2021).

The literature on commodity dependence and ensuing macroeconomic challenges is well established (e.g. see Nissanke 1993; Maizels 1994; Deaton/Miller 1995). These challenges arise primarily over the cyclical nature of commodity prices due to alternating episodes of over and under production and high levels of price volatility. Because productive or extractive capacity is slow to build up,² demand shocks can drive commodity price upswings for a prolonged period of time. Commodity price downswings are then aggravated as producers compensate lower prices with higher quantities to preserve a stream of revenue (Maizels 1994). Demand shocks that lead commodity cycles have been linked to the evolution of medium and long run business cycles in primary commodity consuming economies (Erten/Ocampo 2013), and commodity prices have been identified as one of the main transmission mechanisms of crises in the Global North, such as the global financial crisis of 2007-8, to low- and middle-income economies (Nissanke 2012a,b).

The early literature on commodity dependency has predominantly focused on how medium run and long run³ commodity price cycles and secular trends impact external and internal balances. Recently, financial channels

have received additional attention. The focus on financial channels is motivated by two developments. First, the financialisation of commodity markets (see Mayer 2012; Belke et al. 2013). Commodity derivatives have become widely available as an alternative asset class for financial investors in the early 2000s, and the influx of liquidity and the arrival of new investment instruments has arguably impacted price formation in these markets. Second, a reduction in concessional lending; see Nissanke (2019). With concessional lending reduced, market-based financing has been on the rise and commodity rich economies have either used their resource wealth as collateral to source cheap funding offshore or turned to bond markets to close financing gaps.

The financialisation of commodity markets has tied commodity cycles more closely to global financial cycles. With a greater co-movement between commodity prices and other financial assets, commodity price slumps and global liquidity drains tend to coincide, aggravating the pro-cyclical nature of balance of payment shocks.

Commodity dependency is predominantly a “developing country” issue, with almost 90 per cent of low-income economies being classified as commodity dependent. Low and lower middle-income economies tend to be more dependent on agricultural products rather than fuels or minerals and metals, and most agricultural commodity dependent low-income countries are located in Africa, and sub-Saharan Africa in particular (UNCTAD 2021). In these contexts, small holder farming is dominant in agricultural production and agriculture is critical for the livelihoods of a large proportion of the population in these countries.

This article is therefore focused on the price behaviour of agricultural and food commodities and eschewing challenges for commodity exporters with a particular focus on sub-Saharan Africa. The production of these commodities is cyclical in nature due to growing cycles of varying lengths. Growing cycles are particularly vulnerable

to climate and weather conditions as well as soil quality and land. These crops are also perishable with limits to storability, which, again varies by commodity. The trade in most of these cash crop commodities – cocoa, coffee, cotton, sugar, and tea – have a colonial past, which until today shapes the institutional structures within which production and trade takes place and a relationship of dependency between commodity exporting economies and their trading partners (Kvangraven 2020; Weber et al. 2021; Alemayehu Geda 2019).

The remainder of this paper is structured as following. The next section problematises this price behaviour from the perspective of commodity dependent economies and offers a critical review of past and present thinking of ways to manage price dynamics and mitigate implications for commodity dependent economies in light of recent changes in commodity markets and supply chains following the COVID-19 crises and war in Ukraine. Section 3 concludes with some policy implications.

COMMODITY PRICE BEHAVIOUR AND COMMODITY DEPENDENCY

Commodity price behaviour has been a key concern for commodity dependent low-income countries since their formal independence from colonialism. During the early post WWII Period, there was a consensus view of primary commodities as a critical object of long-term global stabilisation measures and a vehicle for the capitalist modernisation of developing countries, with primary commodity exports eliciting imports of capital goods from trading partners (Maizels 1992; Gibbon 2003). This view was exemplified in the models of Lewis (1954) and Kaldor (1960), as well as in Keynes' justification for a fixed system of exchange rates to foster a stable trade regime that informed the Bretton Woods Agreement.

Multilateral interventions included the International Commodity Agreements (ICAs)⁴ and the Compensatory Finance Facility of the IMF and the STABEX scheme of the EC that were put in place with the aim of ameliorating the impact of falling prices, excessive price fluctuations and to stabilise export earnings of commodities (Maizels 1994). Under the agreements, recommended or support prices were established and defended, either on the basis of setting producing country exports quotas or via the financing of centrally-held buffer stocks (Maizels 1992). By the end of the 1980s, with the exception of the Inter-

national Natural Rubber Agreement (INRA), all the ICAs had broken down, lapsed or have been suspended, in part, as a result of a number of technical problems arising from their implementation.

Since the 1990s, emphasis has been on the role of hedging on commodity futures markets as a mechanism for the protection of commodity producers from the impact of price volatility, most notably by the International Task Force on Commodity Risk Management (ITFCRM) of the World Bank. A key argument for hedging as a preferred price-risk management tool compared with the use of buffer stocks was that it solved the problems associated with stockholding. However, very few agricultural producers in low-income economies have utilised hedging instruments and their unsuitability for small-holder producers, even when organised into cooperatives, has been well documented (see e.g. Gibbon 2003; Breger Bush 2012). On the other hand, international commodity traders have become increasingly active on commodity futures exchanges alongside a range of financial investors that have transformed processes of price realisation and transmission along commodity supply chains and deepened the pro-cyclical behaviour of commodity price movements.

In the remainder of this section, we outline key changes in commodity markets and highlight the character of contemporary challenges faced by commodity dependent developing countries in order to inform efforts to ameliorate problems associated with price volatility and the distribution of income along global commodity chains.

COMMODITY PRICE DRIVERS

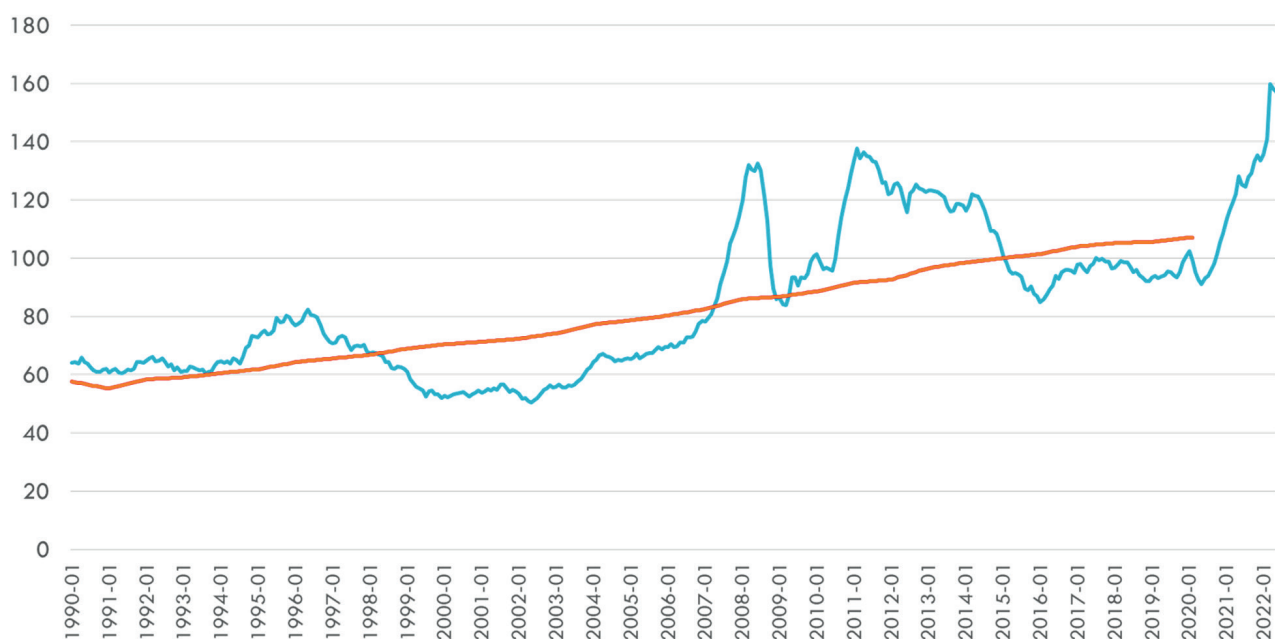
Explanations of price volatility in commodity markets have generally focussed upon supply-side factors, namely exogenous supply side shocks that kick-start a cycle and the duration and amplitude of the cycle being determined by the supply characteristics of the commodity. Such explanations are informed by theories that focus on relationships between quantity, and consequently, price that assume competitive markets for commodities which is in stark contrast to reality. In practice, commodity markets are extremely concentrated at the international trader and buyer levels who hold dominant bargaining positions within commodity supply chains. For this reason, "it is necessary to place the supply/demand analysis in the context of the structures of control and decision-making which govern the production, trade and marketing of

a given commodity, and to show how these structures influence the price outcome, and the division of benefit between developed and developing countries” (Maizels 1984: 36; Maizels/Bacon/Mavrotas 1997).

Explanations of price behaviour that rely solely on quantity movements of commodities have been unable to explain persistent deviations between prices and market fundamentals. Figure F shows the production and price indices for food from January 1990 to January 2022.

Food prices have been much more volatile than production. The food price hikes of 2008 and 2022 cannot be fully explained by quantity changes. While supply chain disruptions, exacerbated by the war in Ukraine, will have a clear impact on prices, the extent of recent food price inflation cannot be entirely explained by this. Pricing theories that treat commodities as financial assets might hence be more suited to explain price dynamics than those solely focused on the physical markets.

Figure F: UNFAO food price and food production indices, January 1990 to January 2022



Source: FAOSTAT 2022

As a financial asset, commodity price behaviour at derivative markets is akin to other financial asset classes, and price formation is driven by different types of traders. This group includes fundamental traders, that is traders who take a position in the market based on expected physical demand and supply conditions as well as storage, technical traders, that is traders who take positions in the market based on technical indicators, and index traders, that is traders who invest in diversified baskets of commodities irrespective of market fundamentals. The latter two are often referred to as positive feedback traders and passive traders and, given their positioning in the market, are thought to increase price volatility and price trends beyond what can be justified by market fundamentals. All three

trader types are jointly referred to as speculative traders as they do not enter the market for risk management purposes, but purely for speculative purposes.

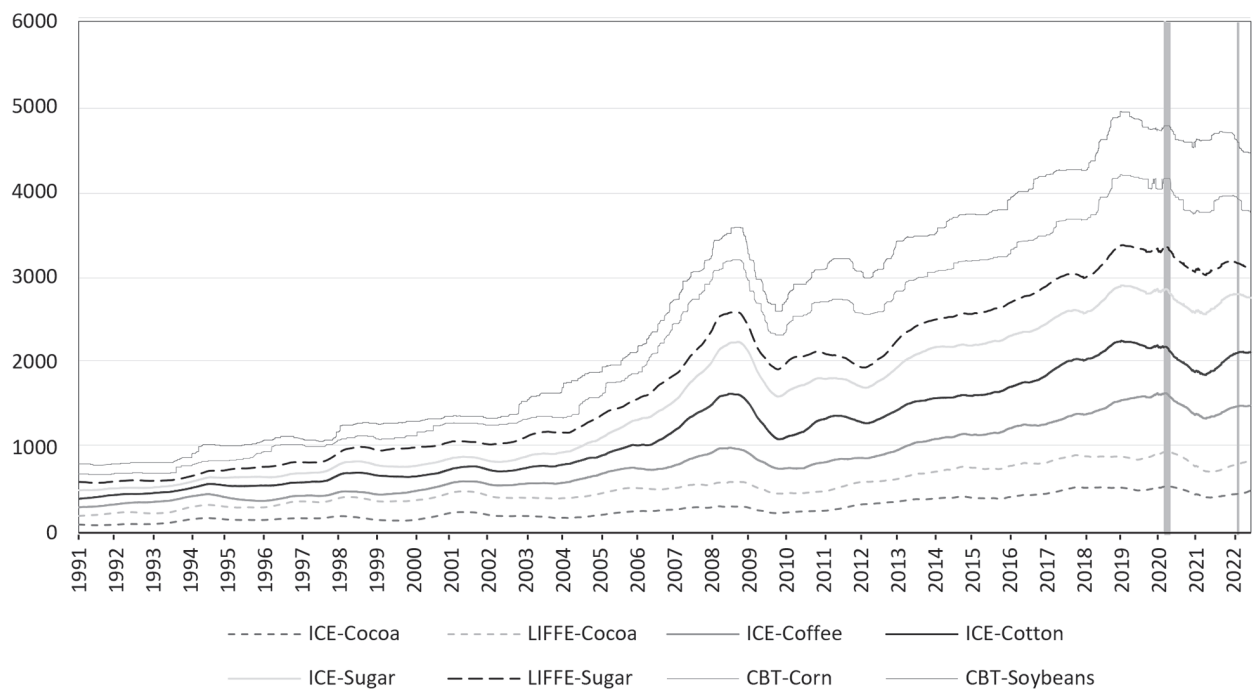
The early 2000s saw the entry of large volumes of speculative traders onto commodity derivatives markets after sweeping de-regulate in Europe and in particular in the USA that has sparked a renewed debate about the role that financial speculators play in driving price movements (e.g. see Clapp/Helleiner 2012; Nissanke 2012a,b; Mayer 2012).

Figure G records the annual average open interest, that is the number of contracts traded at specific commodity exchanges, between 1991 and 2022. For some mar-

kets, open interest has multiplied eightfold over the past three decades with the greatest inflow being recorded post-2000. Movements in open interest from index traders and speculative traders is only partly linked to market fundamentals and large fluctuations are driven by global liquidity cycles instead (Belke et al. 2013). These cycles of leveraging and deleveraging are clearly visible in Figure G, with open interest reflecting changing sentiments and risk aversion rather than market fundamentals, including over the COVID-19 crisis and the Ukraine war. Especially hedge funds have repositioned themselves, changing their bets on price dynamics from falling prices before the COVID-19 crisis to rising prices and falling prices again in the expectation of a global recession. A preliminary analysis of potential implications for price dynamics has been conducted by Tröster and Küblböck (2020) and Asante-Poku and van Huellen (2021).

Whether and to what extent different traders impact price dynamics and price volatility is still contested and existing empirical evidence is mixed (e.g. see van Huellen 2020, and Lawson et al. 2021). The evidence varies with markets, methods and how position taking by different trader types is measured statistically. In general, finding empirically conclusive evidence for excessive price dynamics and excessive price volatility is complicated by the fact that market fundamentals against which the speculative excess could be compared are not clearly defined, and attempts to measure those suffer from data limitations (van Huellen 2020). Importantly, even if fundamental or informed traders dominate, their position taking in derivative markets is based on expectations about future demand and supply rather than current fundamentals, with uncertainty over these future fundamentals making these prices intrinsically volatile.

Figure G: Cumulative Open Interest, Selected Commodities (backward moving average, 1991 = 100)



Note: The first bar is set at March 2020 to mark the beginning of the COVID-19 crisis and the second bar is set at February 2022 to mark the beginning of the war in Ukraine.

Data Source: Datastream

COMMODITY CHAIN RESTRUCTURING, CONCENTRATION OF MARKET POWER AND PRICE TRANSMISSION

Commodity supply chains have undergone significant restructuring over the past 40 years that have deepened

and entrenched asymmetries in bargaining power between traders and producers of primary commodities. Increasing market concentration through mergers and acquisitions at the international trader level is evident for all primary commodity types. The four largest agricultural commodity traders⁵ control 75 % to 90 % of international

trade in grains; five commodity traders handled 50 % of total green coffee exports in 2019; 75 % of cocoa processing and trading in 2016/17 was conducted by the four largest companies; and the eight largest traders accounted for more than 60 % of the cotton trade (Baines/Hager 2021; Tröster/Gunter 2022; Staritz et al. 2018).

By contrast, production of many export agro-commodities in low-income countries is conducted by smallholders. According to Fairtrade International, an estimated 80 % of coffee is produced by 25 million smallholders. Cocoa and cotton are also primarily produced by smallholders (Tröster/Gunter 2022). In between the international traders exist various marketing structures that range from purely private supply chains consisting of middlemen, local traders and exporters, to auction systems, cooperatives or other producer organization structures, to state-owned monopsony buyers and exporters that have replaced, either in part or in total, the centralized state marketing systems that were prevalent in the post WWII period until their dismantling under structural adjustment reforms.

Commodity trading companies operate in the interstice between futures and physical markets. In this way, they play a critical role in the transmission of movements arising on derivatives exchanges that have been driven by both supply and demand as well as financial factors such as global liquidity cycles and expectations by financial investors regarding market performance.

A growing number of studies have documented the shift by commodity trading companies from the use of forward contracts towards the wholesale use of price-to-be-fixed contracts that reference futures market prices. This has been accompanied by their use of increasingly sophisticated hedging strategies that anticipate the activities of other, non-physical, traders on derivatives exchanges and the ascendance of financial hedging as a core competence for MNC commodity traders. These derivatives trading strategies are aimed not only for effective hedging but also financial investment and ultimately speculation (Tröster/Gunter 2022; van Huellen/Abubakar 2021; Staritz et al. 2018; Bargawi/Newman 2017; Salerno 2017; Newman 2009).

Local marketing systems matter when it comes to the extent to which world price movements, and hence price risks, are transmitted and mitigated against along the chain towards producers. Where public institutions

such as state marketing boards exist, commodities can be exported through forward contracts, which enable short term stabilization mechanisms in these countries (van Huellen/Abubakar 2021; Staritz et al. 2022). The weekly coffee auction in Tanzania helps to reduce the amplitude and frequency of sudden price changes on the futures market while the cooperative marketing system helps to stabilize income and increase producers' surplus for farmers in the cooperatives (Bargawi/Newman 2017). By contrast, the private coffee marketing system in Uganda has meant that volatile prices at the international level are experienced by smallholder farmers as stable but very low prices as middlemen maintain high margins to buffer price volatility that they face when selling to exporters (Newman 2009).

Price instability hence impacts stakeholders within commodity chains differently. International agricultural commodity traders, or first-tier suppliers, have profited hugely from market instability and rising commodity prices brought about by the war in Ukraine. As they operate as both buyers and sellers of primary commodities, they can use volatility to their advantage. These companies saw a 10 % growth in market capitalisation in March and April 2022 and have reported record profits in 2021 (Baines 2022; Blas 2022). Agro-commodity producers, facing higher input costs, and incomplete transmission of rising prices are unlikely to experience any real benefits.

PROCYCLICALITY AND MACROECONOMIC MANAGEMENT

The financialisation of commodity markets has tied commodity cycles more closely to global financial cycles, which drive episodes of global expansion and retrenchment and tend to be dominated by US monetary policy (Rey 2013, 2015). A dominance of external 'push factors' over country specific 'pull factors' in the determination of cross-border portfolio flows has been documented for many middle- and low-income economies (Calvo et al. 1993; Prasad et al. 2005; Frenkel 2008; Ocampo et al. 2008) and Ocampo (2016) refers to the vulnerability of economies to global liquidity cycles as 'balance of payment dominance' where external shocks dominate short- and medium-term macroeconomic dynamics. For commodity dependent economies, balance of payment dominance compounds capital and current account shocks as global financial cycles drive co-movement of cross-border capital flows, leverage of banking sectors,

credit creation, as well as prices of risky assets including commodity derivatives (Passari/Rey 2015).

These vulnerabilities originate in the way in which low- and middle-income economies are integrated into the global financial and goods markets and where they are located in the hierarchy of currencies. Bonizzi et al. (2020) argue that these economies occupy a subordinate position as both trade and the most liquid financial markets are denominated in foreign currency exposing public and private balance sheets to exchange rate risk and high financing costs. Frenkel (2008) describes integration into the global financial market as segmented by risk categories, with most low- and middle-income economies being considered riskier so that these experience credit rationing and high financing costs when the global risk appetite declines. With a greater co-movement between commodity prices and other financial assets, commodity price slumps and global liquidity drains tend to coincide. Liquidity drains also affect foreign direct investment (FDI) if it is targeted at primary commodity extraction and production, as is often the case in commodity dependent economies (Gondo/Vega 2019).

Unsurprisingly, commodity and debt crises have gone hand in hand in the past (Nissanke 1993; Maizels 1994). Many African economies, geared towards primary commodity production and extraction during colonial times, became heavily indebted with the commodity price slump of the early 1980s (Fole 2003; Nissanke 2010; Deaton/Miller 1995). The Latin American debt crisis around the same time also had its origins in the commodity price bust (Ocampo 2014). With a shift to market-based financing, financial, commodity, and debt cycles have become more intertwined for commodity dependent economies. Market based financing compared to concessional lending bears greater risks, such as exchange rate risk if debt is denominated in foreign currency and interest rate risk, and greater uncertainty when negotiating with private lenders in case of debt distress (Nissanke 2019).

Commodity dependent economies' credit ratings decline in times of commodity price busts as collateral against which lending takes place and balance sheets shrink, resulting in a larger risk premium (Drechsel/Tenreyro 2018; Fernandez et al. 2018). As commodity cycles increasingly co-move with global liquidity cycles, countries see a decline in credit availability and an increase in interest rates during a commodity bust. This makes the remaining credit costly, feeding into a self-fulfilling solvency trap

as revenues dry up and market sentiments shifts, affecting both exchange rate and interest rates simultaneously (Akyuz 2007).

In times of a commodity price boom, cheap external financing is available in abundance, tempting governments and private corporations alike to tap into international markets for cheap credit to remain competitive, often exposing them to additional exchange rate risk.⁶ Dwindling commodity export revenues, cross-border portfolio outflows and a reduction in FDI in times of a bust reduce available foreign exchange reserves for debt servicing. Depreciation pressure on the nominal exchange rate further increase debt servicing costs if sovereign and corporate debt is denominated in foreign currency. This way, even a moderate level of external debt can quickly turn unsustainable.

These dynamics are neither deterministic nor homogeneous and will differ across countries (van der Ploeg 2011; van der Ploeg/Poelhekke 2017). The ways in which they play out for individual economies are, among other factors, demarcated by the exchange rate regime, the degree of financial openness, the maturity of domestic financial markets, the reliance on external funding, the currency and maturity composition of external debt, the economy's absorption capacity and policies and institutions in place to manage commodity cycles effectively. However, despite country heterogeneity, most commodity dependent economies have found it difficult to fully escape these dynamics⁷ and even more difficult to overcome commodity dependency.

The COVID-19 shock, as previous balance of payment shocks, reproduces existing commodity dependencies. As many times before, stabilisation has taken prominence over developmental objectives in the discussion around mitigating of the current crises and disbursement of concessional loans has been slow (Gallagher et al. 2020; Stubbs et al. 2021; Laskaridis 2021). Countries have turned to liquidation of sovereign wealth funds reducing capacity for future investments and relied on market-based financing for short term funding needs (Asante-Poku/van Huellen 2021). Servicing of old and newly accrued debt eats into future revenues, further reducing capacity for strategic investments and potentially threatening a reversal of diversification efforts in the short run.

For many already heavily indebted commodity dependent countries, the response to the COVID-19 pandem-

ic means increasing fiscal pressure. Hikes in commodity prices, particularly in fuel and food, driven by the war in Ukraine, are likely to deepen the problem rather than easing it. Many low- and middle-income oil exporters are also importers of refined oil, while exporters of agricultural commodities, mainly cash crops that saw no price increase, rely on food imports for their domestic food supply. Therefore, most commodity dependent economies saw their terms of trade deteriorate in recent months as prices for oil and grains increased sharply (according to IMF commodity terms of trade data). Most commodity dependent economies are not beneficiaries of the current prices rise, due to the type of commodities that they rely on for export.⁸

Unsurprisingly, global external debt stock has increased sharply over the recent crisis, large parts being born by low- and middle-income economies; many of them commodity dependent economies in sub-Saharan Africa. Unlike in previous decades, most of this debt stock is in hands of private creditors or subject to bilateral deals, the latter being driven by China to a significant degree, and not eligible for debt relieve under the Debt Service Suspension Initiative (DSSI) (see Laskaridis 2021). LDCs external debt service is expected to be USD 43 billion in 2022 (UNCTAD 2022), which, according to Oxfam (2022), is equivalent to nearly half their food import bills and public spending on healthcare combined. Worryingly, borrowing costs for net-food importers are already going up, with their government bond yields rising (United Nations 2022).

CONCLUSIONS: POLICY AND GLOBAL GOVERNANCE

The recent recommendation by the World Bank for commodity exporting developing and emerging market economies is to strengthen their policy frameworks and reduce their reliance on commodity-related revenues by diversifying exports and national asset portfolios (World Bank 2022b). Whilst such measures are essential for the longer term, there is a need for short- and medium-term measures to deal with the pro-cyclicality of commodity prices and earnings as well as interventions to redress the power imbalances between producers and international commodity traders. The creation of short- and medium-term fiscal space is essential to enable countries to move to a path of structural transformation and diversification (Nissanke 2019; Chang/Lebdioui 2020).

Commodity price and quantity controls have once again been placed on the agenda in response to price hikes and impending cost of living crises. These have been posed at the level of national policies but the experience of the ICAs highlights both the need for multilateralism as well as the technical and financial challenges for attempts to manage commodity prices. Attempting to circumvent highly financialised international commodity derivative markets and gain greater control or influence over “world prices” (reference prices), some commodity producing countries have attempted to establish their own commodity exchanges. However, success has been limited and with few exceptions markets suffer from low liquidity and limited participation of farmers for whom they arguable have been set up.

The COVID-19 shock, as previous balance of payment shocks, reproduces existing commodity dependencies and undermines efforts to diversify exports. As discussed in section 2.3, the pro-cyclicality of commodity cycles with financial cycles has further constrained commodity dependent economies' ability to access counter-cyclical funding to manage and mitigate macroeconomic vulnerabilities that result from such shocks. Countercyclical funding made available by the International Financial Institutions has been limited and disbursement of funding slow, as painfully felt by many countries during the COVID-19 pandemic (Stubs et al. 2021).

As a result, countries were forced to tap into sovereign wealth funds at the worst time for liquidating assets (Al-Hassan et al. 2018). Sourcing countercyclical funding from sovereign wealth funds entails huge opportunity costs, which makes them weak candidates for managing balance of payment shocks. Private credit sourced through sovereign bond markets on the other hand is costly as credit rating and risk premia vary with commodity cycles for commodity dependent economies. Private creditors are also unlikely to participate in debt relieve schemes such as the DSSI and economies are hesitant to take up such opportunities as it impedes their credit rating and hence increases the costs of their debt not eligible for DSSI. What is needed is the quick availability of concessional loans from multinational financial institutions to provide counter-cyclical funding at times of balance of payment shock.

Finally, there is a need to redress the highly unequal power relations along commodity supply chains through the institutions for commodity marketing that can include,

national level marketing, regional cooperation, centralised auctions, or cooperative marketing structures towards a more equitable distribution of income along commodity chains. In the context of agro-commodities, there is particular imbalance between small and dispersed farmers and large and highly concentrated multinational trading companies which reap excess profits in times of uncertainty. While taxing such excess profits is discussed in consumer countries which host headquarters of these companies, structural inequalities can only be addressed by increasing market power at the producer segment, as for instance through regional marketing boards.

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- 1 Countries are commonly classified as commodity dependent if their export share of primary commodities lies above 60 per cent. This classification, albeit widely used, has serious shortcomings as it obscures important differences in the nature of countries' commodity dependence; see Lebdioui (2021).
 - 2 These dynamics vary across commodities. Minerals, metals, and fossil fuels require exploration activities and large investments, crops require the acquisition or clearing of farmland.
 - 3 Also referred to as commodity supercycles (Erten/Ocampo 2013).
 - 4 Multilateral agreements on the modes of intervention in commodity markets appeared in the ICAs of 5 exported commodities, namely cocoa, coffee, sugar, rubber and tin.
 - 5 These are ADM, Bunge, Cargill and Louis Drefus.
 - 6 A growing phenomenon especially in middle income countries (Feyen et al. 2015; Bruno/Shin 2017; Kose et al. 2017).
 - 7 For instance, Boehm et al. (2021) evaluate sovereign default risk for 23 middle-income countries and find that it varies strongly with primary commodity prices and that the intensity of this variation depends on the degree of commodity dependence and also increases in times of recession and expansionary US monetary policy. Eberhardt and Presbitero (2021) find that commodity price volatility is a strong predictor for banking crisis for a sample of 60 low-income countries. The effects are mitigated by flexible exchange rate regimes.
 - 8 Exceptions are South America for energy (driven by Colombia) and some food commodity exports driven by those relying on grain exports rather than cash crops. The latter have not seen an improvement in their terms of trade but were able to avoid deterioration.