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**Working Paper**

## Understanding commodity markets to effectively address price increases and volatility in a post-COVID-19 world

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**70** WORKING PAPER



# Understanding Commodity Markets to Effectively Address Price Increases and Volatility in A Post-COVID-19 World

Vienna, September 2022

Susan Newman  
and  
Sophie van Huellen

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# CONTENT

List of Figures.....	3
Abstract.....	4
1. Introduction.....	5
2. Commodity price behaviour.....	6
2.1 Understanding Physical Drivers of Commodity Price Behaviour .....	10
2.2 Understanding Financial Drivers of Commodity Price Behaviour .....	11
3. Commodity price behaviour and commodity dependency.....	14
3.1. Commodity chain restructuring, concentration of market power and price transmission .....	14
3.2. Procyclicality and Macroeconomic Management.....	16
4. Conclusions: Policy and global governance.....	20
References .....	22
Authors .....	26
Appendix A: Factors behind the collapse of the ICAs .....	27
Appendix B: Commodity Futures Market Trader Position Data.....	28
Appendix C: Additional Figures .....	35

## List of Figures

Figure 1: Monthly prices for Selected Commodities, January 1995 to January 2022 .....	6
Figure 2: Quarterly Merchandise Export Volume Index .....	9
Figure 3: UNFAO food price and food production indices, January 1990 to January 2022 .....	11
Figure 4: Open Interest, Selected Commodities .....	12
Figure 5: Cumulative Open Interest, Selected Commodities .....	13
Figure 6: Total Annual Revenues of Dominant First-Tier Suppliers (2000-2021, in Billion USD).....	16
Figure 7: Commodity Terms of Trade for Commodity Dependent Economies by commodity groups .....	18
Figure 8: External debt stock for Low- and Middle-Income Economies and Sub-Saharan Africa .....	19
Figure 9: Debt Service Payments in 2020 by DSSI Eligible Countries, billion USD.....	20
Figure B: Open Interest Data by Trade Categories for Selected Commodities.....	29
Figure C: Commodity Dependency and External Debt Stock (Low- and Middle-Income Economies by Commodity Group, 2018-19) .....	35

## Abstract

Dependence on agro-commodity exports amongst low-income economies mean that they are uniquely vulnerable to balance of payment shocks. They are often also dependent on the imports of food crops and energy, resulting in a double burden in the post-COVID-19 period. In this paper, we review new and old theories of price formation in order to problematise price behaviour from the perspective of commodity dependent economies in the global South. In particular, we highlight the challenges of and imperative for macro-economic management and recent changes in commodity markets (namely financialization and supply chain restructuring) that must inform ways of managing price dynamics and mitigating implications for commodity dependent economies in light of the COVID-19 crisis and the war in Ukraine.

**Keywords:** Commodity Prices, Commodity Dependence, Price Behaviour, Financialisation, COVID-19, Macroeconomic Management

# 1. 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,<sup>1</sup> are particularly vulnerable to global shocks such as COVID-19 (see Asante-Poku/van Huellen 2021; Franz 2021; Perry 2020; Tröster/Küblböck 2020), and global recessions. A large geographical concentration of export partners adds to these vulnerabilities.

The literature on commodity dependence and ensuing macroeconomic challenges is well established (Deaton/Miller 1995; Maizels 1994; Nissanke 1993). 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,<sup>2</sup> demand shocks can drive commodity price upswings for a prolonged period. 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, 2012b).

The early literature on commodity dependency has predominantly focused on how medium run and long run<sup>3</sup> 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 Belke et al. 2013; Mayer 2012). 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.

With few exceptions, commodity dependent economies are 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 20<sup>th</sup> century (UNCTAD 2019; Weber et al. 2021). Almost 90 per cent of low-income economies are classified as commodity dependent. Low and lower middle-income countries tend to be more dependent on agricultural products rather than fuels or minerals and metals, and most agricultural commodity dependent low-income countries are in Africa, and sub-Saharan Africa in particular (UNCTAD 2019). In these contexts, smallholder production is dominant in agricultural and are critical for the livelihoods of a large proportion of the population in these countries.

This paper therefore focuses on the price behaviour of agricultural and food commodities and eschewing challenges for commodity exporters with a particular focus on sub-Saharan Africa.

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<sup>1</sup> 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).

<sup>2</sup> These dynamics vary across commodities. Minerals, metals, and fossil fuels require exploration activities and large investments, crops require the acquisition or clearing of farmland.

<sup>3</sup> Also referred to as commodity super-cycles (Erten/Ocampo, 2013).

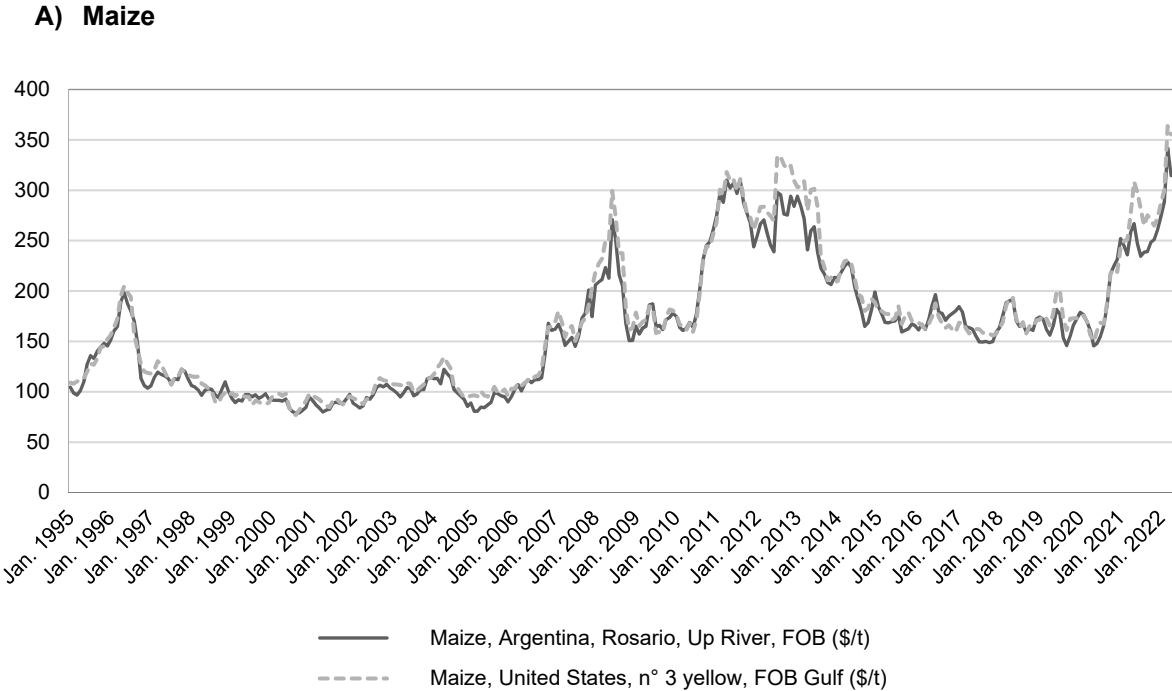
We select seven commodities that are predominantly grown in the Global South and exported to the Global North: cocoa, coffee, cotton, sugar, maize, tea, soybeans. These commodities are members of the soft commodity group which are grown, in contrast to hard commodities that are mined and extracted. The 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 commodities, in particular, 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 (Geda 2019; Kvangraven 2021; Weber et al. 2021).

The remainder of this paper is structured as following. The next section provides an overview of stylized price behaviour of selected commodities over the past decades and reviews new and old theories of price formation and physical and financial drivers of price dynamics. Section 3 problematises this price behaviour from the perspective of commodity dependent economies. It 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 crisis and the war in Ukraine. Section 4 concludes with some policy implications.

## 2. Commodity price behaviour

Figures 1a to f show monthly prices for a selection of agricultural commodities over the last three decades. Whilst there is some variation across commodity types, their price trajectories follow a broadly similar pattern. All commodity prices followed an upward trajectory over the commodity super-cycle from the early 2000s, accelerated to their price peak in 2008 and then crashed with the onset of the great recession, recovered from 2011 until the end of the commodity super-cycle around 2013/14.

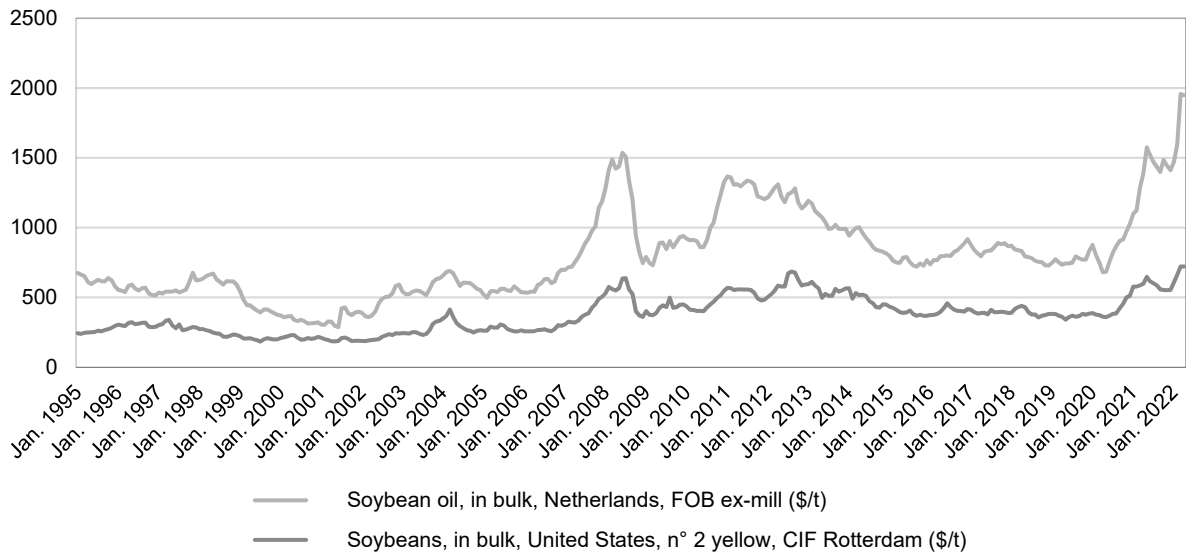
**Figure 1: Monthly prices for Selected Commodities, January 1995 to January 2022**



Source: UNCTAD STATS

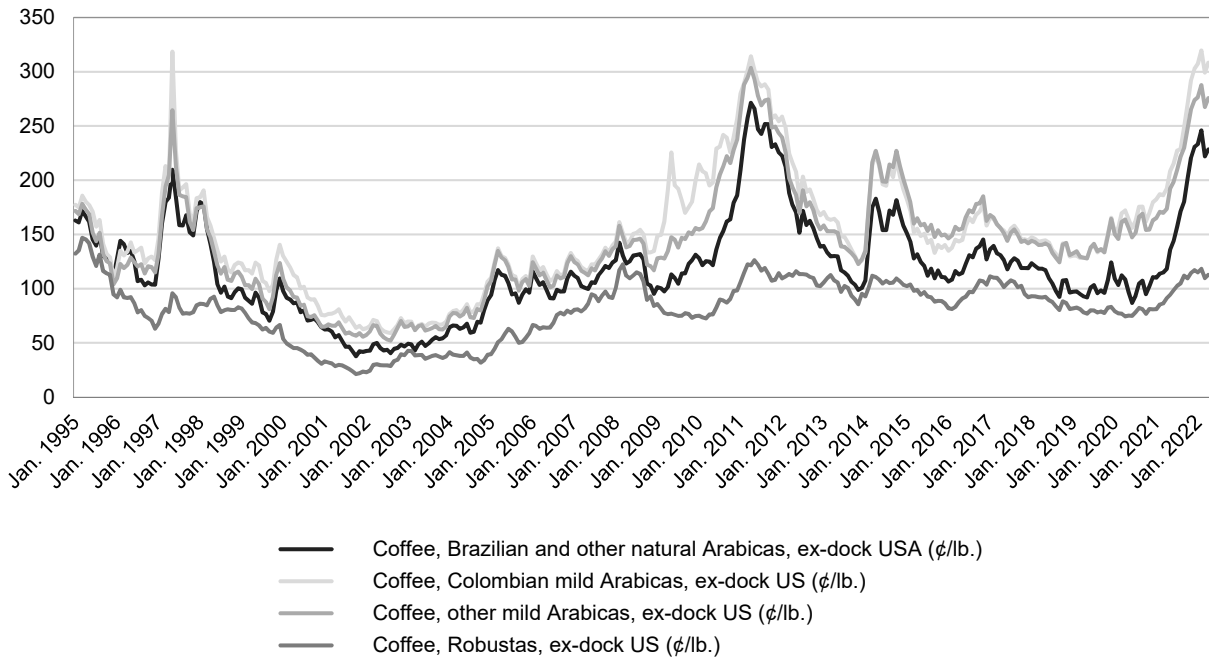


## B) Soybean oil and Soybeans



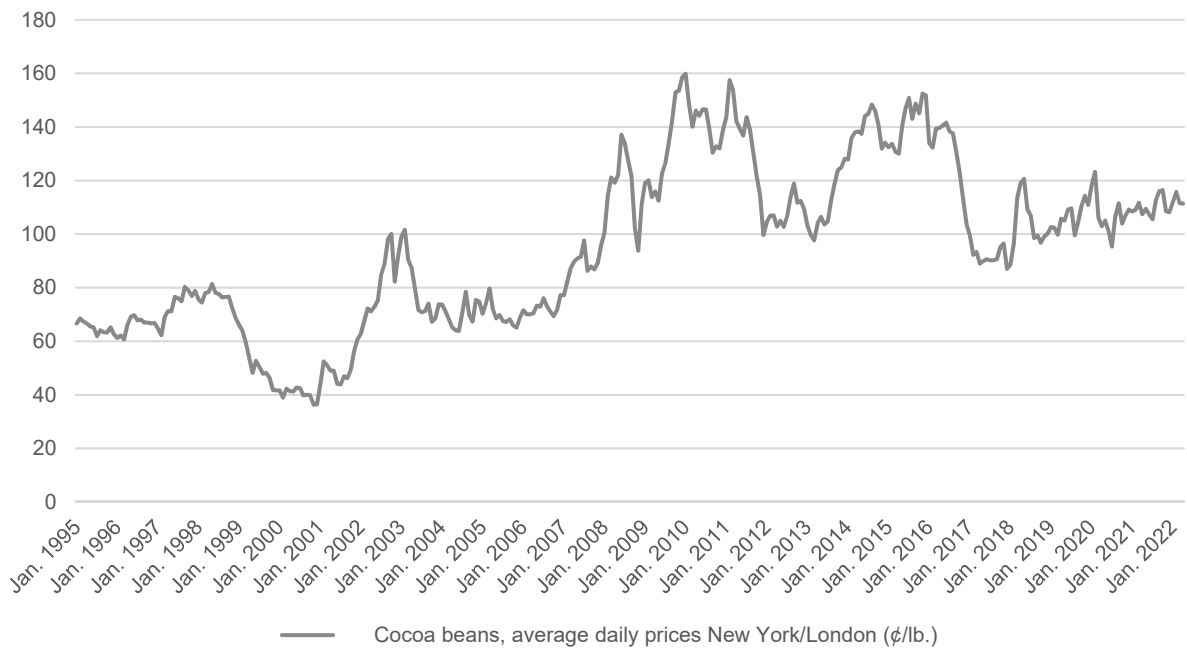
Source: UNCTAD STATS

## C) Coffee



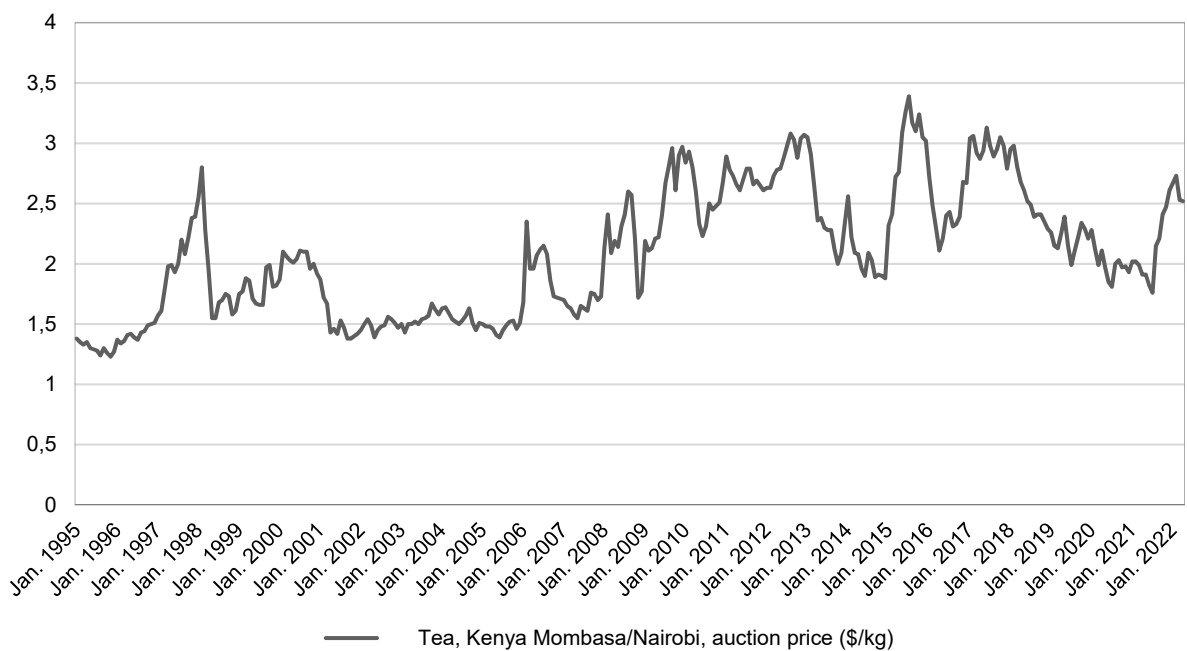
Source: UNCTAD STATS

## D) Cocoa



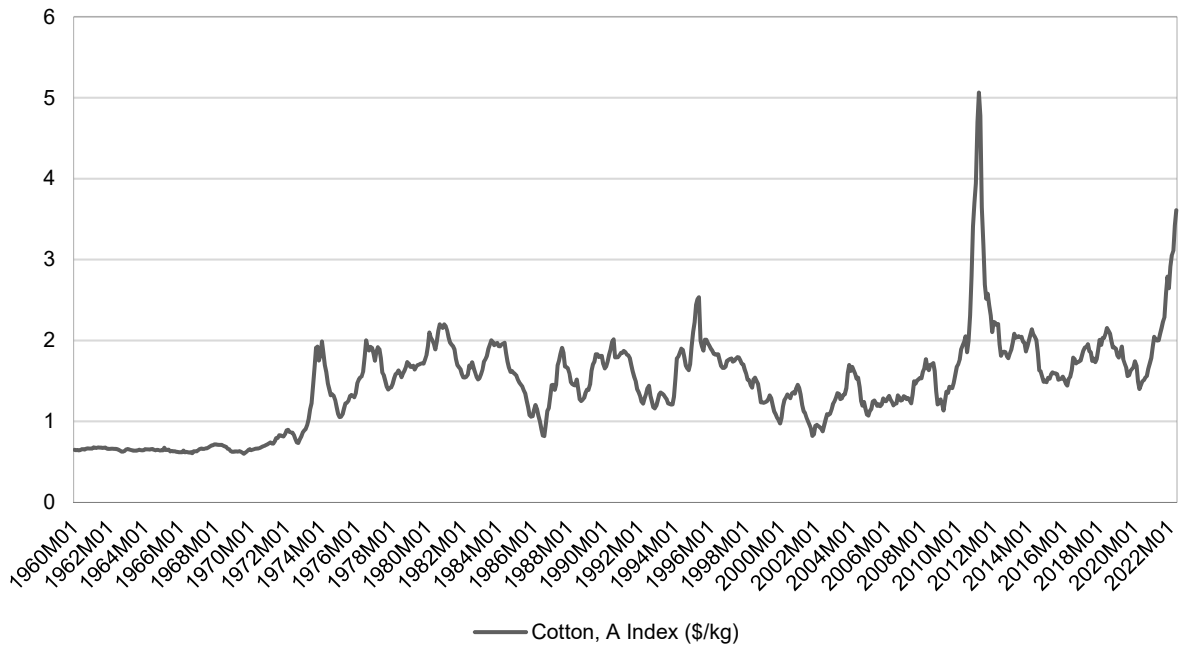
Source: UNCTAD STATS

## E) Tea



Source: UNCTAD STATS

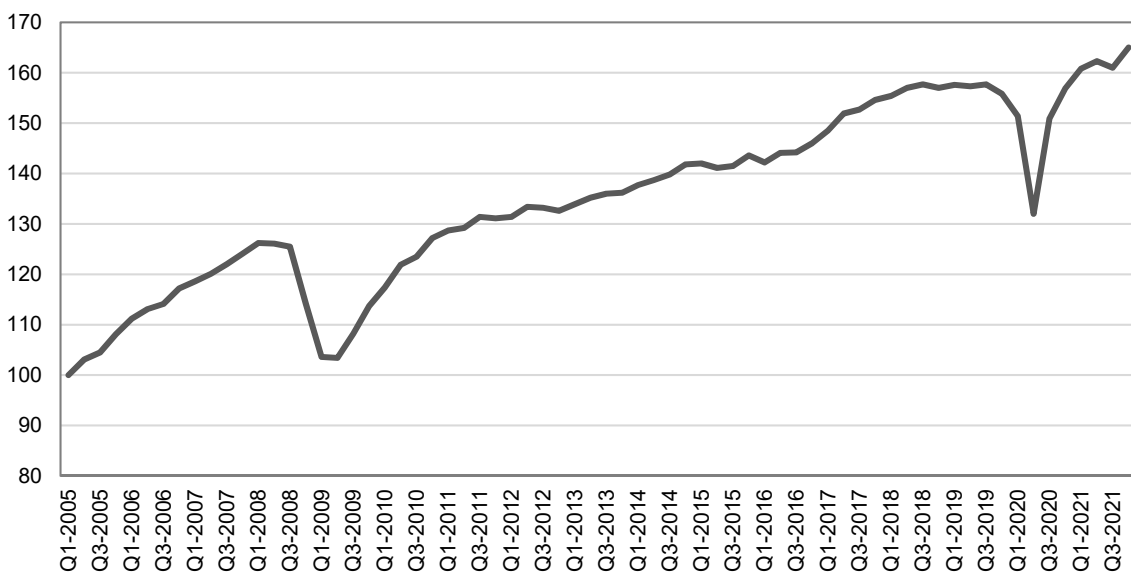
## F) Cotton



Source: Cotton Outlook

The collapse in oil prices at the beginning of the COVID-19 pandemic with international trade stalling signalled the possibility for further price collapses across commodity groups and threatened a commodities price crisis. As it transpired, prices have been rising since the second half of 2020 owing to supply chain disruptions and increasing demand as restrictions in Western countries began to lift and global trade bouncing back; see Figure 2. Price rises have escalated since the beginning of 2022 with the war in Ukraine owing to disruptions in planting, the need to reroute exports from Ukraine and sanctions on Russian exports.

**Figure 2: Quarterly Merchandise Export Volume Index**



Note: seasonally adjusted, 2005Q1 = 100

Source: WTO Stats

Price increases have not endured for all commodities. Cotton prices were at their lowest in June 2022 since September 2021 reflecting a fall in demand for apparels. Cost of living crises and interest rate rises across Europe and the US have reduced the purchasing power of their populations and hence demand for apparel has declined. Over the longer term, it is expected that China's slow demand recovery with ongoing restrictions in response to recurrent COVID-19 outbreaks, will place downward pressure on commodity prices.

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. The World Bank's Commodity Markets Outlook, for example, provides comprehensive information on how prices are impacted by evolving supply and demand positions and the role and extent of reserve stocks to ameliorate price fluctuations. In the remainder of this section, physical and financial drivers of commodity price movements will be outlined.

## **2.1 Understanding Physical Drivers of Commodity Price Behaviour**

Traditionally, commodity price behaviour has been understood as the outcome of intertemporal price formation on speculative physical commodity markets. Speculation here has referred to speculation on physical markets related to strategies of stockholding (Ghosh et al. 1987). At the heart of this approach is the definition of primary commodities as goods which simultaneously exhibit three defining features. Firstly, commodities are assumed to be readily storable. Secondly, commodities have a high degree of homogeneity, and thirdly, related to this, commodity markets exhibit high degrees of competition. Such a definition distinguishes primary commodities from industrial goods, which are characterised by high degrees of product differentiation, high opportunity costs of storage and oligopolistic market structures.

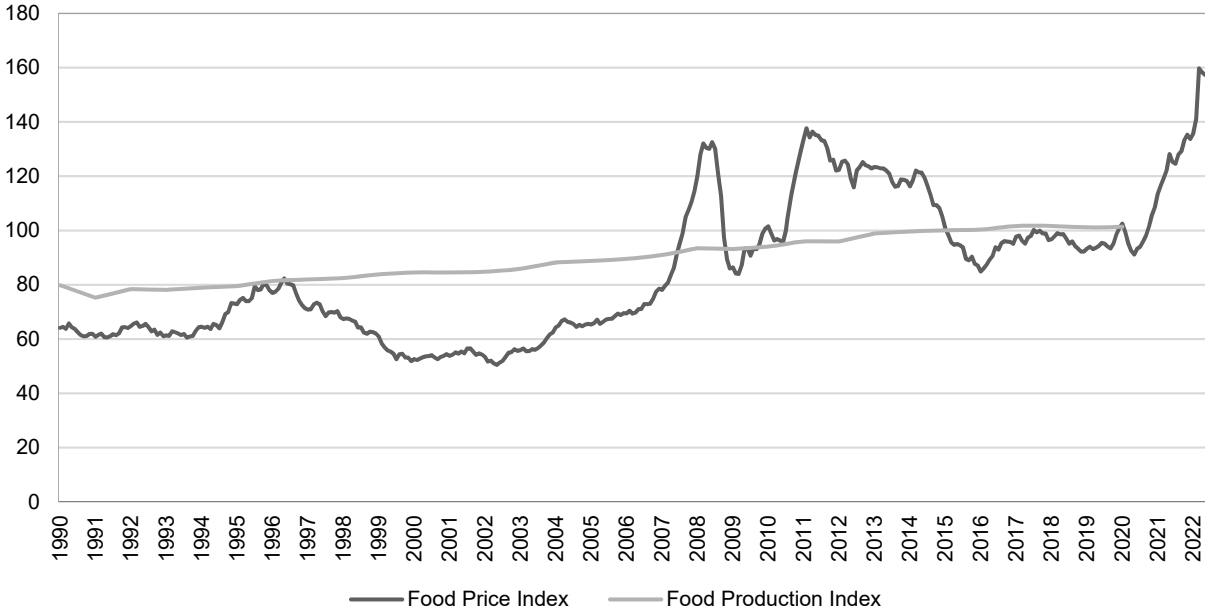
The theory focuses on the intertemporal relationships between quantity, and consequently, price. As well as the relationships between market demand (for consumption) and supply, stock may be demanded for transactions, precautionary or speculative purposes. Taken together, these relationships define an intertemporal stock equilibrium. Movements in stockholding imply movements in prices. Prices are, however, ultimately determined through the mechanisms of supply and demand. Market structure is understood as the relationship between the forces of supply and demand. On these basic tenets econometric models of commodity markets are generally constructed to consist of a "demand block", a "supply block", together with an equation relating stocks and prices over time (Akiyama/Duncan 1982; Labys 1978).

A major criticism of supply and demand models for commodity price behaviour is the assumption of perfect competition. 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). The dominance of trading houses has resulted in commodity trading contracts being referenced to commodity derivative markets, which means price formation takes place in the financial rather than physical sphere.

The institutional reality is in stark contrast with conventional theories of price formation which assume almost exclusively that prices are formed on the physical market, that is the spot and the storage market while the futures price is derived as a reflection to the functioning of these two markets, e.g. the theory of storage ascribed to Kaldor (1939), Working (1949) and Brennan (1958), and more recently Deaton/Laroque (1992), Pindyck (2001) and Pirrong (2011).

Unsurprisingly, 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 3 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 hike of 2008 cannot be 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, e.g. see van Huellen (2019) and Section 2.2.

**Figure 3: UNFAO food price and food production indices, January 1990 to January 2022**



Source: FAOSTAT 2022

## 2.2 Understanding Financial Drivers of Commodity Price Behaviour

Primary commodities are not only traded as physical goods but also as an asset class, mainly in form of futures and options and other derivative products which are constructed from those two asset classes. Modern commodity derivative markets have their origin in the grain trade of Chicago which opened the first commodity futures exchange in 1833 (Hieronymus 1977). The purpose of these exchanges was for commodity traders, mostly large trading houses, to be able to manage their exposure to price changes between buying and selling and for speculative purposes not least to attract liquidity.

For the insurance function to work, physical prices must be linked to derivative markets. Theoretically, the link is insured through the opportunity of arbitrage, for with exchanges reserve a few warehouses which take delivery for arbitrage purposes (this rarely happens and about 98 per cent of total contracts are closed before maturity). For many agricultural and food commodities the link is also ensured through standardized contracts for physical trade, which impose the derivative price as baseline.<sup>4</sup> This institutional setup primary favours commodity trading houses which are active participants in commodity derivative markets; see also Section 3.1.

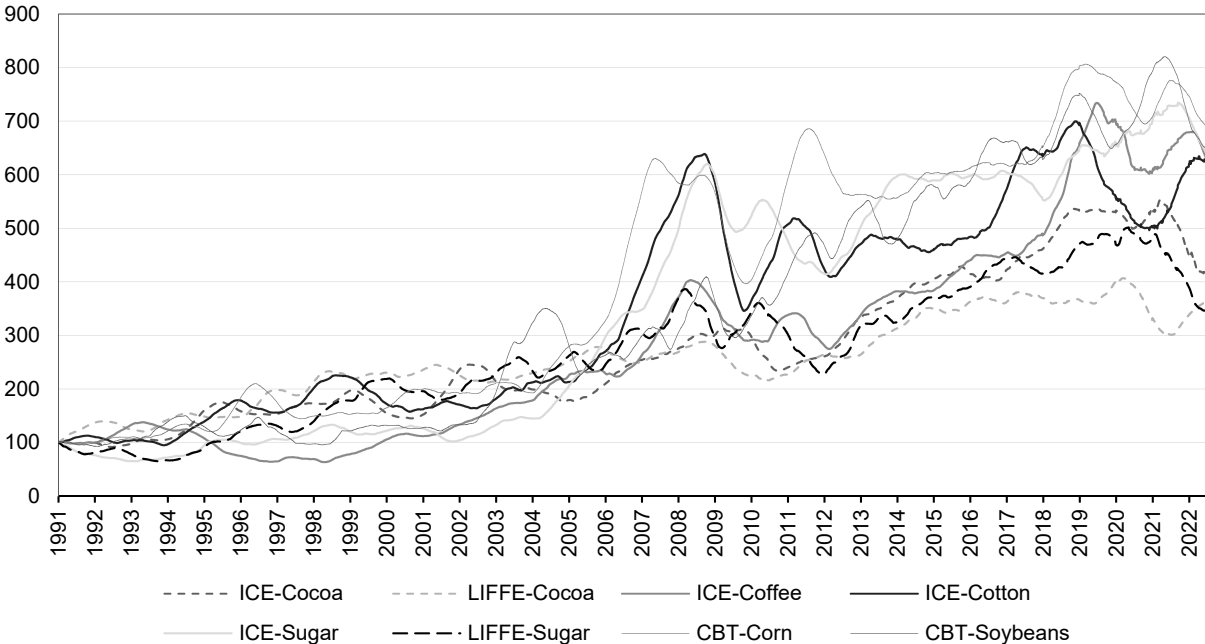
<sup>4</sup> Given the institutional structures of price formation, manifested in standardized contracts, the common empirical exercise on which market lead and lag relationships in terms of price discovery between futures and spot markets are identified is futile. Not surprisingly, the futures market is found to lead the spot market almost always.

As a financial asset, commodity price behaviour at derivative markets is akin to other financial asset classes, and price formation is driven by both fundamental traders, that is traders who take a position in the market based on expected physical demand and supply conditions as well as storage, and technical traders, that is traders who take positions in the market based on technical indicators. The latter are often referred to as positive feedback traders and, given their positioning in the market, are thought to increase price volatility. These traders are jointly referred to as speculative traders as they do not enter the market for risk management purposes.

The argument that speculative traders, i.e. any trader who is not in the market to hedge physical exposure, impact price formation in commodity derivative markets is not new (e.g. see Maizels 1987; Pindyck/Rotemberg 1990). In the 1970s, primary commodity futures markets had already seen a substantial increase in investment interest, and this phenomenon triggered a vivid debate about a causal link between price volatility and investment activity (Labys/Thomas 1975). The debate saw renewed interest in the early 2000s, when large volumes of financial traders entered commodity derivative markets after sweeping de-regulate in Europe and in particular in the USA (e.g. see Mayer 2012; Nissanke 2012a, 2012b).

Figures 4 and 5 records the annual average open interest, that is the number of contracts traded at specific commodity exchanges, between 1991 and 2022. For some markets, open interest has multiplied eightfold over the past three decades with the greatest inflow recorded post-2000.

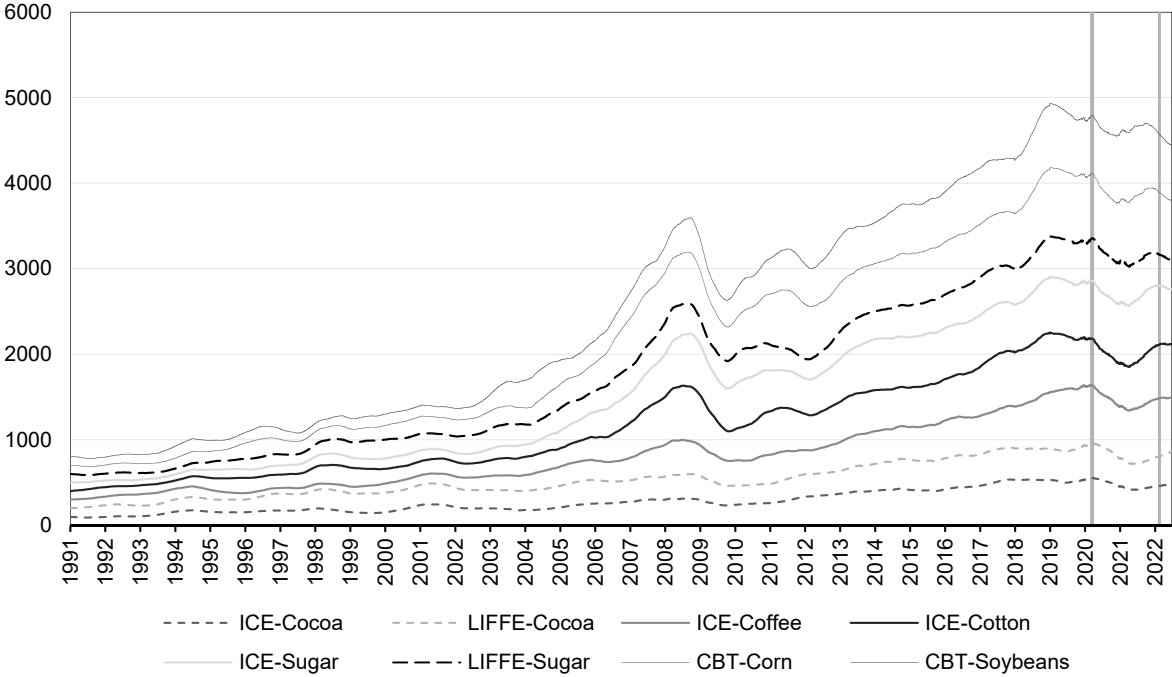
**Figure 4: Open Interest, Selected Commodities**



Note: Backward moving average, 1991 = 100

Source: Datastream

**Figure 5: Cumulative Open Interest, Selected Commodities**



Note: Backward moving average, 1991 = 100; 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.

Source: Datastream

With the increasing interest of financial investors in commodity derivatives, new investment instruments arrived, including commodity indices, which are passive instruments that provide broad based commodity price exposure to investors and have been marketed as a hedge against inflation. 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 4, 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 then falling prices again in the expectation of a global recession; see Appendix B for a breakdown of different trader categories and also Armstrong (2022)

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 Lawson et al. 2021; van Huellen 2020). Whether evidence can be found 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 (ebd.). 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.

### 3. 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 (Gibbon 2003; Maizels 1992). This view was exemplified in the models of Lewis (1954) and Kaldor (1981), 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)<sup>5</sup> 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 these 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 International Natural Rubber Agreement (INRA), all the ICAs had broken down, lapsed or had been suspended, in part, as a result of a number of technical problems arising from their implementation. An overview of the factors that led to the collapse of the ICAs can be found in Appendix A.

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 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 (Breger Bush 2012; Gibbon 2003). 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 procyclical behaviour of commodity price movements.

#### 3.1. 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 traders<sup>6</sup> control between 75 % and 90 % of the international trade in grain; 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 2022; Staritz et al. 2018; Tröster/Gunter 2022).

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 (ebd.). In between the international traders exist a range of marketing structures that range

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<sup>5</sup> 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.

<sup>6</sup> These are ADM, Bunge, Cargill and Louis Dreyfus.



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.

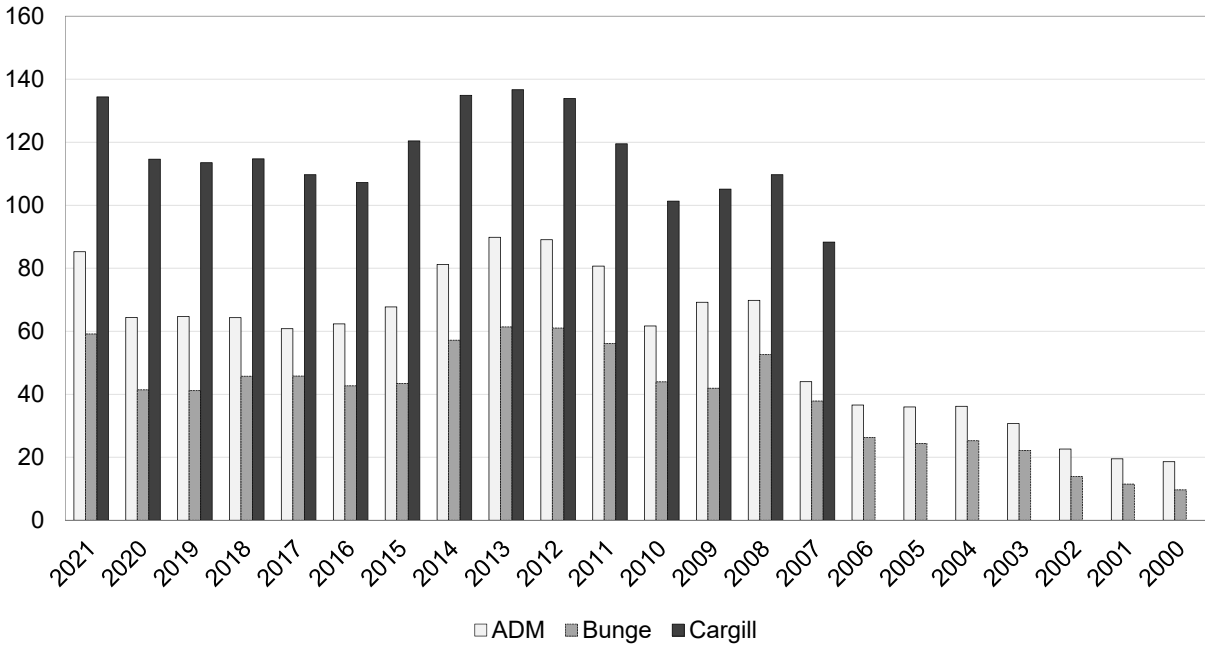
Commodity trading companies operate in the interstice between futures and physical markets. In this way, they play a critical role in the transmission of movements arising on derivatives exchanges that have been driven by both supply and demand as well as financial factors such as global liquidity cycles 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. (Bargawi/Newman 2017; Newman 2009; Salerno 2017; Staritz et al. 2018; Tröster/Gunter 2022; van Huellen/Abubakar 2021).

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 and enable short term stabilization mechanisms in these countries (Staritz et al. 2022; van Huellen/Abubakar 2021). 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 as those brought about by the war in Ukraine. Because they operate as both buyers and sellers of primary commodities, they can use volatility to their advantage. These companies saw a 10 per cent growth in market capitalisation in March and April 2022 and have reported record profits in 2021 (Baines/Hager 2022). Figure 6 shows the total revenues of the three top agro-commodity trading companies as they have increases with rising commodity prices. Agro-commodity producers, facing higher input costs, and incomplete transmission of rising prices are unlikely to experience any real benefits.

**Figure 6: Total Annual Revenues of Dominant First-Tier Suppliers (2000-2021, in Billion USD)**



Source: Eikon

**3.2. 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 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; Frenkel 2008; Ocampo et al. 2008; Prasad et al. 2005) 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 (Maizels 1994; Nissanke 1993). 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 (Deaton/Miller 1995; Geda 2003; Nissanke 2010). 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; Rodriguez 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.<sup>7</sup> 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 dynamics<sup>8</sup> 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; Laskaridis 2021; Stubbs et al. 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 pandemic 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

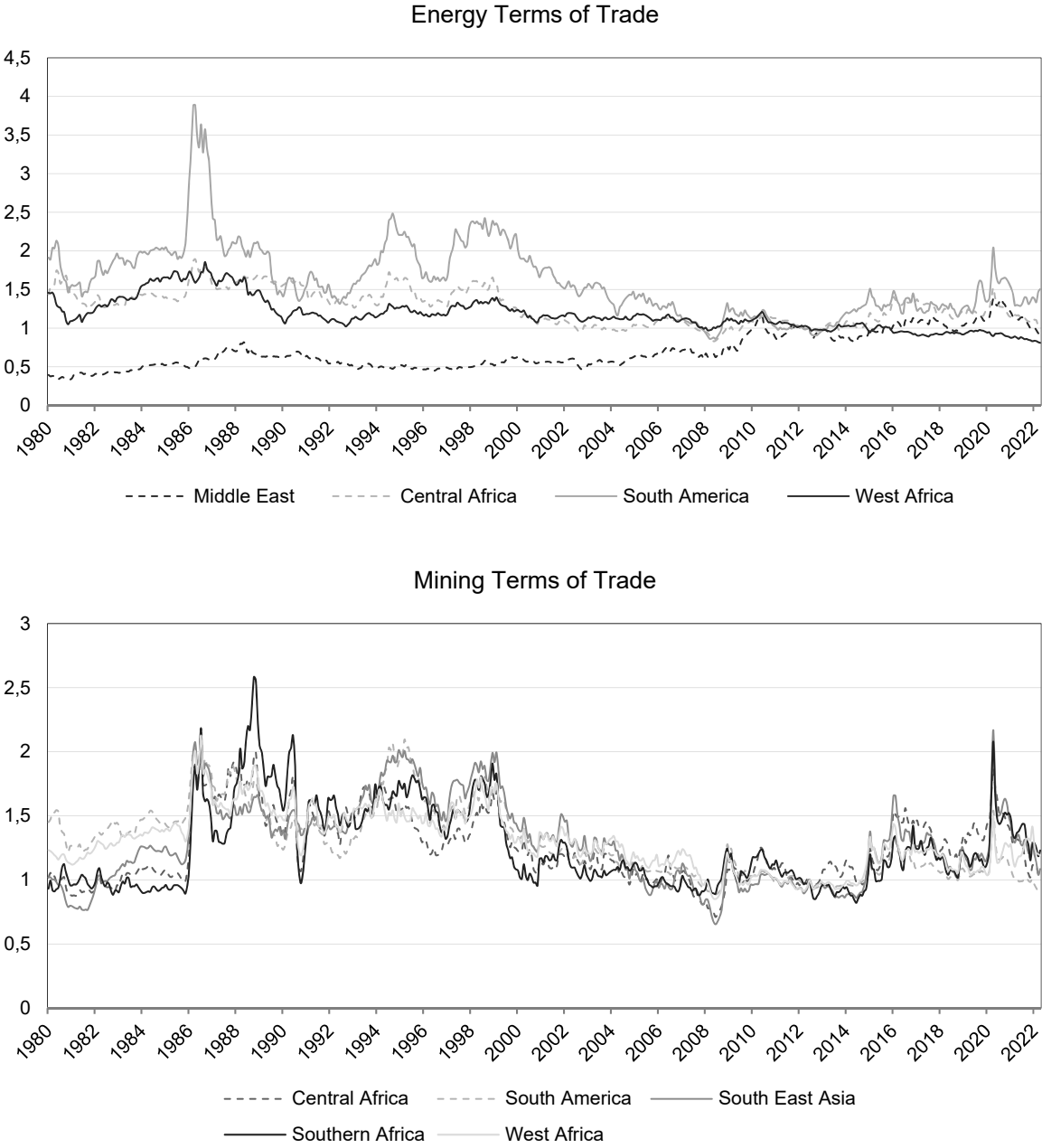
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<sup>7</sup> A growing phenomenon especially in middle-income countries (Bruno/Shin 2017; Feyen et al. 2015; Kose et al. 2017).

<sup>8</sup> 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/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.

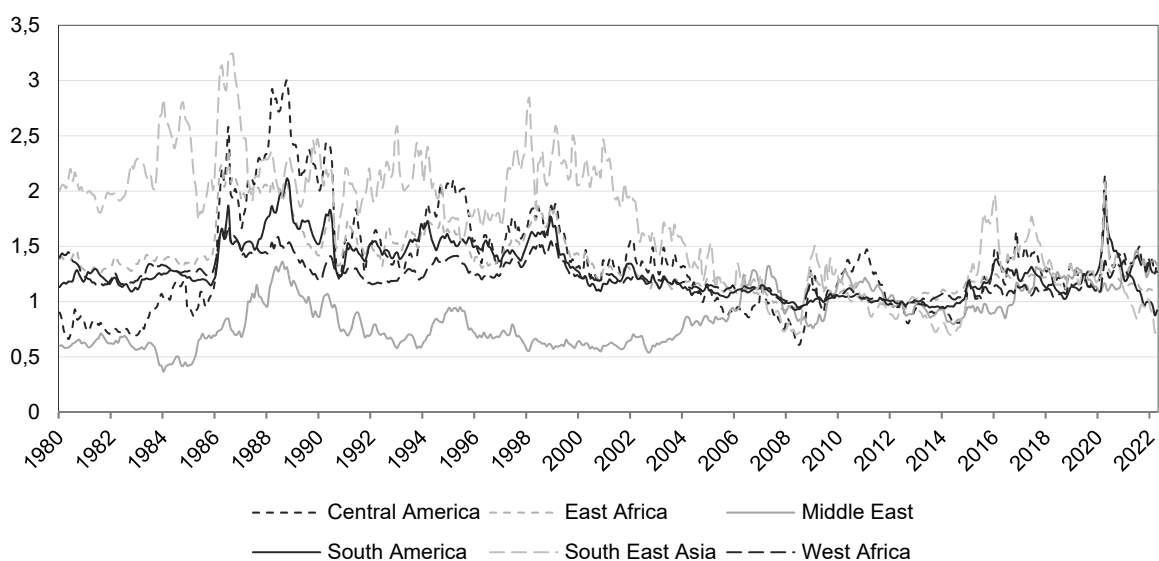
sharply; see Figure 7. Most commodity dependent economies are not beneficiaries of the current prices rise, due to the type of commodities that they rely on for export.<sup>9</sup>

**Figure 7: Commodity Terms of Trade for Commodity Dependent Economies by commodity groups**



<sup>9</sup> 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.

### Agriculture Terms of Trade

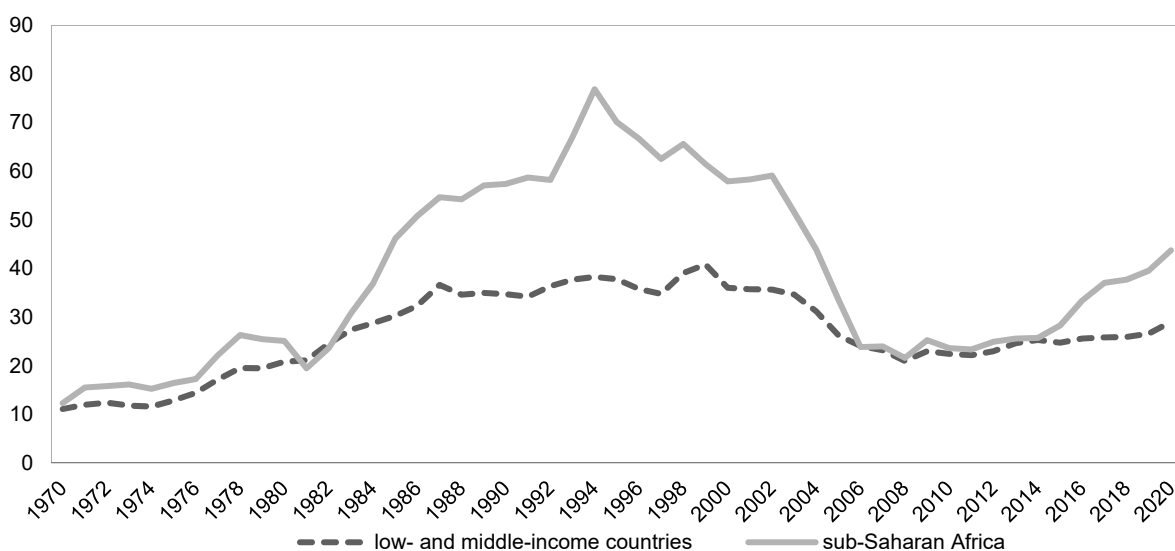


Note: Disaggregated by commodity group, averaged over region, Jan. 1980 – Apr. 2022.

Source: IMF Commodity Terms of Trade

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; see Figure 8. 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 Figure 9 and 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).

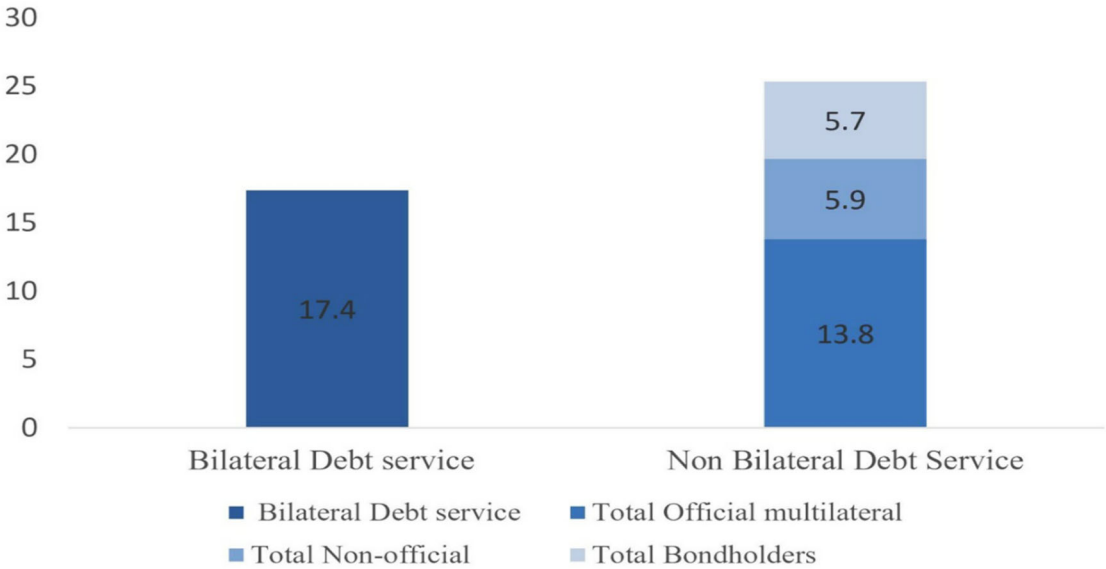
**Figure 8: External debt stock for Low- and Middle-Income Economies and Sub-Saharan Africa**



Note: As a percentage of GNI

Source: World Debt Tables 2018

**Figure 9: Debt Service Payments in 2020 by DSSI Eligible Countries, billion USD**



Source: Laskaridis (2021)

#### 4. 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 2022). Whilst such measures are essential for the longer term, there is a need for short- and medium-term measures to deal with the procyclicality of commodity prices and earnings as well as interventions to redress the power imbalances between producers and international commodity traders and enable countries to move to a path of structural transformation and diversification.

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 highlight 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 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 3, the procyclicality 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 (Stubbs et al. 2021).

As a result, countries were forced to tap into sovereign wealth funds at the worst time for liquidating assets. 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 debt relieve 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 institution 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 MTCs 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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## Appendix A: Factors behind the collapse of the ICAs

As a stabilisation instrument, buffer stocks suffer a number of technical limitations. A major difficulty in implementing and maintaining a buffer stock stabilisation scheme arises in the difficulty in choosing the price about which stabilisation should take place (Deaton/Laroque 1992; Maizels 1992). For many commodities this price may not be straightforward, in particular where there are qualitative differences, for example in different grades of coffee and cocoa, and where trade takes place in more than one major market. In sidestepping this problem, indicator prices have been employed with the intervention criterion defined in terms of an average of the prices of different grades. In the International Cocoa Agreements (ICCA) the indicator was an average of London and New York futures prices for the nearest three active trading months and buffer stock sales (purchases) were triggered if a five-day moving average of this indicator exceeded (fell beneath) the upper (lower) trigger level, and terminated when this average fell beneath (exceeded) the same indicator (Gilbert 1987). The situation is further complicated by the possibility of changes in the long-run price level about which stabilisation should take place owing to changes in the structure and cost of production and distribution or changes in consumer tastes, for example, and the need to provide for appropriate adjustment to the band-width.

The financial requirements to maintain such a scheme are clearly large in the case where stabilisation is around a price that is in excess of the long-run market clearing level. It has been argued that, even if the stabilisation range is appropriately defined, the resource requirements to maintain such a scheme are high owing to the nature of commodity price cycles (Gilbert 1996). Theoretical models of commodity price cycles suggest that prices exhibit long flat bottoms punctuated by occasional sharp peaks implying that stocks have to be held for long periods in order to deal with low prices (Deaton/Laroque 1992). In addition, buffer stock stabilisation would be ineffective during price peaks that arise from stockouts. Lack of finance was a problem in the maintenance of the ICAs and was a major cause of the collapse of the International Tin Agreement (ITA).

The other main policy instrument of the ICAs was that of export control. Export controls constitute a method of supply management with the aim of achieving balance between supply and demand. Depending upon the characteristics of the commodity, supply can be controlled through national stockpiling of excess production, or by disposal of excess production. In the cases of the International Coffee Agreements (ICoA) and the International Sugar Agreements (ISA), the introduction and suspension of export controls were triggered by changes in the indicator price. In the same way as for the buffer stock stabilisation schemes, the choice of price range within which no interaction is required is problematic. Gilbert (1987) outlines four general problems with historically determined quotas. First of all, the predetermined allocation of export quotas across producing countries tends to freeze the distribution of production. Second, the quota schemes failed to allow for planned growth in exports so that countries with rapidly expanding production have a disincentive to membership. Third, export quota systems provide the incentive for rent-seeking activities, and/or illegal or quasi-legal evasion. Finally, they may encourage countries to over-export in non-control periods in order to establish larger quota entitlements.

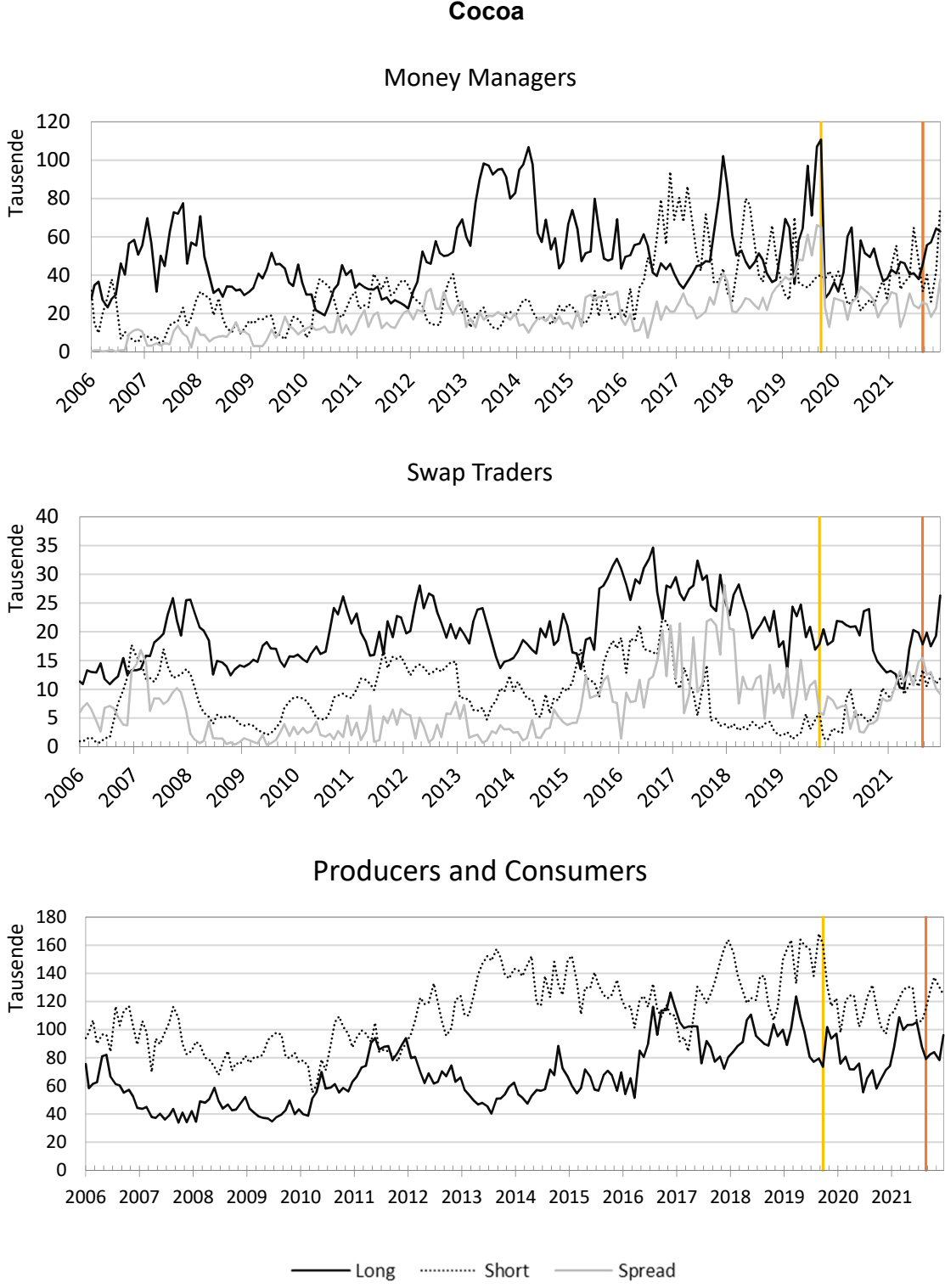
Disincentives faced by individual producing countries to take part in the International Sugar Agreements contributed to their breakdown in 1983. With both the United States and EU domestic sugar markets heavily protected<sup>3</sup>, the free market in sugar is largely residual and controls under the ISA has little potential to impact upon prices. By contrast, export controls under the ICoA were more successful owing to the separation of producing (mainly LDC) economies, and consuming (mainly advanced industrial) countries that resulted in coffee exports accounting for the vast majority of world trade.

The eventual lapse of the ICoAs was the result of contributing pressures originating from consumer and producer countries. On the consumer side, there has been a shift in consumer tastes away from low grade robustas (grown in Vietnam, Brazil, Indonesia, and parts of sub-Saharan Africa towards Arabica beans (produced in Columbia, Kenya, Tanzania, and Central America).<sup>4</sup> Arabica coffees had historically received a higher premium under the ICoA. At the same time, the ICoAs permitted unlimited exports to non-member consuming countries at free market prices, which irritated consuming member countries. Changing consumer tastes, and the patterns of coffee demand, also resulted in a distribution of benefits, under the quota system, between producer countries that deviated considerably from the free market outcome. The producers of arabica coffee (mostly from Central America) perceived the existing ICoAs as acting primarily for the benefit of Brazil<sup>5</sup> and other robusta producers and consequently were not prepared to agree to a fifth ICoA unless the quota allocation were reallocated in their favour (Gilbert 1996). It should be noted that the suspension of the ICoAs had not been due to any failures in price stabilisation. In fact, helped by frost in Brazil in 1981, the quota scheme under the ICoA generally managed to achieve stable prices within an implicit ICoA range during periods of operation (Gilbert 1996).

## **Appendix B: Commodity Futures Market Trader Position Data**

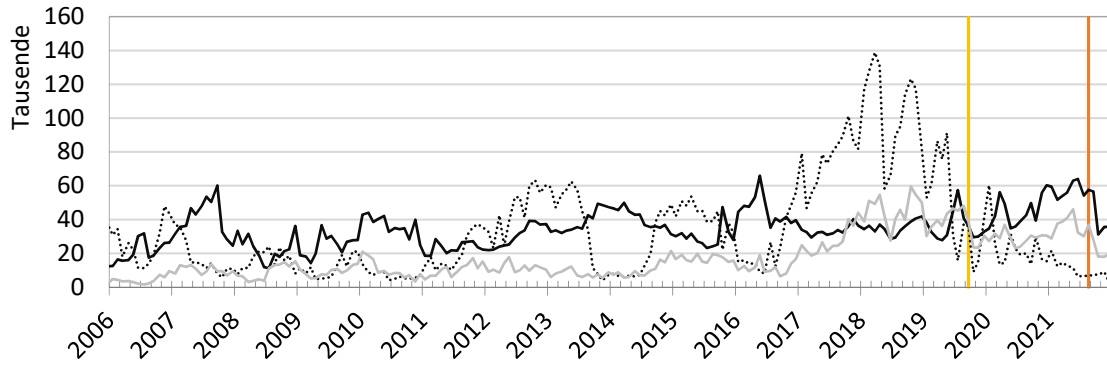
Position data for US-based commodity derivative markets allows for disaggregation of position data by trader type: money managers or hedge funds as speculators, producers and users as hedgers (mainly large commodity trading houses), and swap traders as index traders. Speculators were predominantly bidding on falling prices before the COVID-19 pandemic, as evident from large short positions. With the emergence of the COVID-19 pandemic in March 2020, they initially withdrew from these markets completely before seeking exposure again and betting on risking commodity prices. The data in the following figures is CFTC position data, obtained via Datastream.

**Figure B: Open Interest Data by Trade Categories for Selected Commodities**

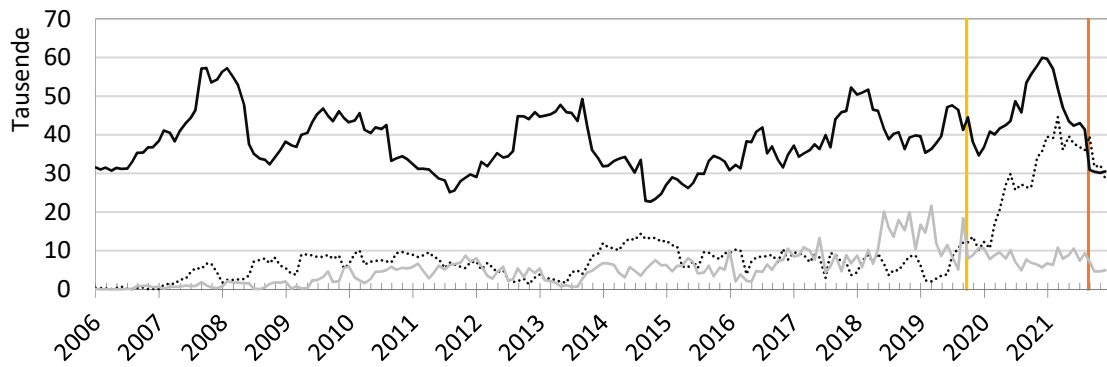


## Coffee

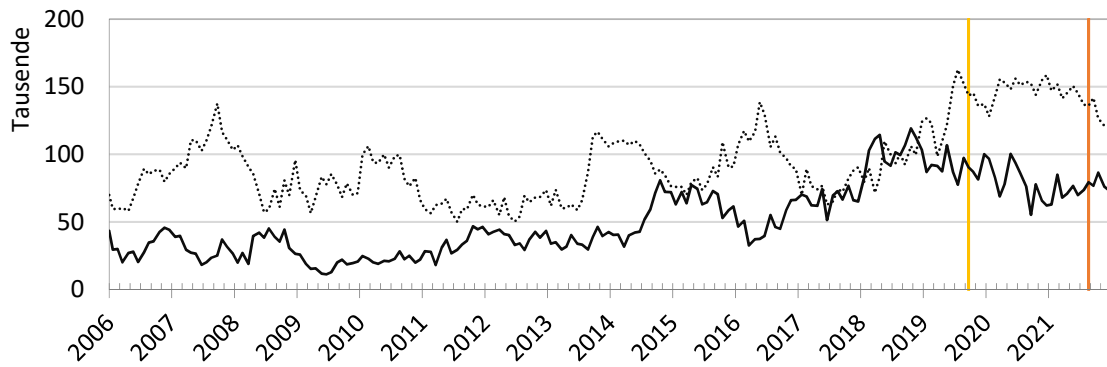
### Money Managers



### Swap Traders



### Producers and Consumers

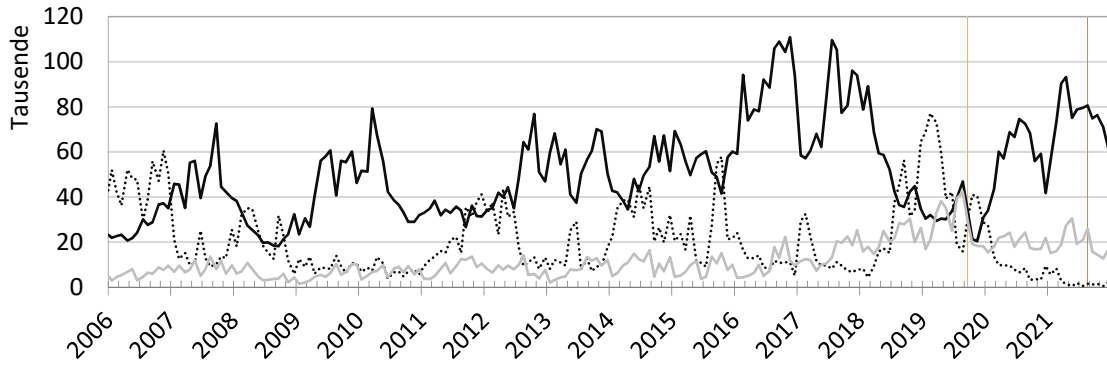


— Long    ..... Short    — Spread

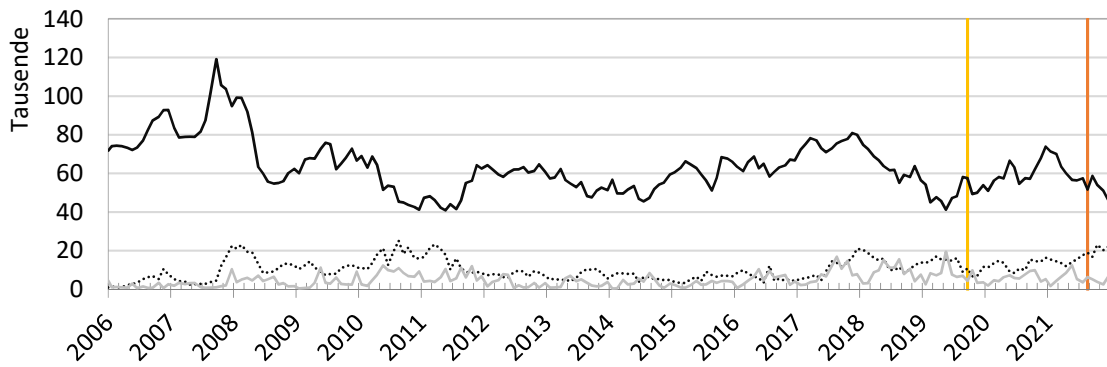


# Cotton

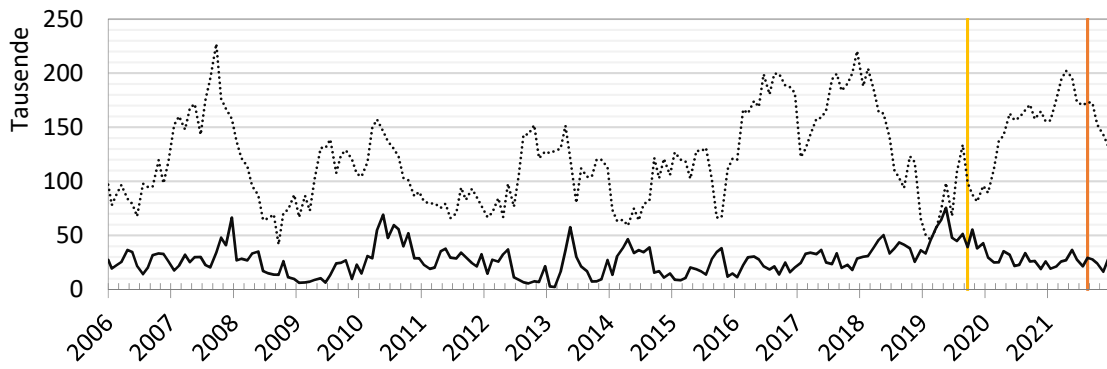
## Money Mangers



## Swap Traders



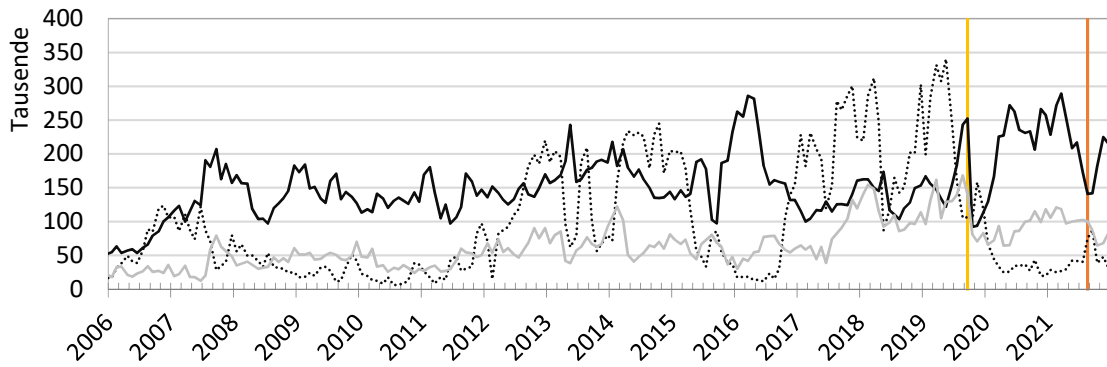
## Producers and Consumers



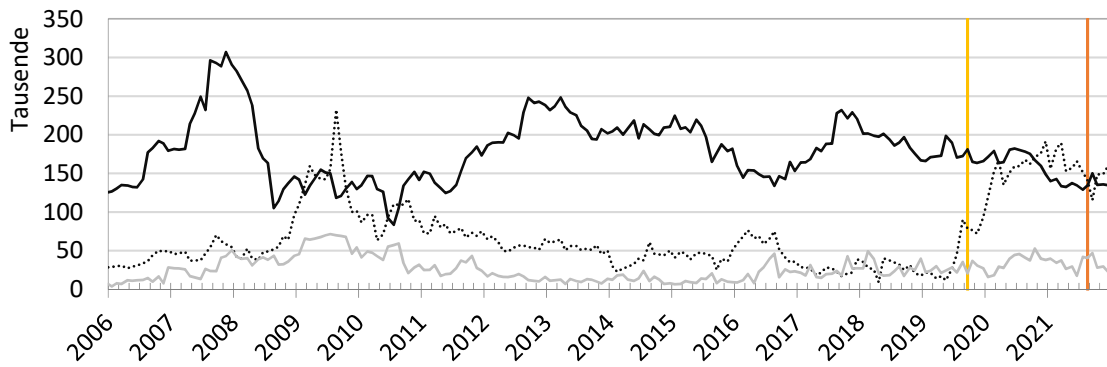
— Long    ..... Short    — Spread

# Sugar

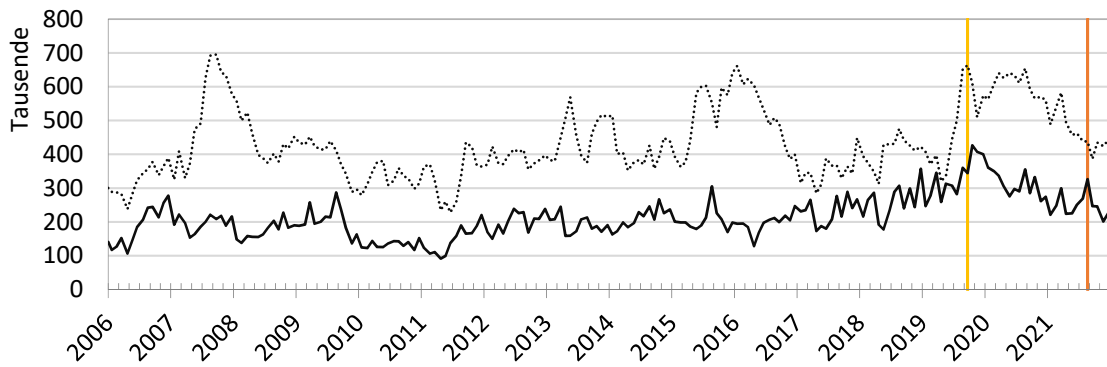
## Money Managers



## Swap Traders



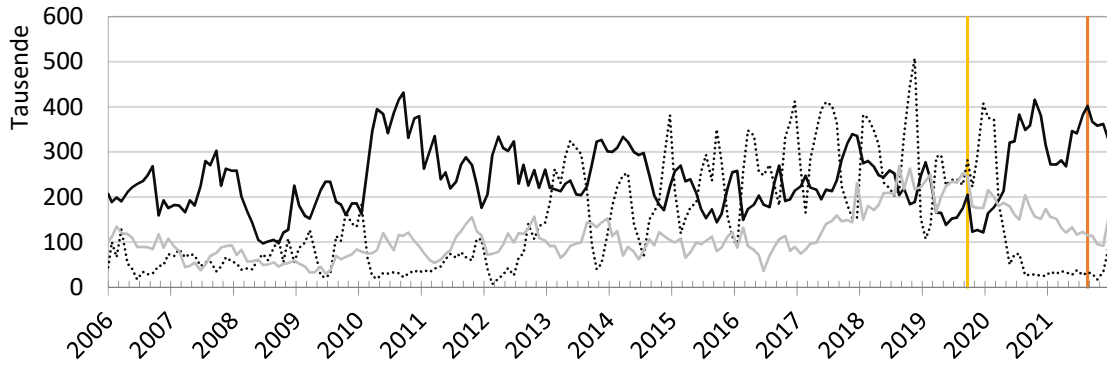
## Producers and Consumers



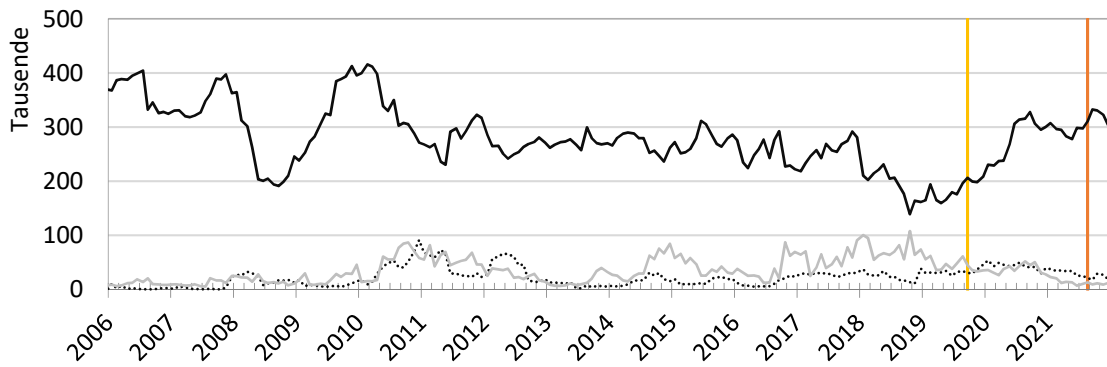
— Long    ..... Short    — Spread

# Maize

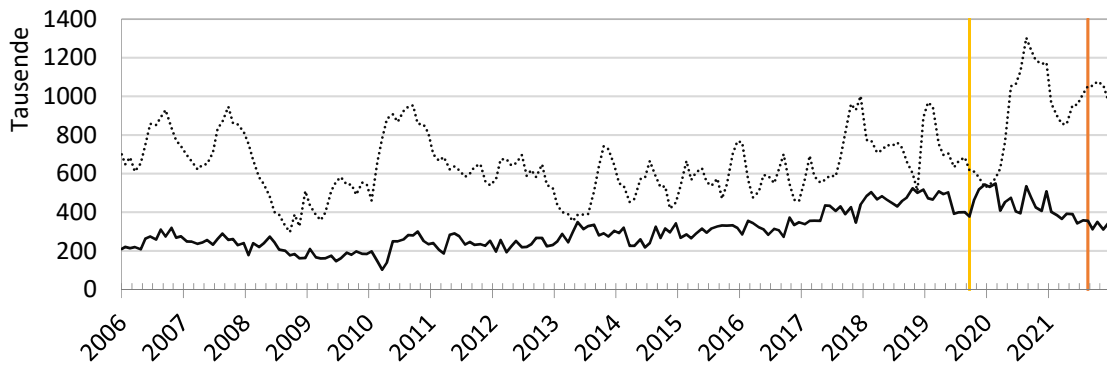
## Money Managers



## Swap Traders



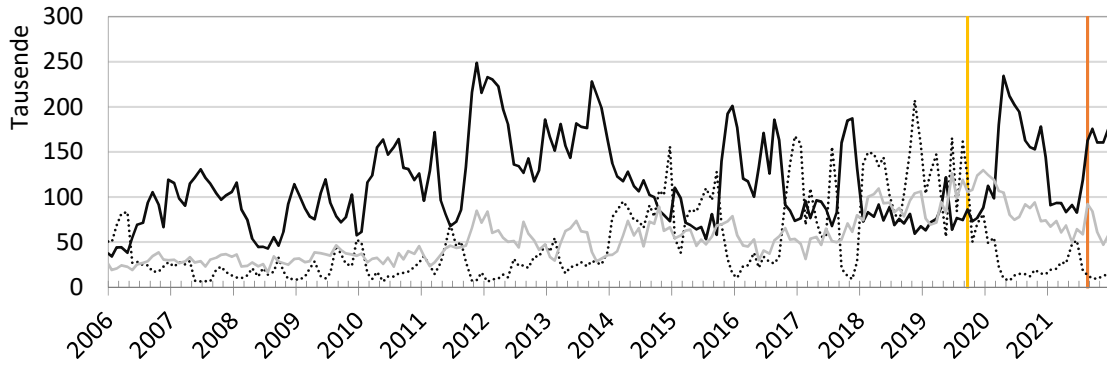
## Producers and Consumers



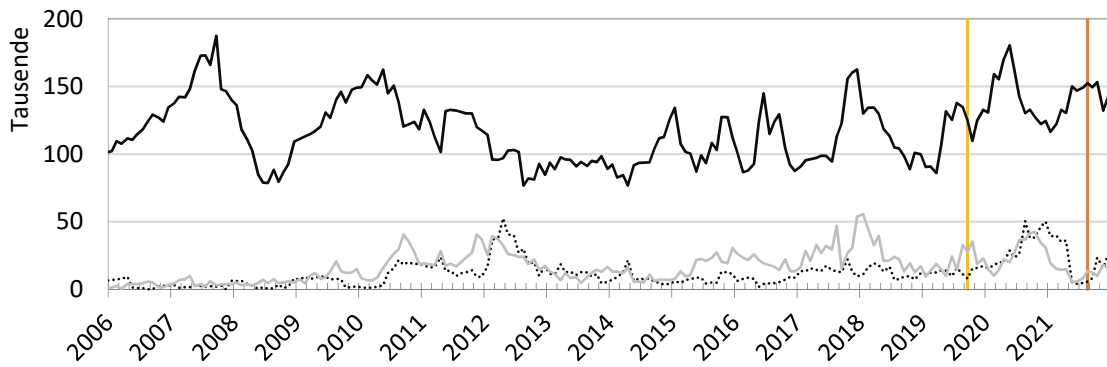
— Long    ..... Short    — Spread

# Soybeans

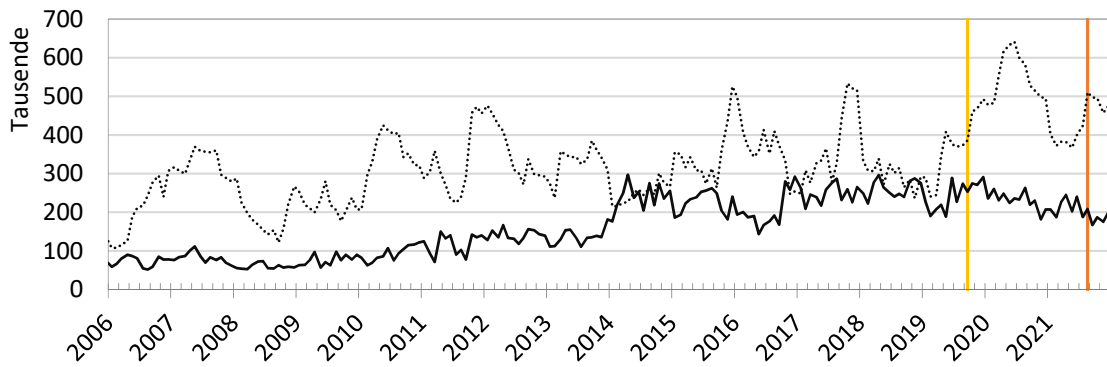
## Money Managers



## Swap Traders



## Producers and Consumers



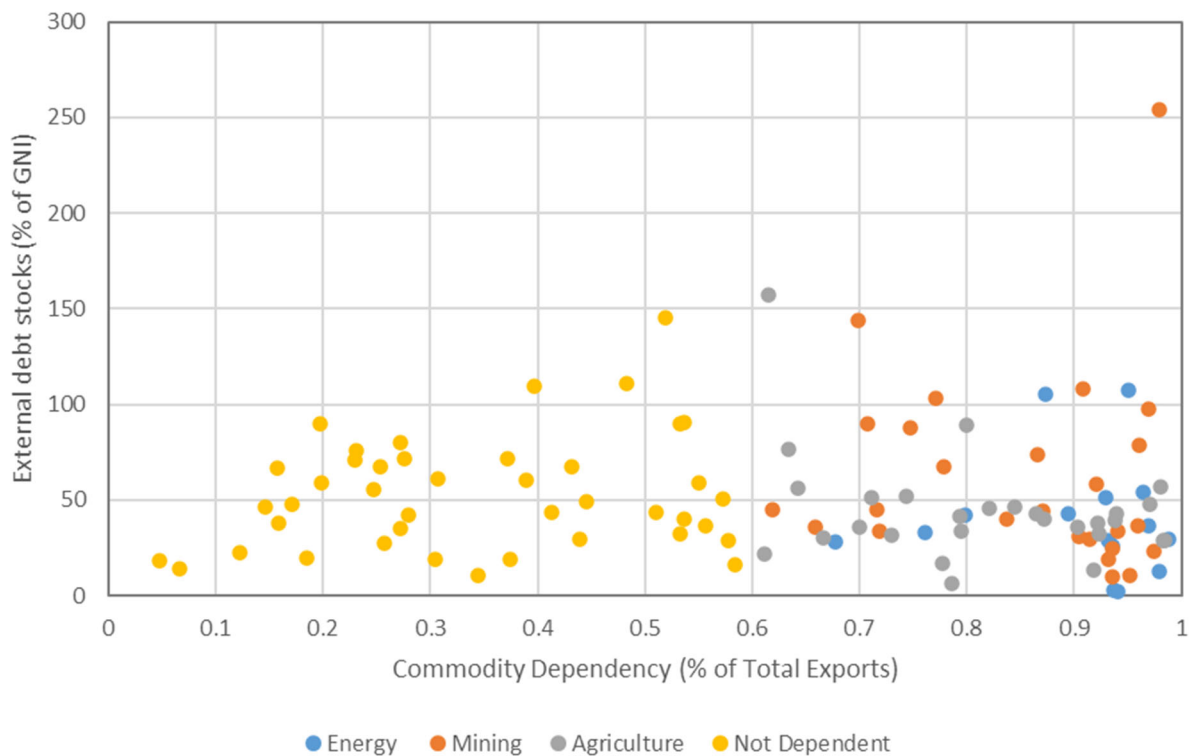
— Long    ..... Short    — Spread

Source: Datastream

## Appendix C: Additional Figures

Figure C.1. plots commodity dependency against external debt stock as a percentage of GNI in 2018-19 for low- and middle-income economies in 2018-19. Many economies at that time were already heavily indebted and their debt burden has risen further over the Covid-19 crisis. While there is a clear positive relationship between the degree of commodity dependence and indebtedness for economies of moderate dependence, this relationship breaks down for economies that rely almost exclusively on commodities for export earnings. A scatter plot masks important heterogeneities here.

**Figure C: Commodity Dependency and External Debt Stock (Low- and Middle-Income Economies by Commodity Group, 2018-19).**



Source: UNCTAD and WB International Debt Statistics.