62 WORKING PAPER

Commodity dependence, global commodity chains, price volatility and financialisation: Price-setting and stabilisation in the cocoa sectors in Côte d'Ivoire and Ghana

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List of Abbreviations

CAISTAB	Caisse de stabilization
CCC	Conseil du Café-Cacao
CFA	Franc de la Communauté Financière d'Afrique
CIF	Cost, Insurance and Freight
CIV	Côte d'Ivoire
COCOBOD	Ghana Coco Board
COT	Commitment of Traders
CMC	Cocoa Marketing Company
CTH	Commodity Trading House
EUR	Euro
FCC	Federation of Cocoa Commerce
FOB	Free on Board
GBP	British Pound Sterling
GCC	Global Commodity Chain
GDP	Gross Domestic Product
GHA	Ghana
GPN	Global Production Network
GVC	Global Value Chain
ICA	Internatioal Commodity Agreement
ICE	Intercontinental Exchange
ICCA	International Cocoa Commodity Agreement
ICCO	International Cocoa Organization
IMF	International Monetary Fund
PPRC	Producer Price Review Committee
PTBF	Price To Be Fixed
QCC	Quality Control Company
SAP	Structural Adjustment Programm
SSA	Sub Saharan Africa
USD	United States Dollar

Abstract

Commodity price volatility remains a crucial development challenge of commodity-dependent countries of the Global South. Drawing on structural development economics' concerns with commodity price volatility and stabilisation, this article calls for the integration of price-setting into the analysis of governance in global commodity chains (GCCs). It argues that price-setting power and related uneven exposure to price instability and risks adds to other power dimensions in producing unequal distributional outcomes in GCCs. The paper assesses national price stabilisation in the top cocoa-producing countries Côte d'Ivoire and Ghana against changing inter-firm governance and price-setting institutions in the cocoa GCC. Based on over 50 interviews with commodity trading houses (CTHs) and cocoa sector actors in Côte d'Ivoire and Ghana, our analysis shows that national-level price stabilisation mechanisms address intra-seasonal producer price volatility, but have few possibilities to shield export and producer prices from inter-seasonal price variations. This is because both countries remain 'global price takers' with global prices set on financialized derivatives markets and transmitted along the GCC by CTHs, which limits possibilities for 'domestic price making'. This leaves the major burden of price risks between seasons with smallholder producers that have the least possibilities to deal with these risks.

Keywords: Global Commodity Chains, Cocoa, Commodity Trading Houses, Price Setting, Financialisation, Côte d'Ivoire, Ghana

1. Introduction

Commodity dependence remains a crucial development challenge of many countries of the Global South, particularly in Sub-Saharan Africa (SSA), where commodity exports still constitute the primary link to the global economy. The volatility of commodity prices and the associated distributional outcomes, and macroeconomic and structural vulnerabilities are at the centre of this challenge. After reform discussions in the context of the commodity price boom and bust in the late 2000s, there seems today again limited political will to address commodity price volatility in the form of price stabilisation mechanisms at an international level (Küblböck/Staritz 2014; Nissanke/Kuleshov 2012; Tröster 2018). In this context, it is highly relevant to understand the possibilities of commodity producer countries to deal with commodity price volatility through national-level policies and the limitations of such interventions in light of how actual prices are set and transmitted in global commodity chains (GCCs). This paper aims to do that by focusing on the cocoa sector, where 90% of global production comes from around five million smallholder farmers, and which is a sector of high economic importance, particularly for major producer countries in SSA (Fold/Neilson 2016).

Albeit deregulation and liberalization in many countries of the Global South, public regulation has remained rather strong in cash crop sectors in terms of legal frameworks and supportive measures, given the economic importance of these sectors and the high share of smallholder producers. Price stabilisation measures have however played a minor role since the 1980/90s as such instruments had been dismantled in the context of structural adjustment. Hence, the focus has been on dealing with the consequences of commodity price volatility and not on stabilising prices per se. However, there is variety, and particularly countries that are strongly dependent on a single cash crop tend to still have some price stabilisation in place. This is also the case for the top two global cocoa-producing countries Côte d'Ivoire and Ghana, which account for roughly 60% of global production (ICCO 2018) and are highly dependent on cocoa production and exports. Côte d'Ivoire re-regulated its system after a more liberalized period from the late 1990s to 2011/12, whereas Ghana has largely remained its regulated system (Gilbert 2009). This paper assesses the price stabilisation interventions in the cocoa sectors of Côte d'Ivoire and Ghana in the context of changing inter-firm relations and price-setting institutions in the cocoa GCC. It asks how successful these price stabilisation mechanisms are in addressing intra- and inter-seasonal producer price instability and the distribution of price risks along GCCs.

The conceptual framework of the paper draws on structural development economics, in which commodity price volatility and stabilisation are discussed as major macroeconomic and structural concerns of commodity-dependent countries (for an overview, see Ocampo 2017). However, to understand the possibilities and limitations of price stabilisation policies, it is necessary to analyse how price-setting actually takes place in terms of price-setting institutions, firms' strategies and related outcomes in specific commodity sectors that have experienced important changes in the past decades in the context of liberalisation and financialisation. Commodity prices are not set on abstract markets, but through the interactions and power relations of different actors embedded in institutions at the global and producer country level (Bargawi/Newman 2017). This can be grasped through the GCC approach that focuses on inter-firm governance and power relations, but has so far focused only to a limited extent on actual price-setting processes. We extend the GCC-approach by focusing on price-setting and transmission along the chain and stressing the importance of the price-setting power of commodity trading houses (CTHs) that has linked more closely futures prices on derivatives markets and producer prices on the ground (Bargawi/Newman 2017; Newman 2009; Staritz et al. 2018).

Our analysis of price stabilisation policies in the cocoa sectors in Côte d'Ivoire and Ghana shows that even in the context of the two major suppliers of cocoa beans, national-level price stabilisation faces severe limitations in terms of effectiveness and resilience related to global price-setting practices and volatility. Price stabilisation mechanisms in both countries can address intra-seasonal producer price volatility as the institutional set-ups allow selling forward the majority of cocoa beans to international buyers at fixed prices ahead of the season. But they only have limited options to shield export and producer prices from inter-seasonal variations. Further, sudden price drops challenge the resilience of both systems, which leaves the major burden of inter-seasonal price risks and sudden price adjustments with smallholder producers that have the least possibilities to deal with these risks. The stronger role of the parastatal in Ghana in physical cocoa marketing provides, however, some more policy space to shield producers and government revenues from cocoa price variations compared to the Ivorian system. Given the price-setting power of CTHs, export prices (before and during the season) are negotiated as differentials based on futures prices, leaving exporters as 'global price takers' and limiting 'domestic price making' in terms of setting and stabilizing producer prices.

Methodologically, the paper is based on trade, industry and financial data as well as interviews with CTHs and actors on commodity exchanges engaged in cocoa trading and with cocoa sector actors in Côte d'Ivoire and Ghana between 2017 and 2019. Nine CTHs were interviewed in their European headquarters or their affiliates in Côte d'Ivoire and Ghana as well as five financial brokers and service providers and three international sector associations in their European headquarters. In Côte d'Ivoire and Ghana, 58 interviews were conducted, including interviews with the two sector parastatals and associated organisations (six interviews), farmer associations and farmer-based organizations (five interviews), local operating traders, grinders, and chocolate manufacturers and their associations (16 interviews), and sector experts and representatives from other national and international governmental and civil society organizations (31 interviews).

The next section develops the conceptual framework of this article linking the development economics' concern with commodity price instability with the GCC approach. The focus is on conceptualising price-setting in the context of GCCs as a process determined by inter-firm relations and institutions at the global and producer country level. Section three discusses key developments in global commodity sectors, focusing on the global cocoa sector, related to changes in price-setting institutions, the strategies of CTHs, and financialisation dynamics. Section four and five describe the institutions in the cocoa sectors in Côte d'Ivoire and Ghana related to price stabilisation and assess their effectiveness and distributional outcomes in terms of price risks. The last section concludes on what this means for the case of the top global cocoa producers and beyond in dealing with commodity price volatility in the context of financialized GCCs.

2. Commodity dependence, price volatility and global commodity chains

The relation between commodity dependence and economic development has been the subject of heated debates in development economics, particularly in structural development economics. In these debates, commodity price dynamics feature as a – or arguably the – key mechanism to explain the negative impacts of commodity dependence on economic development. The Prebisch-Singer thesis (Prebisch 1950; Singer 1950) can be seen as a starting point for this negative view, focusing on the relative price levels of commodities vis-à-vis manufactured goods and stipulating a secular decline of real terms of trade for commodity

exporters that creates a persistent disadvantage in trade with industrialized countries. But also commodity price volatility per se has been identified as a major concern. A first strand of the literature focuses on price fluctuations and related pro-cyclical patterns of income, investment, consumption and fiscal spending as well as amplified international lending which causes macroeconomic instability. A second literature strand focuses on “dutch disease” effects and more generally on the negative effects of commodity dependence on the development of manufacturing sectors through spending-induced exchange rate appreciation but also ”pull effects” on labour and material inputs that increase production costs in non-commodity sectors (for an overview, see Humphreys et al. 2007; Ocampo 2017).

The development economics literature has identified these adverse development effects particularly in countries that depend on “point resources” such as oil and minerals. However, countries which mainly export agricultural cash crops (“diffuse resources”) have also faced these challenges, either because they are grown as plantation crops, which has similarities to point resources, or because the state has an important role in controlling and taxing the sector (Isham et al. 2005). Policies to deal with commodity price volatility have therefore been of crucial importance for such countries’ macroeconomic stability and economic development, but also for the livelihoods of smallholders that are most strongly affected by volatile prices. And there still exist national price stabilisation systems in several cash crop-dependent countries, which is, for SSA, most notably in cotton sectors in West Africa (Gibbon/Ponte 2005; Staritz et al. 2018) and the two top global cocoa producers Côte d'Ivoire and Ghana.[1]

Assessing the possibilities and limitations of such commodity price stabilisation policies requires looking at actual price-setting and transmission in specific commodity sectors. The development economics literature has largely focused on macroeconomic and structural implications of commodity price dynamics, which has been to the expense of assessing specific commodity sector dynamics in terms of price-setting institutions and actors’ strategies and related outcomes at the commodity sector level. The exposure to price volatility and the possibilities to deal with related risks differ severely among different actors in commodity sectors, leading to important distributional implications at the global and national level. Smallholder producers typically have limited possibilities to deal with price risks, even though price fluctuations directly and severely affect their livelihoods. Price variations also impact on the ability and willingness of smallholders to invest in long-run productivity and quality improvements, which affects total sector output and quality and accelerates pro-cyclical dynamics (for cocoa, see e.g. Anim-Kwapong/Frimpong 2004; Purcell 2018).

Commodity prices are not set on abstract markets as the aggregate outcome of individual supply and demand interactions, but through interactions and power relations of different actors – producers, exporters, international buyers, etc. – embedded in institutions at the global and producer country level (Bargawi/Newman 2017; Beckert 2011). Hence, price-setting is a political process with prices being the outcome of struggles between actors, and powerful actors are able to impose their ‘method of valuation’ and hence of price-setting on others, affecting the distribution of value and risks (Çalışkan 2010; see also Kaufman 2007). The formation of a so called ”world price” through a global price realization process – or a process of ”making prices visible” as Çalışkan (2010) calls it – and how this subsequently effects prices for different actors in commodity sectors is essential in these struggles. In the past decades, important institutional and regulatory shifts at the global and national level enabled the setting of world prices based on commodity derivatives markets, which act as global price benchmarks in physical commodity transactions. CTHs have the leading role in linking these futures prices to physical transactions on the ground, given their price-setting power and widespread use of derivatives for risk hedging and financial accumulation.

[1] In Côte d'Ivoire, the institutional framework to stabilize cocoa prices also regulates the coffee sector.

However, this transmission takes place to different extents as their remains variation in producer country market structures and price regulations, constituting another key institutional aspect of price-setting along GCCs (Newman 2009; Purcell 2018; Staritz et al. 2018).

Such a sector perspective on inter-firm governance and underlying firm strategies as well as on institutions, in which such relations are embedded, is provided by the GCC and related literatures.[2] The GCC approach focuses on analysing the organization and governance of global production and trade in specific sectors, particularly through the role of lead firms and sector-specific institutions, and how this affects the development prospects of producers (e.g. Gereffi 1995; Gereffi et al. 2001; Gibbon/Ponte 2005; Kaplinsky/Morris 2001). Even though this literature has initially focused on manufacturing sectors, these approaches have been applied to a wide variety of commodity sectors, including cocoa (Fold 2002; Fold/Neilson 2016; Gibbon 2001; Neilson et al. 2018). In this literature, the study of finance more generally and, in the context of commodities, the role of commodity prices, their determination on derivatives markets and related price risks play nevertheless an underdeveloped role in determining chain governance and related outcomes (Bargawi/Newman 2017; Clapp 2014; Purcell 2018; Staritz et al. 2018).

There is however an increasing literature that links GCC to financialisation, and particularly scholars working on global production networks have incorporated issues of financialisation into their conceptual frameworks (Coe et al. 2014; for economic geography generally see Pike/Pollard 2010; Yeung/Coe 2015). Research linking agriculture GCCs with finance and financialisation has grown in the context of the global financial and food price crises of 2007/08, with the latter being linked to the increase in commodity derivatives market activities purely driven by financial motives, which has been labelled as ”financialisation of commodity markets” (on agro-food GCCs, see also Burch/Lawrence 2013; Clapp 2014; Fuchs et al. 2013; Isakson 2014; Nissanke 2011; Ouma 2016; UNCTAD 2011).[3] Research on cash crops remains however still limited with studies focusing on coffee (Bargawi/Newman 2017; Newman 2009; Tröster 2015), cotton (Çalışkan 2010; Staritz et al. 2018) and cocoa (Purcell 2018; van Huellen 2015).

This article contributes to this literature by extending the GCC approach with a focus on price-setting and transmission along the chain and particularly stressing the price-setting power of CTHs as a crucial dimension of governance and power relations in GCCs. It hence assesses the changing price-setting institutions at the global (derivatives markets in connection with financialisation processes) and producer country level (national market structures) as well as the trading and price-setting strategies of CTHs as the key ‘price setters’ in commodity sectors. This is the basis for assessing the possibilities and limitations of national price stabilisation in the two top cocoa producer countries, where we stress the interrelations of the selling and buying side of price-setting and the limitations of stabilising domestic prices in the context of global price-setting power and practices.[4] Hence, in our analysis, we start with the price-setting process as a key aspect of governance and trace it throughout the GCC, taking into account inter-firm relations and institutions that shape how prices are set and transmitted. This follows what Bargawi and Newman (2017: 170) propose with following the price chain. Assessing these price-setting processes and outcomes in terms of the effects of price stabilisation

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2 The GCC, global value chain (GVC) and global production network (GPN) approaches derive from different disciplines, but still share many similarities in stressing the role of inter-firm governance and power in understanding distributional outcomes in the context of globalized production. We acknowledge differences, but still refer to these approaches jointly (for an overview of the different approaches, see Bair 2005; Hess 2009).

3 There are different definitions of financialization but the one by Epstein (2005, 3) is broadly used who defines financialization as “the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of domestic and international economies”.

4 This relates to an older debate on the role of marketing boards as ‘price takers’ in the world market and as ‘price makers’ in the domestic market where some authors criticised the limited link of these two sides (see e.g. van der Laan 1986).

policies and related distribution of price risks along GCCs adds a crucial dimension to understanding governance and distributional outcomes in GCCs.

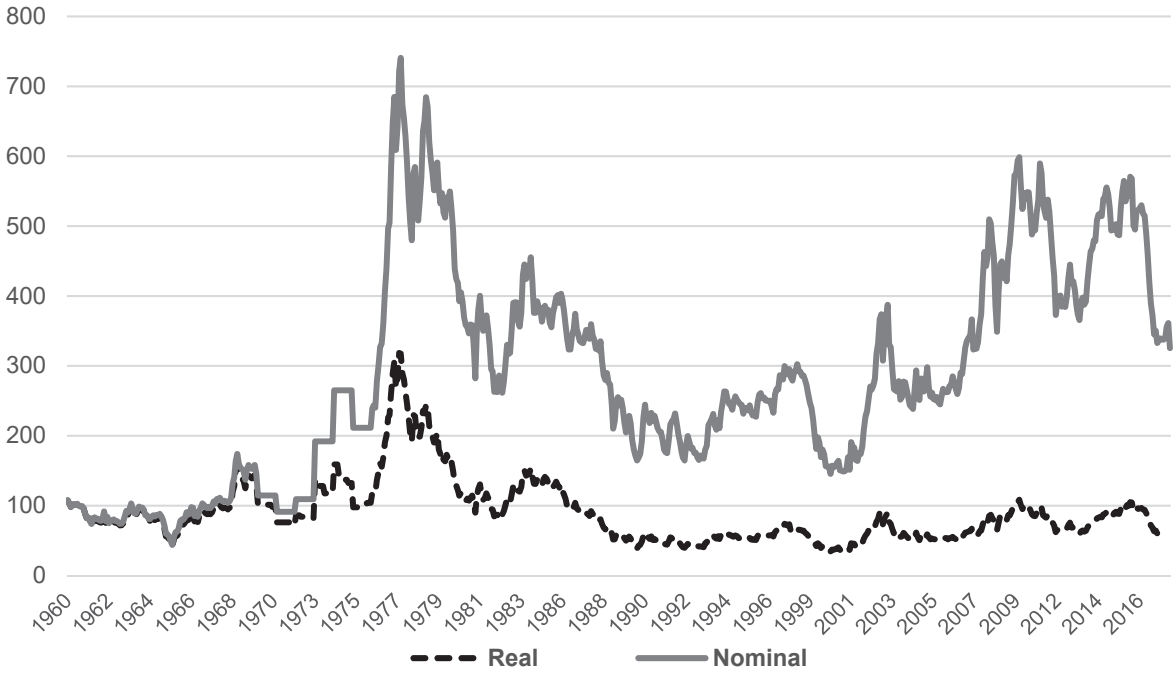
3. Price-setting in global commodity sectors: the case of cocoa

3.1. Institutional changes

Commodity-dependent countries have engaged in various measures at the international and national level to control commodity prices and manage the impact of price volatility. While policies for extractive commodities (energy and minerals) have largely focused on national stabilisation measures such as fiscal rules or sovereign wealth funds, policies for agriculture commodities relied on an integrated system of international coordination via international commodity agreements (ICAs) and nation sector regulations. ICAs had an important role in the post-war period in stabilising producer countries' export earnings through buffers stocks and export quotas. National interventions have focused on direct price stabilisation through administered prices to detach the incomes of national actors, particularly smallholder producers, from world price volatility. Price stabilisation mechanisms commonly involved state-owned marketing boards or similar institutions as a single channel for input provision and exporting and national stabilization funds (Akiyama et al. 2001). These interventions were largely dismantled in the 1980s/90s as dysfunctional and financially unstable instruments in the context of a broader shift to market-oriented policies and structural adjustment (Gilbert 2009). Even though the share of export prices paid to farmers generally increased after liberalization, these reforms established a link between domestic and global prices with smallholders increasingly exposed to global price volatility of cash crops as well as of inputs and foods (Nissanke 2011). But liberalisation at the national level has taken place to different extents with variety remaining in market structures and price-setting by commodity sector and country.

Cocoa producing countries also experienced liberalization and deregulation in the 1980s/90s. At the international level, the International Cocoa Commodity Agreements (ICCA) was initiated in 1972 to manage world cocoa prices, and was put into effect by the International Cocoa Organization (ICCO), composed of cocoa producing and consuming member countries. The influence on stabilising export earnings was however limited due to internal conflicts, lack of financial resources and the initial non-participation of the USA and Côte d'Ivoire, with the latter becoming the top producer country during the 1980s (Gilbert 1996; Varangis and Schreiber 2001). Hence, when cocoa production doubled in Côte d'Ivoire, the ICCA could not stop the related drop in global prices (Figure 1). The ICCA was effectively dismantled in 1993 as price regulation was abandoned from the following agreements, with the ICCO serving as a discussion forum and provider of industry data rather than an effective regulator (Gilbert 1996; Fold/Neilson 2016).

Figure 1: Real and nominal cocoa prices (index)



Note: ICCO Prices deflated with UNCTAD's unit value index of manufactured goods exports by developed economies, Monthly average 1960=100.
Source: World Bank, UNCTAD

At the producer-country side, different regulatory frameworks, rooted in the colonial era, played an essential role in internal and external marketing of cocoa and price stabilisation up to the late 1980s. In West Africa, Ghana and Nigeria used marketing boards as direct interventions in physical trade, while Côte d'Ivoire and Cameroon operated price stabilisation funds in a so-called "caisse system" that left the physical handling to private actors (Gilbert 2009). Cocoa marketing systems and price stabilisation mechanisms suffered from inefficiencies and financial constraints and were largely abolished or reformed during structural adjustment programs (SAPs) (Varangis/Schreiber 2001). While Cameroon and Nigeria liberalized their systems in the 1980s and 1990s, Côte d'Ivoire and Ghana held on to their institutions initially, but Côte d'Ivoire eventually liberalized in the mid-to-late 1990s. Akiyama et al. (2001) note that the possibility to maintain sector institutions was ironically related to the malfunctioning of the ICCA. In contrast to the coffee sector, where the end of global price stabilisation led to a significant fall in prices, making national price stabilisation impossible, the major cocoa producing countries could hold on to their price-setting policies because global prices increased after the effective dismantling of the ICCA.

3.2. Lead firm strategies and price-setting

These liberalization processes opened the door for restructuring formerly separate governance structures along GCCs and for consolidation at the lead firm level. While producer countries established state-controlled regulations related to the ICAs, governance structures in consumer countries in the Global North were increasingly dominated by transnational companies such as coffee roasters and chocolate manufactures, that became lead firms in these sectors and increasingly focused on branding and marketing (Daviron/Ponte 2005; Fold 2002). The business model of these firms were enabled by the services of CTHs, which acted as intermediaries, buying unprocessed commodities from marketing boards or exporters in

producer countries and selling to companies for processing (Daviron/Ponte 2005). With the end of the ICAs and the reduced state's involvement in producer countries, governance structures in consumer countries expanded to cover the entire GCC. CTHs have taken an essential role in this process, as they had to secure the supply of raw materials, which was formally ensured by large public export entities in producer countries.

The cocoa GCC has been described as having a 'bi-polar' governance structure, with lead firms in the grinding and manufacturing segments (Fold 2002). At the chocolate manufacturers level, the *big 6* (Mars, Mondelez, Nestlé, Ferrero, Hershey and Lindt&Sprüngli) dominate with a market share of 65% in cocoa consumption (Neilson et al. 2018). The consolidation in the grinding sector involved the integration of cocoa sourcing and trading with the processing of semi-finished cocoa products and industrial chocolate, leading to the disappearance of the previous 'functional role' of specialist traders (Fold/Neilson 2016). This consolidation was driven by the exit of chocolate manufacturers from the less profitable grinding segment and the need to create economies of scale and scope to supply growing chocolate manufacturers as well as large traders' better access to capital and risk management (Fold 2002; UNCTAD 2008). Today, this segment is dominated by four "grinder-traders" which account for roughly 75% of the world's cocoa processing and trading – Barry Callebaut, Cargill, Olam and Ecom Agroindustrial (Fountain/Huetz-Adams 2018), and have accumulated financial, purchasing and processing power (Fold/Neilson 2016).

These lead firm dynamics in GCCs have important implications for actors in producer countries. Firstly, CTHs engaged in the sourcing and exporting of cash crops in producer countries, often via subsidiaries. In the case of the cocoa sector, grinder-traders also increasingly engaged in "origin grinding" due to supply insecurities after national deregulation, reduced transportation costs and producer country investment incentives (Araujo Bonjean/Brun 2016; Fold 2002; Grumiller 2018). Secondly, CTHs defined price-setting for commodity exports, which determines the transmission of global prices to producer country actors. Given CTHs' intermediary role and their focus on transforming commodities in space (logistics), in time (storage), and in form (processing) (Pirrong 2014: 4), CTHs are exposed to important price risks. Therefore, CTHs have traditionally used financial derivatives (futures and options) for hedging. In the context of changing governance structures in GCCs, CTHs have increased their price-setting power to link physical prices to derivatives markets to optimize their risk management. Therefore, the *world price* of particularly cash crops has become closely represented by the price of futures contracts. This has also been accompanied by the replacement of "fixed-price-forward" by "spot price" and "price-to-be-fixed" (PTBF) contracts as the dominant contractual arrangement between CTHs and exporters.[5] For CTHs, PTBF contracts are best but all three contract types can be integrated with their price risk management, as long as the reference price is based on futures prices. However, for exporters this contractual shift has linked price-risks more closely to short-term price movements on derivative markets.

Global prices of cocoa beans are set on the cocoa futures markets in London and New York, which are both operated by the Intercontinental Exchange (ICE). ICE-London futures represent delivery in Northern Europe and serve as a benchmark for West African cocoa, while ICE-New York futures represent delivery to the US East Coast and are used as a reference price for cocoa from Latin America and Asia. The centrality of futures prices is also seen in the daily reported ICCO "world cocoa price" that is calculated from the average of the quotations for the nearest three trading delivery dates on both futures markets. The link

[5] In fixed-price-forward (or forward) contracts, price risks are mitigated by fixing the price when the contract is signed in advance of delivery and payment. Spot contracts involve immediate delivery and payment based on the prevailing futures price, confronting exporters with global price volatility. In PTBF contracts, the price is only fixed after signing the contract (but before delivery and payment) at the prevailing futures price with either sellers or buyers deciding on the time of fixing, confronting exporters with global price volatility until the price is fixed.

between futures and physical prices is further written into the standardized contracts used for cocoa bean transactions, drafted by the Federation of Cocoa Commerce (FCC) (van Huellen 2015). Hence, in physical contracts, buyers and sellers define the futures contract that serves as a reference price and negotiate the differential premium or discount depending on quality, default risk, etc. (Gilbert 2016; Araujo Bonjean/Brun 2016).[6] On the selling side, grinder-traders typically use PTBF contracts with chocolate manufacturers where semi-finished cocoa products (cocoa mass, butter and powder) are priced as a ratio to cocoa futures prices. On the buying side, the type of contract set by CTHs is influenced by the size and the negotiation power of their counterparts in producer countries. Fixed-price forward contracts are only used with actors that have low default risk in delivering the quantities for which prices are fixed in advance. Varangis and Schreiber (2001: 70) note that liberalization of the cocoa sectors in Cameroon and Nigeria eliminated forward sales and exporters have to sell spot or PTBF to grinder-traders. In contrast, Côte d'Ivoire and Ghana maintained institutions that allow for forward sales.

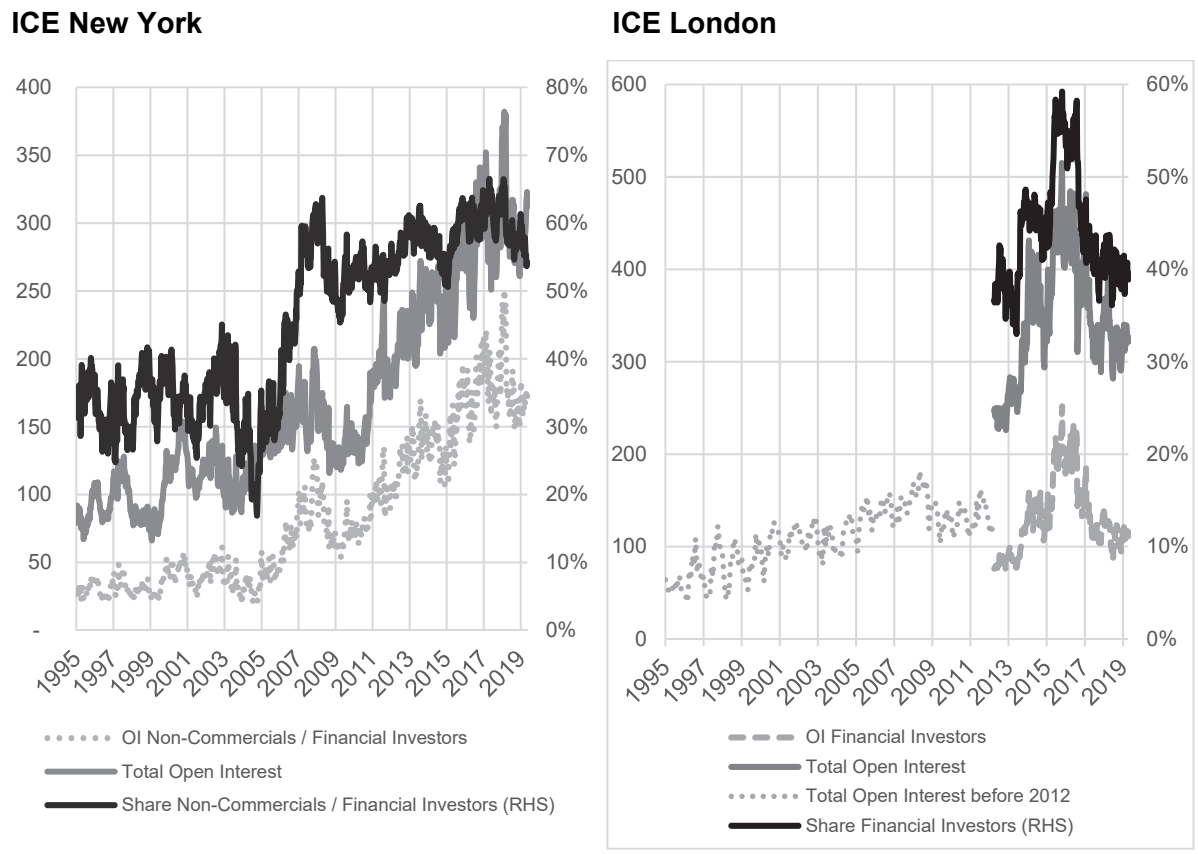
3.3. Financialization dynamics

Commodity derivatives markets were initially developed for the purpose of price risk management and price discovery for actors dealing with physical commodities (Berg 2011). However, hedge funds and institutional investors have entered these markets since the early 2000s to use commodity derivatives as an asset class similar to stocks and bonds. Investment banks have driven this trend by introducing diverse investment products, in addition to trading on their own account.[7] The changing decomposition by types of traders is also visible in the two cocoa derivatives markets in New York and London. In both markets, trading activities as indicated by open interest in futures and options have increased significantly since 1995 (Figure 2). The average weekly open interest in New York increased by a factor of four from 1995 to 2018, largely driven by non-commercial traders whose share reached up to 65%. Total open interest in London more than doubled from mid-2012 (from where data is available) to mid-2015 and the share of financial investors amounted to 60% in 2016, but declined thereafter to 45%. The total trading volume of cocoa futures at both markets is about ten times higher than the current world production (Oomes et al. 2016: 31).

[6] As contracts are in US Dollar (ICE-New York) or British Pound (ICE-London), also exchange rates to the local currency have to be considered.

[7] These shifts have been enabled by technological changes and the dominance of electronic trading platforms, de-regulation in the EU and the US (particularly through the Commodities and Futures Modernization Act) in the early 2000s and the search for new investment opportunities in the context of the dot-com crisis of 2001/02 and the global financial crisis of 2007/08.

Figure 2: Open Interest and decomposition of traders in cocoa derivatives



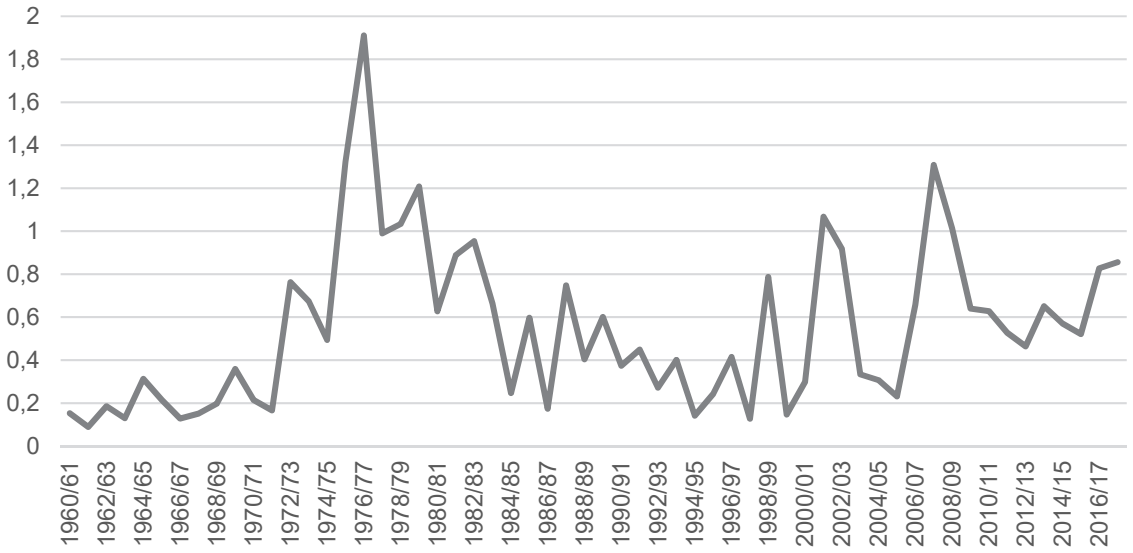
Note: Data derived from Commitment of Trader (COT) reports on futures and options; financial investors include swap dealers, managed money, other reportables and non-reportables; financial investors in New York before 2006 involve 'non-commercials' positions; COT data on ICE London futures and options is available from May 2012 onwards; Open interest of the three most nearby futures are used as a proxy for total interest from 1995 to 2012.
Source: CFTC, ICE London

These drastic shifts in derivatives markets have triggered a controversial debate about the effects of financialisation on commodity prices. The large number of empirical studies since the late 2000s come to inconclusive findings. Haase, Seiler Zimmermann, and Zimmermann (2016) review 100 empirical papers on the impact of speculation on various price-related variables and report that 36% of these studies identify an accelerating impact of speculation, 28% no and 35% a weakening impact.[8] Gilbert and Pfuderer (2014) summarize the findings of studies that specifically analyze cocoa futures prices, showing that prices experienced an explosive bubble behavior before 2007 and were influenced by commodity index positions from 2008 to 2010. They also note that partial correlations of cocoa futures with crude oil futures and equity indices returns have increased, which is associated with a stronger co-movement between "asset classes". Cocoa futures prices have always been very volatility with spikes in the 1970s and with an increasing trend since the mid-1990s (Figure 3). Van Huellen (2015, 2018) shows that heterogeneous trading strategies of financial investors in cocoa futures markets affect price behavior and therefore their price discovery and risk management functions. Particularly the strong cocoa price decline in 2016/17, in which prices fell by more than 35% from August 2016 to April 2017, can be linked to the shifts in open interest positions

[8] These diverging results are mainly attributed to the use of different commodities, time spans, empirical models and econometric approaches as well as limits related to data availability (Berg 2011).

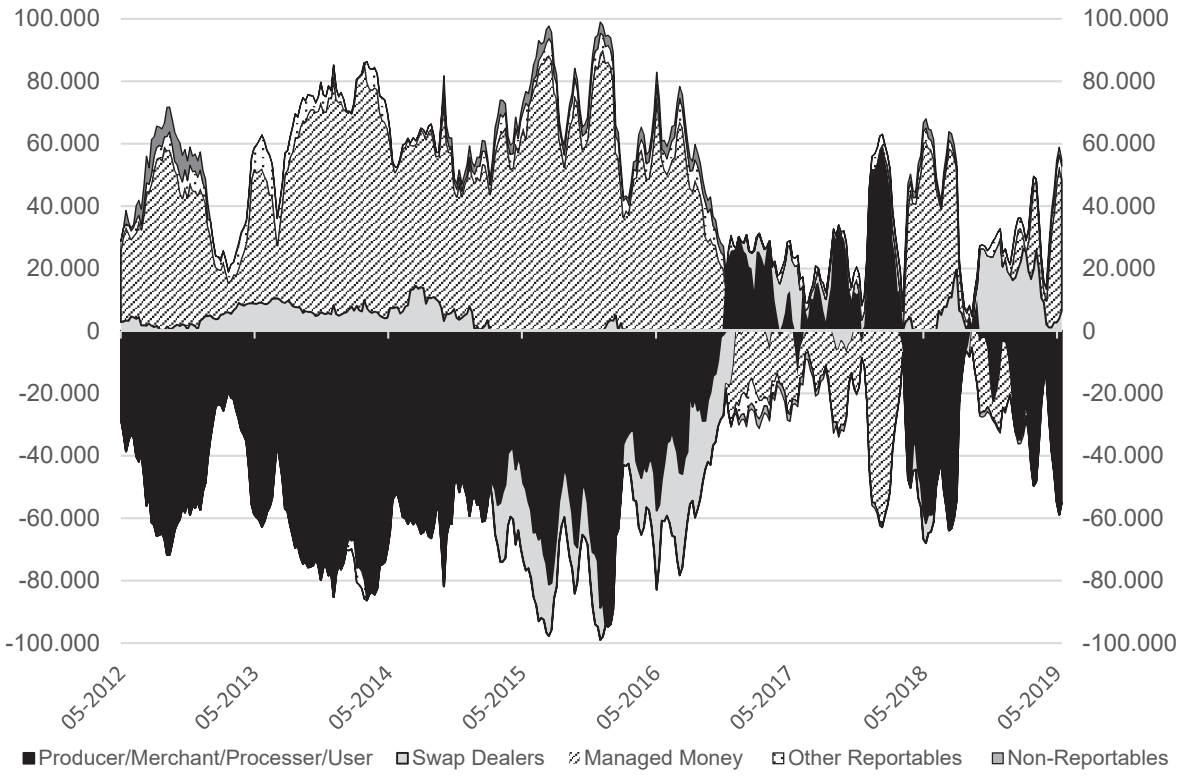
of money managers in London futures and options from long net buying to short net selling (Figure 4). Ederer, Heumesser, and Staritz (2016) show that price changes of oil, wheat, cotton and coffee are largely driven by such changes in net positions of money managers.

Figure 3: Volatility of global cocoa prices



Note: Volatility measured as annualized standard deviation of monthly changes in the log of ICCO prices; Marketing year from October to September.
Source: World Bank

Figure 4: Net positions by type of traders in London cocoa futures and options



Source: ICE

While financial investors have become dominant actors in commodity derivatives markets, the activities of commercial actors, and particularly of CTHs, has grown in tandem. Typically, a passive role is ascribed to commercial traders on derivatives markets by simply offsetting risks from physical commodity transactions. But Cheng and Xiong (2014) indicate that commercial actors trade significantly more than required by output fluctuations and forecasts, which questions the hedging/speculation dichotomy. Fishe and Smith (2019) show that the strategies of commercial traders and financial investors influence each other, which is also confirmed by interviews with CTHs and financial investors (Heumesser/Staritz 2013). Over the past decades, CTHs have re-orientated their business models, which are increasingly driven by financial motives and activities around commodity derivatives markets. Beyond risk management, derivatives trading and asset management have been identified as a lucrative site for speculative activities and financialised accumulation (Newman 2009). CTHs, including large grinder-traders such as Cargill and OLAM, have created investment vehicles and offered fund management services (Gibbon 2014; Murphy et al. 2012; Purcell 2018). However, many CTHs have closed or spun off these funds in recent years.[9]

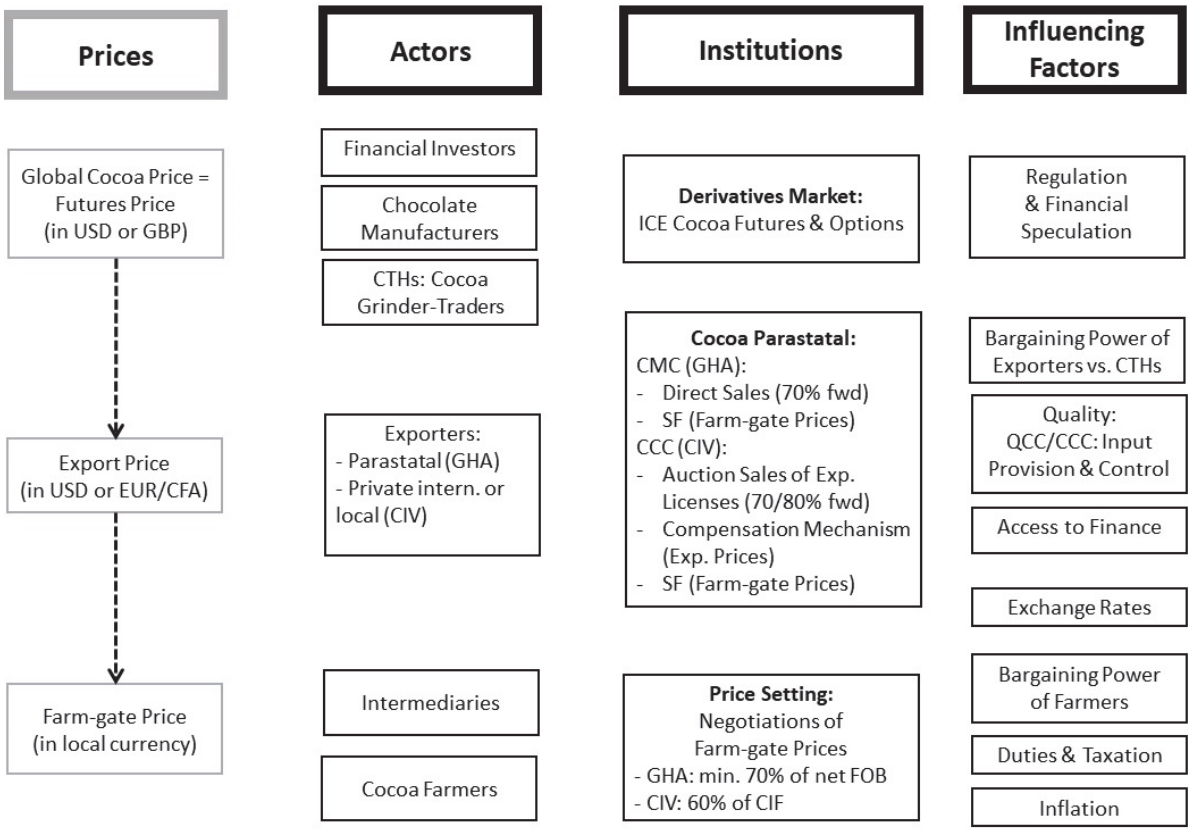
Instead, CTHs are increasingly focusing on financial services by offering hedging solutions to clients (Trafigura 2019). While this has been traditionally part of their business, grinder-traders engage now in more complex, structured and customized hedging products based on exotic options that are traded on exchanges and over-the-counter, which creates additional 'noise' in markets. CTHs also use their advantageous position in physical and financial markets to profit from and influence price dynamics. Prominent examples in the cocoa market are the attempts by Armajaro in 2002 and 2010 in taking delivery of cocoa futures and stockpiling a substantial share of global cocoa bean supply to push global cocoa prices (Purcell 2018; van Huellen 2015). CTHs can also benefit from futures price movements induced by financial speculation through arbitrage, for instance, on differentials between London and New York futures. Importantly, CTHs' opportunities for profit generation from integrated strategies in physical and financial commodity markets depend on the close connection of both market segments through physical price-setting based on futures prices.

4. Price stabilisation in the cocoa sectors in Côte d'Ivoire and Ghana

Côte d'Ivoire and Ghana are highly cocoa-dependent economies, as exemplified in the export share of cocoa products in total merchandise exports of 48% in Côte d'Ivoire and 21% in Ghana (where dependence has decreased because of gold and oil findings) in 2017 (UN Comtrade 2019). The number of smallholders in the cocoa sector is estimated to be around 800,000 in Ghana and 1.3 million in Côte d'Ivoire (Huetz-Adams et al. 2016). The sectors in both countries are strongly regulated via parastatal cocoa institutions – the *Conseil du Café-Cacao* (CCC) in Côte d'Ivoire and the *Cocoa Marketing Board* (COCOBOD) in Ghana – which run national price stabilisation mechanisms with the objective to stabilise producer prices and hence protect farmers from global cocoa price and exchange rate variations and avoid price differences between regions. The export prices of cocoa beans are largely fixed before the harvest season via forwards sales, which provides the basis for a price schedule at each stage of internal marketing and exporting (Figure 5). However, the countries have historically followed different approaches concerning the involvement of the parastatals in the physical trade of cocoa beans, with COCOBOD in Ghana being engaged in the physical handling and export of cocoa beans, while CCC in Côte d'Ivoire not.

[9] For instance, Cargill re-organized its Black Water Asset Management unit in 2015/16 (Cargill 2016) and OLAM closed it Fundamental Fund in 2018 (OLAM 2019) due to relatively small and variable earnings.

Figure 5: Cocoa price chain in Côte d'Ivoire and Ghana



Abbreviations: CCC: Conseil du Cafe-Cacao, CFA: West African CFA franc, CIV: Côte d'Ivoire, CMC: Cocoa Marketing Company, COCOBOT: Ghana Cocoa Board, CTHs: Commodity Trading Houses, EUR: Euro, GHA: Ghana, ICE: Intercontinental Exchange, QCC: Quality Control Company Limited, USD United States Dollar
Source: Authors

4.1. Ghana's price-setting regulation

COCOBOD and its predecessors have regulated the Ghanaian cocoa sector since 1947 in a marketing board system by controlling internal and external marketing, administering the national price of cocoa beans and providing various services. The SAPs did not lead to the dismantling of the regulatory system, but the objectives shifted from maximizing tax revenues to linking producer to global prices and increasing farmers' shares in export prices (Quarmine et al. 2014). This was supported by the increasing political weight of cocoa farmers in the context of democratic elections since 1992 (Kolavalli/Vigneri 2017; Whitfield et al. 2015). Key reforms included the introduction of the Producer Price Review Committee (PPRC) in 1983, which is responsible for negotiating producer prices, and the partial deregulation of the internal marketing system by introducing Licensed Buying Companies (LBCs) to procure cocoa beans from producers in 1993 (Kolavalli et al. 2012). This established an institutional mix in which the public Produce Buying Company (PBC) and around 30 private LBCs, owned by local actors and international grinder-traders (including OLAM, Armajaro/ECOM, Touton and Cargill), are engaged as local intermediaries. Even though, PBC is the leading buyer with a share of 30%, LBCs owned by grinder-trader buy approximately 30% of cocoa beans and their better access to finance allows competing via the provision of credits and inputs to farmers (Kolavalli/Vigneri 2017). However, the Cocoa Marketing Company (CMC), a subsidiary of COCOBOD, continues to operate as a monopsony in the purchase of cocoa beans from LBCs and as a monopoly in exporting beans.

CMC sells around 70% of next season's expected cocoa bean production through forward sales ahead of the harvest period starting in October. In this process, CMC negotiates quantities and premiums with international buyers relative to the underlying London cocoa futures price. Grinder-traders accept these forward sales given the importance of Ghana as a cocoa supplier, COCBOD's direct control over supply and its reputation for reliable quality[10] (van Huellen 2015). These forward sales, typically denominated in US Dollars, largely determine the export price ahead of the harvest season and serve as collateral for a syndicated offshore loan, which amounted to up to USD 2 billion. This loan provides working capital for LBCs to purchase cocoa beans and the related foreign exchange income is of great importance for the government (Kolavalli/Vigneri 2017). The loan is then payed back at the end of the main season with the foreign exchange income received from the cocoa beans exports.

The producer price for cocoa beans is fixed for one year at the beginning of the main crop season in October[11] in a negotiation process in the PPRC, including COCOBOD, farmers' representatives and the Minister of Finance. The "net FOB" concept, i.e. the projected gross FOB export price (based on forward sales, estimates for the remaining spot sales during the season and projected average USD/GHC exchange rates) less industry costs for services provided by COCOBOD, serves as the basis for negotiating income shares amongst farmers, LBCs, hauliers, and COCOBOD's subsidiaries. This pricing schedule sets minimum farm-gate prices, maximum profit margins for LBCs and other actors in the domestic supply chain, and export duties. There is an official policy consensus that farmers should receive at least 70% of the net FOB price. This "net FOB" approach replaced the earlier cost-based approach in the 1980s and 1990s that calculated producer prices based on expected costs (Quarmine et al. 2014), and links producer prices to global cocoa price variations between seasons and to spot price risks during the season. To deal with unexpected price changes for spot sales during the season, Ghana installed a stabilisation fund in 2004/05 to support the intra-seasonal fixed producer price in the situation of a shortfall of export revenues. If realized export prices should be higher than expected, COCOBOD can also pay a bonus to producers, which happened in 12 seasons since 2000/01, but made up only around 3% of producer prices (own calculation base on Kolavalli and Vigneri 2017 and COCOBOD).

4.2. Côte d'Ivoire's price-setting regulation

Before the 1990s, the Ivorian cocoa sector was regulated by the *Caisse de stabilization* (CAISTAB), which kept producer prices stable across seasons and extracted the difference between export and producer prices as government income (Benjamin/Deaton 1993; McIntyre 2001). Inter-seasonal price stabilisation had to be abandoned in 1990 due to declining global cocoa prices, and, in the context of the SAPs, the system was gradually liberalized in the 1990s, which culminated in the abolishment of CAISTAB. The overall performance of the sector in the liberalized system was disappointing, but initiatives to re-regulate the cocoa sector in the 2000s were hampered by the civil war and political instability (Gilbert 2009). In 2011/12, the Ivorian government finally established CCC as a regulatory body, which re-introduced a distribution system for export permits and a cost structure that fixes prices and margins for all domestic actors – called *barème* – in 2012/13. Similar to the former CAISTAB system, CCC is not directly involved in the physical trade of cocoa beans, which is handled by around six dozen licensed local and international exporters that source cocoa beans mostly through farm-gate (*pisteurs*) and wholesale (*traitants*) intermediaries. Grinder-traders are engaged as exporters and the top five – Cargill, Sucden, Touton, OLAM and Barry Callebaut

[10] A key focus of the Ghanaian sector regulation is quality control by COCOBOD's Quality Control Company Limited (QCC).

[11] COCOBOD may adjust prices mid-season in case of large price fluctuations, but this is rarely the case due to the stabilisation mechanism and pressure from smallholders. This happened for example in the season 2007/08 (van Huellen 2015).

– bought 80% of the export contracts in the season 2018/19 (Aboa 2019), increasingly sidelining the role of locally owned exporters.

The *barème* is – similar to Ghana – based on fixed export earnings through forward sales. Regulations require that international buyers need to buy roughly 70 to 80% of the expected crop forward, which is accepted also due to Côte d'Ivoire's importance in the world market (KPMG 2018). Exporters acquire export permits (*déblocage*) from CCC in an auction in which licensed exporters can bid twice a day. The permits allow them to export a specified quantity of cocoa beans and source them on the domestic market at harvest time. CCC sets an auction reference price based on the London cocoa futures price adjusted to the "origin differential" and the exchange rate conversion from GBP to CFA on a daily basis.[12] Depending on the auction price for the export license (*prix de déblocage*) offered by exporters, CCC may sell lower volumes as initially offered. Exporters need to validate their export permits with CCC by presenting counterparty forward contracts with buyers that lock in prices (back-to-back) and by depositing 2.5% of the export value as a collateral.

The average price for export licenses realized in the auction as well as projections on the remaining spot sales and exchange rates are the basis (*programme de ventes anticipees a la moyenne* and *prix CAF de référence*) for calculating prices for different actors and taxes in the *barème*. This is set twice a year before the main and the minor crop season in the context of a stakeholder negotiation process dominated by CCC. The agreed policy goal is to fix the minimum producer price (*prix minimum garanti producteur*) for farmers at 60% of the CIF reference price, and not below 50% in times of falling global prices. The involvement of private exporters in the Ivorian system requires a compensation mechanism as they enter into individual export contracts with different prices, but source beans at a fixed price. In this compensation mechanism, exporters receive or need to pay compensation payments (*mécanisme du reversement et soutien*), depending on whether they benefited or lost due to the differential between the *prix de déblocage* and the *prix CAF de reference.* The fixed producer price is further stabilised through a stabilisation fund in the case that spot sales during the season lead to lower than expected export earnings (KPMG 2018).

5. Effects and limitations of price stabilisation in Côte d'Ivoire and Ghana

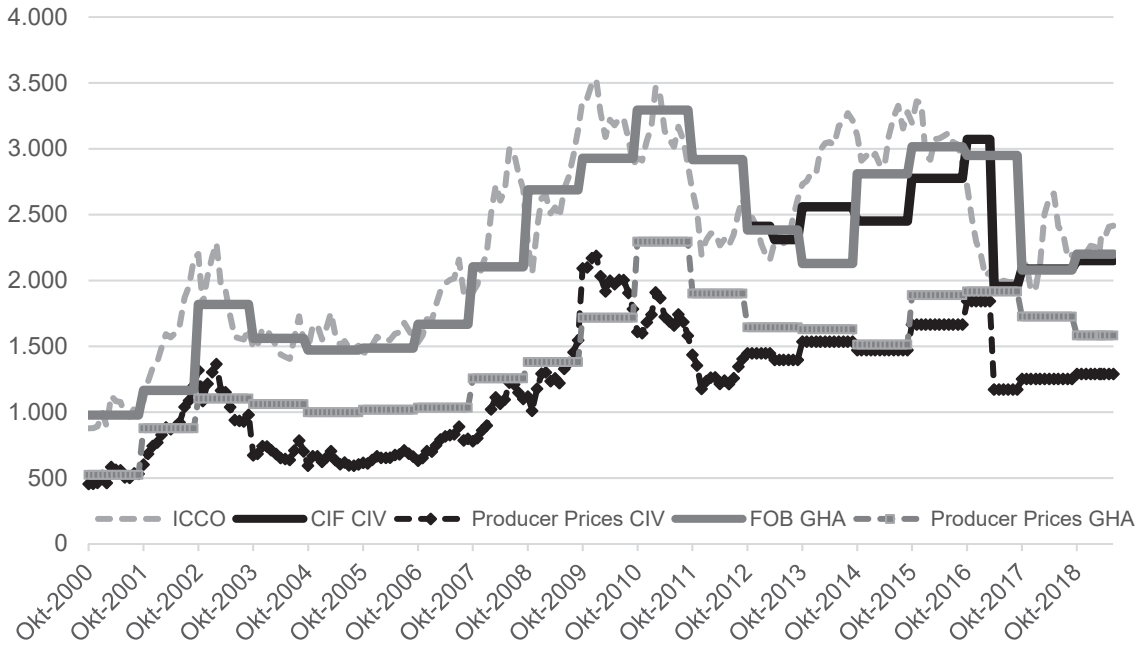
Figure 6 shows the development of global cocoa prices (ICCO prices based on futures prices), realized export prices and producer prices in Côte d'Ivoire and Ghana between 2000/01 and 2018/19 in US Dollar. Export prices in Ghana are stable within a season over the entire period. In Côte d'Ivoire, intra-seasonal price stabilisation started in 2012/13, but announced export prices were adjusted downwards in the mid-season in 2012/13 and 2016/17. Export prices in both countries fluctuate between the seasons, where they follow the development of futures prices with a lag, as forward sales are based on futures prices before the season. Even though export earnings are also affected by currency fluctuations[13], futures prices are the major factor driving export prices. Correlation coefficients between year-on-year changes of average ICE London futures prices (in British Pound) in the six months ahead of the marketing year and year-to-year changes in export prices (in USD in Ghana and EUR/CFA in Côte d'Ivoire) accounted for 0.93 between 2000/01 and 2018/19 in Ghana and for 0.88 since the re-regulation in 2012/13 in Côte d'Ivoire. Thus, inter-seasonal export price fluctuations are driven

[12] The detailed method of the reference price calculation is not shared by CCC.
[13] ICE futures in London are quoted in British Pound, while Ghana sells in US Dollars and Côte d'Ivoire in Euro.

by futures prices and their magnitude is comparable to liberalized cocoa markets, i.e. in Nigeria or Cameroon.

Forward sales beyond one season could smooth inter-seasonal export prices, but they are hardly used. The Ivorian CCC stated that they aimed to sell forward up to 24 months, but such long-term forward sales play a minor role (KPMG 2018). This is related to CTHs typically hedging their price risks with futures contracts with delivery of up to six months (van Huellen 2015) and the low liquidity in futures contracts with distant expiry dates.[14] Further, many elements of the national price regulations rely on forward sales of the near season harvest given for instance the role of forward sales in accessing loan-to-working capital facilities and in foreign reserves more generally in Ghana. Stabilisation funds in both countries could theoretically be used for inter-seasonal price smoothing, but their *raison d'etre* (including their size) relates to intra-seasonal price stabilisation, supporting fixed producer prices in situations where export revenues fall short of expectations. Both parastatals do also generally not use financial hedging instruments, given that this requires substantial expertise and financial capacities related to the large volumes of cocoa beans exported. COCOBOD experimented with option trading in recent years but related losses reaffirmed their skepticism (COCOBOD 2017). Hence, there is no systematic approach regarding inter-seasonal export price stabilisation, and the close link between futures and export prices is related to the determination of export prices derived from forward sales with ICE London futures prices as their reference.

Figure 6: Global cocoa, export and producer prices in Côte d'Ivoire and Ghana



Note: Data is in USD. For conversion, we used annual CFA exchanges rates monthly average.
Source: ICCO; World Bank; Kalavalli et al. 2014; COCOBOD; CCC

Producer prices are fixed as a share of projected export earnings, but their level is also influenced by variations in exchange rates from season to season. In Ghana, producer prices in Ghanaian Cedi are kept stable throughout the season as the projected gross FOB export price includes a conversion from US Dollar to Ghanaian Cedi. Producers are therefore isolated

[14] ICE cocoa futures contracts in New York with the three closest delivery dates captured 75% of open interest and 98% of volume on average between 1994 and 2018 (ICE 2019).

from global cocoa price and exchange rate fluctuations during the season. Yet, from season to season, producers bear risks from both, changes in futures prices and exchange rates. The depreciation of the Cedi against the US Dollar had a positive impact on producer prices, as they increased from around GHS 367 in 2000/01 to more than GHS 7,600 in 2017/18 in nominal terms (data by COCOBOD; Kolavalli et al. 2012). This strong devaluation also largely leveled out inflationary pressures, so that producer prices in real terms have trended upwards (Kolavalli/Vigneri 2017). However, adverse inter-seasonal exchange rate developments would also be at the expense of producers. Inter-seasonal price instability has however been mitigated to some degree recently by adjusting the producer price share via negotiations in the PPRC (COCOBOD 2017). Thus, the difference between export and producer prices has varied between seasons with producer prices fluctuating less than export prices, particularly since 2015/16 (Figure 6). In times of declining world market prices, higher relative producer prices were subsidized by COCOBOD through so called "cocoa bills" that COCOBOD could issue given its direct access to cocoa supply.

In Côte d'Ivoire, the institutional set-up – based on the physical exporting of cocoa beans by private actors – is more rigid when it comes to producer price-setting. Even though the link of the CFA to the Euro eliminates exchange rate risks by large and Côte d'Ivoire experiences lower inflation rates than Ghana, there are no possibilities to isolate producers from inter-seasonal futures price (and GBP/EUR exchange rate) fluctuations without a direct impact on government revenues. The participation of private actors requires that parts of the export revenues are distributed as fixed margins. The only variable left to adjust are taxes, which amount to 22% of cocoa export revenues and more than 10% of total public revenues. This high dependence limits the use of taxes as a buffer for inter-seasonal producer price stabilisation, and the only exception so far was the reduction of export duties in the mid-season 2016/17 to keep the producer price share at 60% of the CIF export price, which had no inter-seasonal stabilisation effect (Aboa 2017).

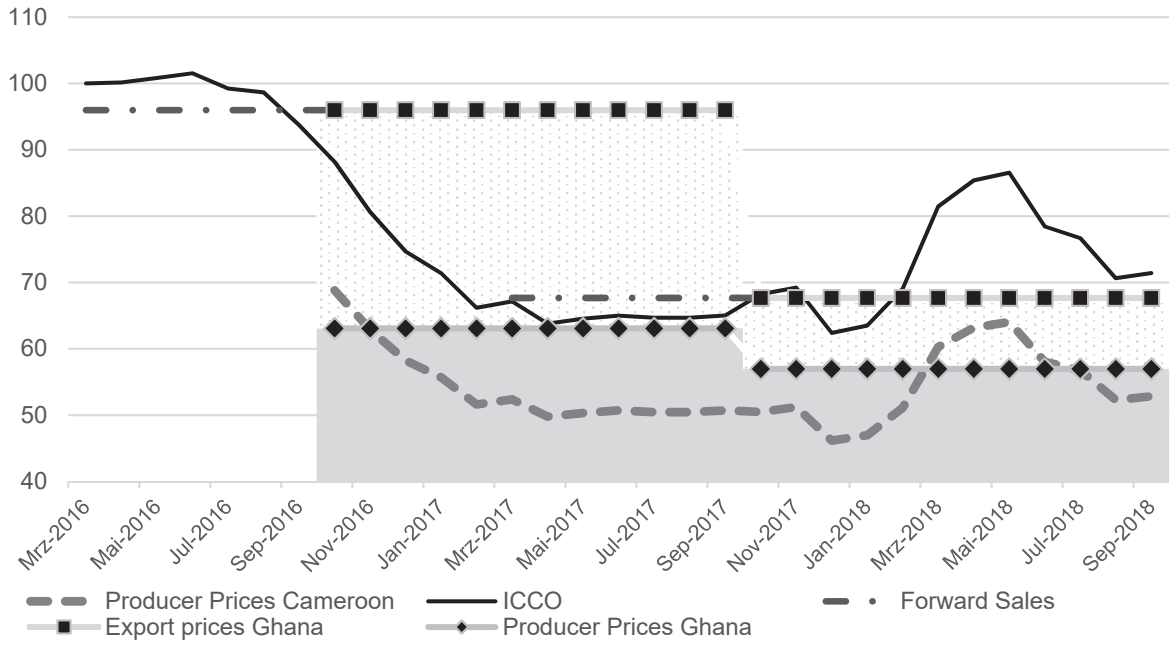
Regarding levels of export prices, both Côte d'Ivoire and Ghana can charge premiums on their cocoa exports ('origin differentials') related to quality but also market power, accounting on average for a premium of 5% and 11% respectively above cocoa bean prices from Nigeria and Cameroon from 2000 to 2018 (UN Comtrade 2019).[15] However, bargaining power has declined given the concentration processes among grinder-traders. The number of trading partners for Ghana's CMC, for instance, has decreased from about 100 in 2000 to 11 in 2013 (van Huellen 2015). For producer prices, both countries have achieved the targeted share of 70% of the net FOB price in Ghana and 60% of the CIF price in Côte d'Ivoire in recent seasons. The average shares of producer in ICCO prices are however substantially lower in Côte d'Ivoire and Ghana (57% and 64% respectively) compared to the more liberalized West African cocoa producers Cameroon and Nigeria (82% and 86% respectively) from 2012/13 to 2017/18. Such a direct comparison is however problematic because the data shows average producer prices, which are guaranteed for all producers throughout the season in the regulated systems, but vary in liberalized systems by region and household, and over the course of the season. Further, producer prices are influenced by taxes and duties, which are higher in regulated systems. This is partly linked to public services and input provision that are not paid directly by producers as in liberalized systems and hence underestimates farmers' income.[16] Higher taxes in the two regulated countries are, however, also explained by their strong

[15] Both countries also increased the share of origin-grinding to 27% and 23% in 2016/17 for Côte d'Ivoire and Ghana respectively (ICCO 2018). But this does not affect export price volatility as prices of grinded cocoa are set as direct rations to cocoa futures prices (Araujo Bonjean and Brun 2016). This is in contrast to chocolate product prices where price-setting is de-linked from derivatives markets, but chocolate manufacturing remains very limited in both countries (Grumiller 2018).

[16] Estimations on input costs show for instance that cocoa farmers in Cameroon spend 35% of their revenues on inputs, while farmer in Côte d'Ivoire use less than 30% and farmers in Ghana 15 to 20% (Oomes et al. 2016; World Bank 2017). Various assessments question however the effectiveness of the services provided by parastatals and related corruption (Kolavalli/Vigneri 2017).

dependence on cocoa, particularly in Côte d'Ivoire, which makes the sector a key basis for public revenues. Price levels can also be higher in the regulated systems in periods of high price volatility. Figure 7 exemplifies the effects of price stabilisation during large global price changes between 2016 and 2018, comparing Cameroon and Ghana. The ability of Ghana to sell forward locked in relatively high export prices in mid-2016 and enabled the payment of higher producer prices compared to Cameroon where prices followed the drop in global prices in 2016/17. For the next season, Ghana sold forward at relative low levels, but stabilised producer prices by adjusting the producer price share. As a result, producer prices in Ghana were higher in both seasons compared to Cameroon.

Figure 7: Effects of world price changes on producer prices in Ghana and Cameroon



Note: We assume that the share of producer prices in Cameroon remains constant through the season.
Source: ICCO, COCOBOD

The level of resilience to global price shocks differs in the systems Côte d'Ivoire and Ghana. The focal point in both systems are reliable estimations of export revenues, which serve as the basis for producer price-setting. The major part of revenues is fixed ahead of the season via forward sales. However, the performance of forward sales and of the remaining spot sales (during the season) is subject to various risks related to the accuracy of estimated cocoa bean volumes, exchange rate and spot price developments as well as non-delivery and defaults by exporters related to crop failures, smuggling or speculation. These risks can lead to overselling or underselling of forward contracts, which can both cause a gap between realized and expected export revenues. A major difference exists however between Côte d'Ivoire and Ghana in the ability to avoid and deal with defaults of forward sales. As the Ghanaian CMC has stronger control over cocoa supply and established stable relations with buyers (that also allow for re-negotiations in difficult situations), defaults are less likely (Kolavalli/Vigneri 2017; van Huellen 2015). In the Ivorian system, the stabilisation mechanism depends on the ability and the willingness of private actors to comply with regulations. Particularly, the likelihood of default is higher and more so for smaller local exporters given their higher overhead costs and more limited resources compared to international exporters.

In 2016/17, the sharp global cocoa price drop (by 35% from June 2016 to May 2017) additionally coincided with speculative behaviour of local exporters and consequent defaults on their forward contracts in Côte d'Ivoire.[17] CCC had to resell the defaulted volumes at lower prices, which led to a loss of CAF 199 billion (USD 360 million) (KPMG 2018). This could not be fully compensated by the stabilisation fund and hence CCC lowered producer prices from CAF 1100 to CFA 700 in the mid-season. The losses in the sector cumulated to about 2% of GDP in 2017 (IMF 2017: 32), with debt burdens and bankruptcies of local exporters weighing on the Ivorian banking sector and further strengthening the position of international grinder-traders (Aboa 2019). Ghana also experienced challenges due to the sudden price drop in 2016/17 and due to larger than expected harvests, but COCOBOD kept producer prices stable and relatively high by adapting the producer price share (Figure 6). As the stabilisation fund was not sufficient to cover the export revenue short fall, COCOBOD took up the gap between expenses for producer prices, industry costs and taxes, and export earnings through cocoa bills. As a consequence, COCOBOD's outstanding, unsecured debt increased to more than GHC 6 billion by early 2019 (IMF 2019). Even though, the ability of COCOBOD to raise loans has shield farmers and the government to some extent from inter-seasonal variations in revenues, the sustainability of the related debt burdens of COCOBOD depends largely on the future development and volatility of global cocoa prices.

6. Conclusion

Since the liberalization of commodity sectors at the international and producer country level, price-setting along GCCs has become linked to commodity derivatives markets through the price-setting power of CTHs. The extent and nature of price transmission to producers depends however on producer country price-setting regulations. The price regulation systems in the two top cocoa producer countries Côte d'Ivoire and Ghana are notable exceptions to the largely prevailing liberalized market structures. However, the systems still link domestic prices to the 'world price', i.e. futures prices, which exposes the ability to stabilise prices to governance structures in GCCs and financialisation dynamics on derivatives markets. The regulatory systems have achieved intra-seasonal producer price stabilisation, based on forward sales of exports and fixing producer prices ahead of the season. Export and producer prices are however only stabilised for one season, leaving producers affected by inter-seasonal price volatility. Ghana has adapted the producer price share in recent seasons to ensure some inter-seasonal producer price stability, but this has only to a limited extent dampened transmission of global price volatility. Hence, both countries remain 'global price takers' with global prices set on derivatives markets and transmitted along the GCC by CTHs' price-setting power, which limits possibilities for 'domestic price making' in terms of setting and stabilising producer prices.

The stronger role of the parastatal in Ghana in physical cocoa marketing provides more options to shield producer and government revenues from cocoa price variations and larger resilience in times of large global price drops compared to the Ivorian system. The global price drop in 2016/17 exemplifies these institutional differences, but also the general limits of national price stabilisation mechanisms. In particular, the stabilisation funds in both countries were too small to counterbalance the price collapse and revealed no systematic approach in organizing. In the end, the Ivorian CCC cut producer prices drastically, while the Ghanaian COCOBOD kept producer prices stable, but at the expense of higher debt levels. Hence, the impact of national price stabilisation has its limits and includes risks in particular for

[17] These exporters acquired export licenses via the auction and presented counterfeit fixed-price contracts, but their contracts were PTBF with their buyers which resulted in lower selling than purchasing prices when prices fell and caused them to default (Aidenvironment 2018).

governments' budgets. But their dismantling would lead to intra-seasonal price risks being also born by smallholder producers (in addition to inter-seasonal price risks), which have the most limited possibilities to deal with both types of price risks. This remains the prevailing situation today in many cash crop producer countries, causing inequality in GCCs and related vulnerabilities and poverty for smallholder producers in SSA and beyond.

Given these limitations of national producer country regulations in the context of volatile world cocoa prices, stabilisation of global benchmark prices through multilateral interventions is required. This could include the re-regulation of financialized derivative markets (Küblböck/Staritz 2014) and/or global price stabilisation mechanisms (von Braun/Torero 2009). However, such approaches do currently not rank high on the political agenda. Regional interventions could also impact global prices, particularly if market power is concentrated as in the case of cocoa. Côte d'Ivoire and Ghana have indeed agreed on closer cooperation in the context of the Abidjan Declaration of 2018 where they discussed to exert influence on global prices through coordinated price-setting and buffer stocks. In mid-2019, the two governments agreed on a common pricing strategy for the season 2020/21 and a stabilisation mechanism (FCC 2019). Various details of this pricing mechanism remain however still unspecified, as well as to what extent the two countries can implement a joint approach given complicated political economy issues (e.g. the challenge to store and hold back cocoa over longer time periods, the threat of increasing supply and pressure on prices, the differences between the marketing systems and competition between the two countries).

Regional initiatives will nevertheless face the same global contexts linked to GCC governance, CTHs' pricing strategies and derivatives market financialisation as shown for the two national cases in this paper. These contexts need to be ultimately addressed to delink producer country prices from futures prices. But it is questionable whether producer country cooperation can change current price-setting practices and power, given the dominance of CTHs not only in international commodity trade but also in the cocoa sectors of producer countries – for our cases, in internal marketing in Ghana and in internal and external marketing in Côte d'Ivoire. Thus, more independence from CTHs and an increasing role of producer country exporters and traders would be required to reduce CTHs' price-setting power. This is because for CTHs the linking of physical with futures prices is at the core of their risk management and accumulation strategies.

This article has stressed the importance of integrating price-setting into the analysis of governance in GCCs as price-setting power and related uneven exposure to price instability and risks adds to other power dimensions in producing asymmetric relationships and unequal distributional outcomes in GCCs. It also shows the importance of assessing price-setting along the entire GCC and how selling and buying prices and related price-setting institutions are interrelated, limiting the scope for 'price making' in domestic commodity sectors. National price-setting regulations can address and mediate domestic relationships and power asymmetries in producing countries to some degree, by requiring negotiations on how price risks are shared amongst actors operating in the national marketing system. National structures alone, however, cannot address the major driver of inequality in incomes and risks, namely, unequal power structures in GCCs, driven importantly by the dominance of large CTHs and their increasing links to commodity derivatives markets.

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