

Tröster, Bernhard

**Working Paper**

## Global commodity chains, financial markets, and local market structures: Price risks in the coffee sector in Ethiopia

ÖFSE Working Paper, No. 56

**Provided in Cooperation with:**

Austrian Foundation for Development Research (ÖFSE), Vienna

*Suggested Citation:* Tröster, Bernhard (2015) : Global commodity chains, financial markets, and local market structures: Price risks in the coffee sector in Ethiopia, ÖFSE Working Paper, No. 56, Austrian Foundation for Development Research (ÖFSE), Vienna, <http://www.oefse.at/publikationen/working-papers/detail-working-paper/publication/show/Publication/Global-commodity-chains-financial-markets-and-local-market-structures-Price-risks-in-the-coffe/>

This Version is available at:

<https://hdl.handle.net/10419/184874>

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## Global commodity chains, financial markets, and local market structures – Price risks in the coffee sector in Ethiopia

Vienna, December 2015

Bernhard Tröster, Austrian Foundation for Development Research (ÖFSE)

### **Acknowledgements**

We thank all interview partners in Ethiopia and the regional office of the Austrian Development Agency (ADA) for support during the fieldwork. Financial support from the Jubiläumsfonds of the Oesterreichische Nationalbank (project number 14686) is gratefully acknowledged. The views expressed are those of the authors.

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Austrian Foundation for Development Research – ÖFSE  
**A** Austria, 1090 Vienna, Sensengasse 3, **T** +43 1 3174010, **F** -150  
**E** [office@oefse.at](mailto:office@oefse.at), **I** [www.oefse.at](http://www.oefse.at), [www.centrum3.at](http://www.centrum3.at), [www.eza.at](http://www.eza.at)

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## List of Abbreviations

CLU	Control and Liquoring Unit
ECX	Ethiopian Commodity Exchange
ICE	Intercontinental Exchange
LICs	low income countries
NYSE	New York Stock Exchange
PRM	price risk management
PTBF	prices to be fixed
SSA	Sub-Saharan Africa
US\$	US Dollar

## Abstract

Risks related to commodity price volatility are a major thread to actors in commodity chains, particularly to smallholder farmers in low income countries. Therefore, price setting and transmission within global commodity chains are of crucial importance from a developmental and distributional perspective. With the end of global price stabilization mechanisms in the 1980s, financial derivative markets have taken over the central role in price discovery and risk management. This is also true for the case of coffee, being the agro-commodity with the highest trading volume on financial commodity exchanges. In this paper, the coffee commodity chain is assessed with a focus on Ethiopia, the largest coffee exporter in Sub-Saharan Africa. Given the crucial role of the coffee sector for exports and for millions of smallholders, price risks for Ethiopian and international actors are analyzed along two indicators – exposure to price risks and ability to mitigate price risks. Even though Ethiopia imposes strict regulations on local value addition in green coffee production, the use of a market-based price discovery system via the Ethiopian Commodity Exchange exposes local actors to highly volatile international coffee prices, but with limited access to risk management. This is in contrast to lead firms in the global coffee chain – international traders and roasters – which use various strategies to deal with and also profit from price risks, mainly interlinked to financial derivate markets.

**Keywords:** global commodity chains, financialization, commodity prices, price risks, price risk management, coffee sector, Ethiopia, commodity exchange

# 1. Introduction

Price instability and related risks are a major concern of commodity producers particularly in low income countries (LICs). Hence, an assessment of how commodity prices are set and transmitted to commodity producers in LICs is of major importance from a development and distributional perspective. Commodity production and trade takes place in global commodity chains that impact on price setting and transmission to producers in LICs, particularly through the strategies and practices of the lead firms in these chains, i.e. international commodity traders, manufacturers or retailers that trade, process or sell the majority of internationally traded commodities. But global commodity chains are based in and react to institutional contexts at the global and local level that importantly impact on chain dynamics and governance and mediate outcomes for producers. In commodity sectors the institutional and policy context has changed importantly since the 1980s and 1990s – from stabilization of commodity prices and export earnings in commodity producer countries to liberalization and market-based instruments for price setting and price risk management (PRM).

At the global level, international commodity agreements that included a minimum price system were dismantled in the 1980s and financial markets, i.e. commodity derivative markets, have become the central pricing mechanism for international commodity trade. More recently, financial motives have increased in importance in commodity derivative trading through the dominance of financial investors on these markets and the expanded financial activities and practices of large physical traders. These developments can be subsumed under the term ‘financialization’, i.e. the increasing role and dominance of financial motives, activities and profits in the economy more broadly (Epstein 2005), and commodity markets specifically. At the same time, many commodity producer LICs have undergone widespread domestic liberalization in commodity sectors in the context of structural adjustment supported by the World Bank and other donors. In the context of market reform, minimum prices and other price stabilization instruments were largely abandoned shifting to more market-based price setting that has bound together producer prices with futures prices. There remains however variety in local market structures, state involvement and price setting and stabilization measures in producing countries.

This paper assesses how global and local institutional changes, particularly global liberalization and financialization and domestic market reform in producer countries, have affected price setting, price transmission and price risks of different chain actors in the coffee commodity chain. Conceptually, it highlights the importance of linking global commodity chains with global and local institutional contexts in which they are embedded and particularly the role of financialization and commodity derivative markets. Empirically, this is assessed for the coffee chain originating in Ethiopia – the largest coffee producing country in Sub-Saharan Africa (SSA) – along two indicators – exposure to price risks and ability to mitigate price risks.

Global coffee commodity chains serve as a good example for analysing the interactions between global financial market dynamics, international traders’ and roasters’ practices as the lead firms of coffee chains, and local market structures, and implications on distributional outcomes. The coffee sector is characterized by a clear distinction between producing and consuming countries with over half of the production coming from low and lower middle income countries. International traders play an important role in the sector with few globally acting companies marketing the large majority of internationally traded coffee. Since the breakdown of the international coffee agreement (ICA) and liberalization in producing countries in the 1990s, financial markets and institutions, namely commodity derivative markets, have served as the linchpin between the financial and the physical sphere, influencing the trading of unprocessed, green coffee, particularly through their price setting

and risk management functions. The importance of these markets is also shown by coffee being the agro-commodity most traded on international commodity exchanges.

The coffee sector has been crucially important in Ethiopia's economy – still today despite important transformation processes underway. Green coffee accounted historically for the majority of Ethiopian exports. Although the share reduced from more than 60 percent in the 1980s and 1990s to around 30 percent in recent years, coffee is still the number one export good, in addition to domestic consumption accounting for more than 50 percent of total production. It is estimated that coffee production – based to 95 percent on smallholder production – provides directly or indirectly to the livelihood of 15 million people (Petit 2007). Ethiopia has introduced strict regulations in the sector, including the exclusion of foreign companies and traders from coffee trading within the country. As one of the first countries in SSA, Ethiopia also established a central commodity exchange in 2008 on which the majority of coffee production is traded. This local regulatory and institutional context mediates how international traders' practices and financialization dynamics impact on local producers', processors' and exporters' exposure to price risks and ability to mitigate these risks.

This paper is based on trade, industry and financial data and interviews conducted with local actors in the coffee commodity chain in Ethiopia (September and October 2014). Among the interviewees are representatives of relevant Ministries and the Ethiopian Commodity Exchange (ECX), international traders, exporters, cooperatives and cooperative unions, as well as sector experts. The paper starts with a conceptualization of institutional context and financialization in the global commodity chain approach. The second and third sections analyse the global and Ethiopian context of coffee trading with a focus on changes in the institutional context and international traders' strategies. The next section assesses the exposure to price risks of and the ability to mitigate these risks by different actors in Ethiopia and globally along the coffee commodity chain. The last section points out main policy conclusions and insights for the further development of global commodity chain research.

## **2. Global commodity chains, institutional context, and financialization**

The conceptual origins of chain and network approaches to study the global economy can be traced back to the World System theory where the term commodity chain was first used by Hopkins and Wallerstein (1977, 1986). They used commodity chains to analyze the unequal distribution of competition and surplus-value and the associated uneven development outcomes at a global scale. They stress the role of global power relations and exploitive structures embedded in commodity chains that structure and reproduce a hierarchical world system. Later chain and network approaches – most prominent the global commodity chain and global value chain approach – focus on analysing the organisation and governance of global production at the meso (sector) and micro (firm) level and how this affects the development and upgrading prospects of firms, regions and countries (see f.e. Gereffi 1994, 1995; Gereffi et al. 2001, 2005; Kaplinsky/Morris 2001; Gibbon/Ponte 2005). This later research has focused on the governance dimension and particularly the role of lead firms in governing chains and influencing entry and upgrading prospects for other actors. In contrast to traditional trade and production studies that neglect power relations this has allowed understanding how power is exercised in global trade and production (Bair 2005), including in how prices are set and transmitted (Daviron/Ponte 2005).

These frameworks have however been criticized for their insufficient attention to the institutional contexts of chains even though this dimension has been highlighted early on (Gereffi 1995). The focus on "inter-firm dyads" (Bair 2008: 339) and hence "endogenous explanations for changes" (Bargawi/Newman 2013: 9) in the structures of chains without



reference to inter-chain actions and wider social, historical, political and economic context have led to the exclusion of global-macro and local institutional contexts in which firms' corporate strategies and actions are embedded and which mediate development and distributional outcomes. This includes the under-consideration of sector-specific regulations and institutions at the global and local level and related policy shifts. For commodity sectors this includes most importantly the institutional and policy shift from stabilizing commodity prices and export earnings for producer countries through international commodity agreements as well as marketing boards or similar institutions at the producer country level to market-based price setting and price risk management since the 1980s and 1990s. More recent research and particularly the global production networks approach that stresses the importance role of multi-scalar institutional, policy and social contexts in shaping production networks and their development outcomes has taken these issues more prominent (Henderson et al. 2002; Coe et al. 2008).

Within the broader institutional context of chains financial markets, institutions and actors have always played a central role in influencing firm behaviour in and shaping the structure and functioning of chains (Newman 2009). But the dominance of financial markets in the global economy has increased which is subsumed under the term 'financialization'. Financialization describes "the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies" (Epstein 2005: 3). Financialization has affected most sectors of the economy including commodity markets (Newman 2009). The focus is upon the size of financial activities and rents derived in the economy and on new opportunities for the extraction of such rents by different types of actors (Newman 2009). Although still under-researched, particularly (but not only) the global production networks approach has taken up the importance of financialization as a macro-global context (see most importantly Milberg 2008; Milberg/Winkler 2010; Coe 2012; Coe et al. 2014; Fernandez 2014; Morgan 2014; Gibbon 2002; Palpacuer 2008; Baud/Durand 2012; Froud et al. 2012; Newman 2009; Clapp 2014; Bargawi/Newman 2013).

At the centre of financialization dynamics in commodity sectors are commodity derivative markets – their increasing importance in price setting and risk management and the increasing prominence of financial motives in trading on these markets through the dominance of financial investors and the expanded financial activities and practices of large physical traders. A vast literature, often based on econometric analysis, emerged in the context of the exceptional development of global commodity prices in the 2000s, often perceiving derivatives on commodities in the literal sense only, with futures conceptualized as investment vehicles disconnected from physical commodities. Yet, derivatives and their markets have become locked to physical markets in new and complex ways (Russi 2013), being today the central mechanism for price discovery and risk management in physical commodity trading. Hence, financial derivatives on commodities are a key indicator as well as a device of financialization, impacting on the institutional price setting context and strategies and actions of firms in global commodity markets (Clapp 2014). A prerequisite and driver of the increasing importance of commodity derivative markets has been the restructuring of the international and local institutional context of commodity trading through the collapse of the international commodity agreements and the liberalization of national commodity sectors.

In order to assess the implications on price risks in coffee commodity chains of the intertwined developments regarding chain governance, financialization and local market structure, the paper focuses on price setting and transmission along chains, using two indicators: firstly, the exposure of the various commodity chain actors to commodity price risks and secondly the ability to mitigate these risks. We define the exposure to price risks as the potential adverse effect on the income of an actor due to unexpected changes in

commodity prices related to price uncertainty, i.e. price volatility. The exposure depends on the types of price risks and particularly the duration. Specifically, it can be differentiated between price fluctuations within and between seasons. We define the ability to mitigate price risks as the capacity of actors to use risk-management instruments and strategies to control price risks. In the dominant market-based pricing system in commodity sectors, these two indicators are influenced by commodity derivative markets where global benchmark prices are set and price risk management (PRM) instruments provided, the practices of lead firms, namely roasters and particularly international traders, and the local institutional context, i.e. national market structures and price setting mechanisms.

Particularly the role of commodity derivative markets in providing price discovery and risk management importantly impacts the two indicators. As coffee prices along the chain are increasingly co-integrated with global price benchmarks (Gemech/Struthers 2007; Worako et al. 2008, 2011; Lukanima/Swaray 2014), price volatility on global commodity derivative markets are transmitted directly to producer countries. Also possibilities to PRM are increasingly influenced by access to and use of derivative markets that provide hedge instruments. Distance from these markets lowers the ability to mitigate price risks. But the role of these markets goes beyond price discovery and risk management as the use of derivatives in physical contracts has consequences on the type of relationships in chains. This is most clearly seen in the practice of international traders to switch from outright or fixed forward prices to “prices to be fixed” (PTBF)<sup>1</sup> contracts based on futures prices (ITC 2012; Bargawi/Newman 2013; May et al. 2004). These contracts allow for the combination of physical coffee trade and hedging with sellers and buyers committing to deliver or take delivery at a difference to the futures markets. They allow for the complete mitigation of market risks with only differential risks remaining. However, this advantage can only be used by actors with access to derivative markets, foremost international traders and roasters (ITC 2012; May et al. 2004). For actors without access to derivative markets, such as the majority of local actors in producer countries, PTBF involve high price risks as futures price fluctuations directly affect local prices as long as they are not fixed (Bargawi/Newman 2013).

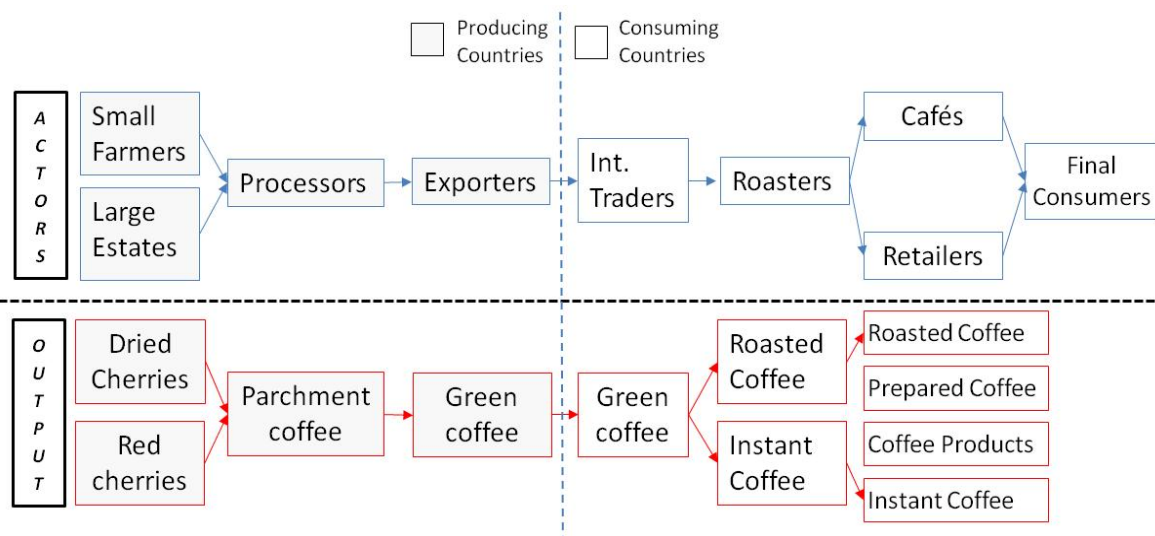
### 3. The global coffee commodity chain

The main nodes along the global coffee chain include actors in producing countries such as smallholders or commercial farmers on larger estates, upstream processors and exporters. The transactions among these actors might be mediated by local traders. The export of raw or ‘green’ coffee beans runs through the hands of international traders, before downstream processing and final sale via various distribution channels (Figure 1). The coffee commodity chain is characterized by a distinction between producing and consuming countries with producers in the global South and customers in the global North. Over the last two decades, however, coffee consumption in exporting countries (particularly Brazil and Ethiopia) and emerging markets (China and Russia) have captured increasing stakes, accounting for 30 and 15 percent of global consumption in 2012, respectively. The dominant exporters of unprocessed green coffee are mainly lower and middle income countries. Roasted coffee is, however, exported almost exclusively by high income European and North American countries. Only in the instant coffee sector, producer countries such as Brazil and Colombia participate in roasting (Table 1).

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<sup>1</sup> For PTBF contracts, a basis is agreed with reference to an ICE futures trading month agreeing to a volume and delivery date with the price being fixed at a later time. In forward contracts prices are fixed in the contract.

**Figure 1: Global Coffee Commodity Chain**



Source: Authors' elaboration based on Ponte 2002 and Breger Bush 2012.

**Table 1: Coffee Export Flows (2013, in million US\$)**

<b>Green coffee*</b>		<b>Roasted Coffee **</b>		<b>Instant Coffee ***</b>	
<b>Total volume</b>	<b>19,059</b>	<b>Total volume</b>	<b>8,653</b>	<b>Total volume</b>	<b>5,120</b>
Brazil	5,155	Switzerland	2,163	Germany	856
Vietnam	2,882	Italy	1,261	Brazil	661
Colombia	2,002	Germany	1,192	Switzerland	449
Indonesia	1,314	United States	755	Colombia	270
Guatemala	857	Belgium	405	Spain	249
Honduras	852	Canada	398	Netherlands	248
Peru	775	Netherlands	351	Ecuador	232
Ethiopia	652	France	280	India	232
India	521	United Kingdom	280	Malaysia	211
Mexico	448	Poland	257	United Kingdom	206

\*HS 090111 and HS 090112, \*\*HS 090121 and HS 090122, \*\*\* HS 2101111

Source: UN Comtrade.

During the ICA's existence from 1963 to 1989, the majority of producing and consuming countries agreed on a system of target price zones and export quota with the aim to stabilize coffee prices and incomes for producing countries (ICO 2014). In many countries government agencies guaranteed minimum prices to coffee farmers and controlled exports and stocks in accordance with ICA limits. With the end of the ICA in 1989 and in the context of structural adjustment in the 1990s, coffee producing countries have liberalized their local coffee marketing systems. National price stabilization schemes were largely abandoned and global prices and instability were more directly transmitted to producer countries (Akiyama et al. 2003). For East Africa, scholars generally found an increase in producer price volatility after liberalization (Karanja et al. 2003; Gemech/Struthers 2007; Newman 2009; Bargawi/Newman 2013; Lukanima/Swaray 2014). However, this uncertainty has been to an extent compensated by an increased producers' share of export prices (see f.e. Akiyama et al. 2003) – albeit together with declining export prices and increasing input prices with a questionable overall effect on producers' income (Talbot 1997, 2002; Kaplinsky/Fitter 2001; Gibbon 2001; Ponte 2002; Kaplinsky 2004; Daviron/Ponte 2005).

The collapse of the ICA had also major implication on the governance structure of the global coffee commodity chain. During the ICA regime, none of the major actors was driving the chain in particular as producing and consuming countries jointly controlled the international coffee trade. After 1989, the coffee chain has been labelled as “buyer-driven”, “roaster-driven” or “trader driven” (Ponte 2002; Daviron/Ponte 2005) with downstream actors (retailers, roasters, international traders) becoming dominant players in coffee trade and capturing increasing shares of value added compared to actors in downstream nodes. This led to an increasing divergence between the price paid to producers and the symbolic value paid by consumers. The concentration level among roasters and international traders further increased in the 2000s. Regarding international traders, the largest two companies (Neumann Kaffee Group and Ecom – including the announced merger with Armajaro Asset Management) handled 28 percent and the leading eight traders more than two thirds of global green coffee exports in 2012 (Table 2). International traders further integrated vertically to secure supply and entered the largely liberalized markets in producer countries (Newman 2009; Breger Bush 2012).

**Table 2: Leading international coffee traders (2012)**

Company Name	Country	Volume in '000 MT	Share of total exports	Multi-commodities	Market-listed
Neumann Kaffee Gruppe	GER	840	13%		
Ecom + Armajaro	CH	780 + 180	12% + 3%	X	
Olam	SIN	600	9%	X	X
Volcafe	CH	480	7%	X	
LouisDreyfus	NL	510	8%	X	
Noble Agri, Cofco	HK, CHN	360	6%	X	X
Sucafina	CH	180	3%		
Mercon	USA	150	2%		

Source: Authors' elaboration based on ITC (2012) and companies' websites.

Also the role and the competitive structure among large roasters have changed over the last years. The ten leading roasters purchased around 45 percent of global green coffee exports in 2012/13 (Table 3). In 2014/15, Mondelez International and DE Master Blenders 1753 merged to Jacobs Douwe Egberts, creating the world's largest pure-play coffee company. The additional takeover of Keurig Green Mountain in 2015 by this new cooperation further increased consolidation among roasters (Reuters 2015). On the output side, concentration levels are even higher with the top three roasters, namely Nestle, Starbucks and Jacobs Douwe Egberts, accounting for more than 50 percent of global coffee sales (Quartz 2014). In recent years, leading roasters have developed own retail distribution channels via coffee shops (Starbucks) or product innovations (Nespresso). Nevertheless, retailers still play a crucial role in the coffee commodity chain as around three quarters of all coffee in the major importing countries is bought in retail stores (ICO 2012).

**Table 3: Leading coffee roasting companies (2013)**

Company	Headquarter	Volume in '000 MT	Share of global exports
Nestle	CH	860	13%
Mondelez International*	USA	500	7%
DE Master Blenders 1753*	NL	360	5%
Smuckers	USA	300	4%
Strauss	ISR	230	3%
Starbucks	USA	180	3%
Tchibo	DE	180	3%
UCC	JP	177	3%
Lavazza	IT	150	2%
Keurig Green Mountain*	USA	100	1%

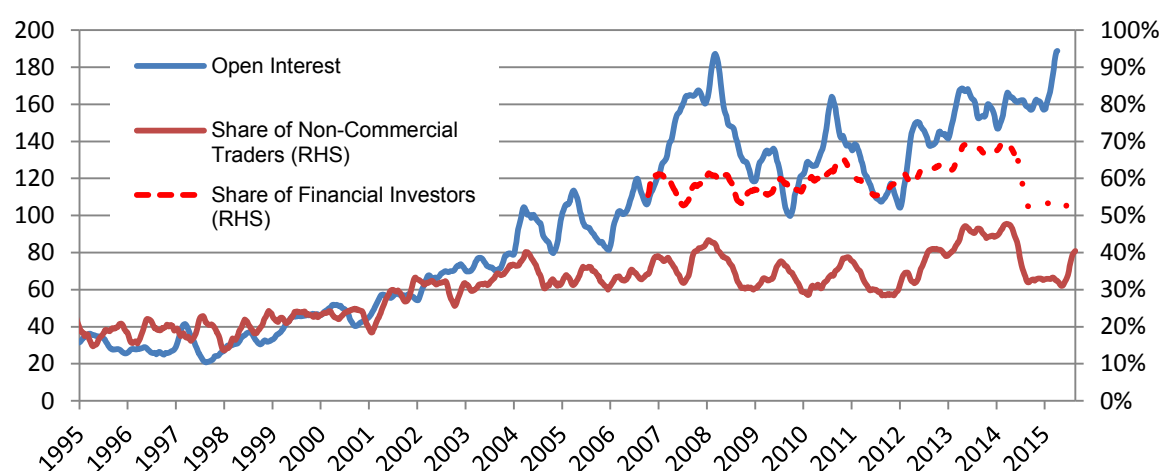
\* Companies have merged under the name Jacobs Douwe Egberts in 2014/15.

Source: Authors' elaboration based on Coffee Barometer (2014) and companies' websites.

Derivate markets have become increasingly important for physical coffee trade, particularly in serving as the central place for the discovery of global prices and for PRM. In the case of Arabica coffee, Coffee 'C' futures and options traded at the Intercontinental Exchange (ICE) in New York are used as a benchmark; for Robusta coffee it's derivatives at the NYSE Liffe. International traders and roasters typically hedge all their commodity exposure and refer to futures prices in physical contracts with exporters or producers. Traders increasingly use PTBF contracts where the actual price is contingent on the prevailing futures price on the day of fixing. The use of PTBF contracts at the international trader level bounds together the futures market with the physical market for coffee. The use of these contracts, as opposed to fixed price forward contracts, means that the futures price volatility is transmitted more directly to export and producer prices for physical coffee in producer countries (Newman 2009; Bargawi/Newman 2013). Since international traders hedge most of their exposure, the time at which the price is fixed is of little importance. For local exporters that tend not to be hedged the time of fixing can be of great importance.

In the 2000s these markets have become increasingly financialized. Besides physical traders and traditional speculators, financial investors are active on these markets related to deregulation and the search for new investment opportunities. In this context, the use of futures has increased drastically – with open interest of coffee ‘C’ futures having increased by the factor 20 since 1995 – along with an increasing role of non-commercial traders – with their average share having increased from 20 percent in 1995 to almost 50 percent in 2013. Taking into account disaggregated data including swap dealers from 2006 onwards, financial investors accounted for up to 70 percent of all open interest positions (Figure 2). But also large international traders have become involved in derivative trading in multiple and complex ways using them for physical risk management and financial motives, investing their own funds and providing financial services for other physical and financial traders (Gibbon 2014).

**Figure 2: Open Interest and Share of Financial Investors in ICE ‘C’ futures contracts**



Note: Based on 10-week-averages, in '000 contracts, Disaggregated Data only available from 2006 onwards

Source: CFTC.

These developments have crucial implications on price discovery and volatility in international coffee trade and on the possibilities to access derivative markets for PRM. Newman (2009) finds that during periods with a large share of financial investors in ICE coffee futures contracts, there is a loosening in the relationship between futures prices and supply and demand conditions for physical coffee. Ederer et al. (2013) show that 50 percent of variations in coffee prices can be traced back to net long positions of financial investors, particularly money managers, in futures markets between 2006 and 2012. But in addition to price impacts, also the functioning of these markets has changed in terms of increased short termism and complexity of products which has led to increased costs and risks of derivative trading, increasing entry barriers for actors without access to financial resources and markets (Heumesser/Staritz 2015). For producer country actors these markets were always difficult to access involving high costs and risk and requiring permanent access to market information, finance and brokers. But also for smaller international traders these developments have made access to hedging more difficult, furthering the concentration process at the trader side.



## 4. National coffee market structure in Ethiopia

Production, export and consumption of coffee are of critical importance for Ethiopia. Ethiopia is the fifth largest coffee producer in the world and by far the most important producer in SSA. In contrast to other SSA producers, domestic consumption accounts for an important share of production with the share of exported coffee relative to total production declining from levels above 60 percent in 1998/99 to less than 50 percent in recent years. Ethiopia is the tenth largest coffee exporter in the world with Uganda recently overtaking it as the top SSA exporter. Coffee is the single most important foreign exchange earner for Ethiopia, accounting for 19 percent of total goods exports in 2013. Although the share of coffee in total exports has declined over the last decades due to the ongoing structural transformation of the economy, it is estimated that up to 1.2 million small holder farmers are engaged in coffee (USDA data for 2010/11) and in total 15 million people rely on income generated by coffee production and trade (Ministry of Trade 2012; Petit 2007).

Government control over the local coffee commodity chain has historically been strong. While the marketing system was free-market based until 1974, a centrally planned system with auctions, quotas and fixed prices was installed in 1977 under the Derg regime and in the context of the ICA. Although private traders were permitted, a state-owned corporation handled the large majority of coffee trade and exports and farmers were mostly organized in cooperatives. With the end of the Derg regime in 1991 and in the aftermath of the ICA collapse, comprehensive economic reforms, backed by the World Bank and other donors, were started in Ethiopia – among those, the liberalization of the coffee sector (Akiyama 2001). The sector was opened up for private actors and the public corporation was split-up and lost its superior role in trade.<sup>2</sup> Only state-owned plantations accounting for around 5 percent of production were maintained and privatized in 2012 and 2014 (Minten et al. 2014). Also floor prices for farmers were abolished completely in 1996/97 (LMC 2000) and minimum export prices were abandoned in 2002 (Petit 2007).

However, liberalization occurred gradually with foreign traders remaining excluded from the Ethiopian coffee market and the central auction remaining mandatory for all coffee production until 2001, when direct exports were permitted for large coffee farmers and cooperatives (Leung 2014; Petit 2007). Regarding the former, Daviron and Ponte (2005) conclude that the absence of foreign traders at the auction level made the Ethiopian coffee industry more locally controlled than elsewhere in Africa. Due to cuts in export taxes<sup>3</sup> and the participation of private actors, the share of farm-gate prices increased from around 40 percent during the 1980s (LMC 2000) to a level between 60 and 70 percent of export prices in the 1990s (Kaplinsky 2004; Talbot 1997). Export volumes increased soon after the market-based system was introduced and overall coffee production picked up noticeably in the late 1990s. Despite these improvements, it is noted that the post-reform marketing system in Ethiopia has led to a concentration of power at the exporting stage, mounting illegal trade across borders, unhealthy competition in the primary and auction markets, and high transaction costs (AMPD 2006 in Worako et al. 2008; Petit 2007).

Today, the coffee marketing system in Ethiopia remains strictly regulated with the government focusing specifically on the generation of foreign exchange income through furthering exports<sup>4</sup> and exclusive involvement of local actors in the national coffee chain. With the Ethiopian Commodity Exchange (ECX) an important institution was established in 2008 that is the centre of the coffee marketing system. The ECX, initially introduced for trade

<sup>2</sup> Only two state-owned export companies are still active, however with low market shares of around four percent in 2012/13.

<sup>3</sup> Export taxes prior to liberalization amounted for up to 45 percent of export value (Petit 2007).

<sup>4</sup> Given the focus on ensuring foreign exchange income, local processing – i.e. roasting – for exports but also for local consumption on a larger scale is not in the focus of policy. Hence, for national development, the coffee sector's role is seen as a foreign exchange earner but not as having a role in the structural transformation of the economy more broadly.

in grains, serves as the mandatory transaction place for the majority of local and export coffee, replacing the coffee auction. It has several features to facilitate trade, reduce transaction costs and enhance price transparency: a central trading floor in Addis Ababa, a clearing system to settle sales contracts, regional warehouses including quality control, and a transparent price information system (Gabre-Madhin/Goggin 2005; Gabre-Madhin 2012). This market-based system with competition on several levels in combination with a strict supply chain structure, quality controls and extension services by the government should facilitate coffee production, competitiveness and export earnings and provide reasonable incomes to coffee farmers (Tefera/Tefera 2014; Minten et al. 2014; Gabre-Madhin 2012).

Within this system, coffee can be exported by three actors: coffee exporting companies, cooperative unions and commercial farmers, with the possibility for the latter two exporters to bypass the ECX (Figure 3). In order to maximize export earnings, only coffee above a certain quality threshold is permitted for exports. Therefore, all coffee has to be graded at regional ECX warehouses after the first processing step and at the Control and Liquoring Unit (CLU) before export. While commercial farmers with a share of five percent of total production play a minor role, output from smallholders has to be transferred at decentralized primary transaction centres to processors (known as *akrabies*) or cooperatives. Currently, up to 1,900 centres are installed throughout the country.<sup>5</sup> To ensure competition at this first transaction stage, four to five buyers (*akrabies* and cooperatives) are supposed to compete for the harvest of farmers in a specific area. The majority of coffee beans, around 75 percent of total coffee production, are processed by around 400 *akrabies* in around 900 washing and 700 hulling stations with the rest (20 percent) being processed by cooperatives (Ministry of Trade 2013). Processors are obliged by law to deliver processed coffee within six months to regional ECX warehouses, where the parchment coffee is graded and stored for up to 20 days before it is sold at the ECX trading floor, mostly via brokers.

While coffee for local consumption is bought at the EXC by local wholesalers, export quality coffees are purchased by private exporters, which prepare green coffee for shipment and sell it to international buyers – i.e. traders or directly to roasters. In total, 85 to 90 percent of all coffee export volume is traded via exporters. In recent years, the number of licensed coffee exporters increased significantly from 100 companies in 2007/08 to 197 companies in 2012/13 (Minten et al. 2014; ECEA 2013a). However, export volumes are highly concentrated on a limited number of exporters with eleven companies handling more than 50 percent of volumes and only 23 companies having market shares above one percent in 2012/13 (ECEA 2013a). Some coffee exporters are rather diverse trading companies that use coffee exports as a means to get access to foreign exchange to finance goods imports. The single largest coffee exports are specialized on coffee, however. Nearly 290 international buyers from 58 countries were reported in 2012/13 of with the top 10 companies handled more than 42 percent of all exports. International traders purchase the majority of exports with most major coffee traders being active in Ethiopia, while roasters take up 10 to 15 percent of exports (ECEA 2013a). Although the majority of export volumes are purchased by few companies, the large number of buyers indicates the large variety of coffees exported, including specialty coffees. Among the leading traders are Volcafe (CH, 12.7 percent in 2012/13), Taloca/Mondelez (CH, 6.5 percent) and Mitsui & Co. (JPY, 5.3 percent). The main export destinations in 2013 were Germany (21 percent), followed by Saudi Arabia (17 percent) and the USA and Japan (both 11 percent).

Cooperatives have regained importance lately with cooperative unions being found again in 1999/2000 after the cooperative system was destroyed completely in the context of liberalization. The number of cooperatives increased from 120 in 2006 (Petit 2007) to around

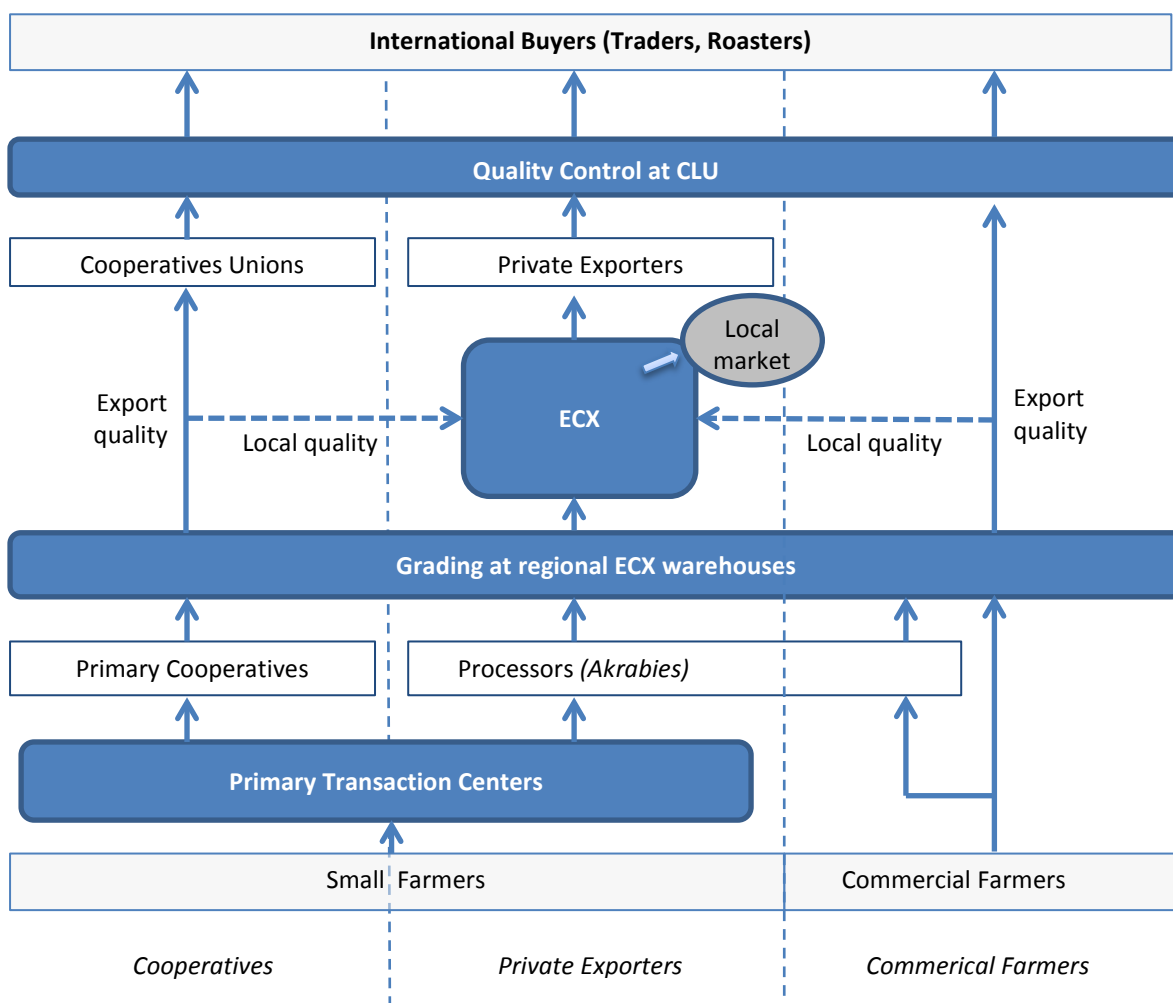
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<sup>5</sup> Private collectors (*sabsabies*) at that stage were officially banned in 2009 in order to increase efficiency but there seem to be still numerous *sabsabies* active.



350 in 2014, representing 400,000 farmers. However, only a minor share of production (20 percent) is processed by cooperatives. Cooperative output may be exported through the EXC or directly. Currently, direct exports by cooperatives amount to around 5 to 10 percent of all coffee exports (Minten et al. 2014). Direct exports are coordinated by five unions (ECEA 2013a), providing certified speciality coffee and a high degree of traceability to international traders and roasters. Hence, cooperative unions obtain by around 16 percent higher export prices compared to private exporters (Minten et al. 2014). ECEA (2013a) data show even a premium of 44 percent in the marketing year 2012/13. Cooperative unions distribute 70 to 75 percent of their profit margins back to cooperative members.

**Figure 3: Export channels in the Ethiopian coffee trading system**



Source: Authors' elaboration.

## 5. Price setting, price risks and distributional outcomes in the coffee commodity chain

### 5.1. Price setting and volatility

Price setting within Ethiopia involves two main stages, at the primary transaction centres where farmers transact with processors (akrabies) and at the ECX auction where processors through their brokers sell to exporters. The auction takes place daily on weekdays during the marketing season and is non-blinded.<sup>6</sup> While farm gate prices on the first marketing level are derived from daily ECX price notations minus processors' margins, price discovery at the ECX happens through open outcry sessions at a central trading floor in Addis Ababa where global prices set at futures markets are used as benchmarks. Different grades of coffee are traded at the auction with differentials to futures prices being adapted related to quality and region of origin. Hence ECX auction prices follow closely the daily trends in ICE coffee 'C' futures (Minten et al. 2014; Worako et al. 2008; Gemech/Struthers 2007). Export prices – at which exporters sell to international traders or roasters – are closely related to EXC prices but may differ particularly for certain grades. The ECX price system's focus is on price transparency, i.e. the efficient transmission of ECX prices to the farm gate, without price stabilization measures or instruments to deal with price instability by local actors.

Hence, local actors face different price risks in the coffee sector in Ethiopia.<sup>7</sup> In the case of coffee, no single global price is available as coffee is not a homogenous product. Futures prices refer to a standard quality of coffee and serve as a global benchmark, while individual coffees are graded and priced by origin, species and quality relative to futures prices (ICT 2012). Thus, two kinds of price risk can be specified: market risk referring to changing international market prices and differential risk referring to variations in the difference between national and international prices. Market risk is in general significantly higher (ITC 2012), as monthly differentials have accounted on average for around -2 percent for Ethiopia since 2005 and their standard deviation is around a third compared to the one of ICE futures prices.<sup>8</sup> Price risks for coffee commodity chain actors can be differentiated in price fluctuations between seasons (inter-seasonal price risk) and within seasons (intra-seasonal price risk). As ICE futures are used as the global benchmark and there are no price stabilisation measures existing in Ethiopia with prices being set market-based, both risks are highly influenced by global futures price instability that are transmitted to national prices subject to a differential.

There is no data for auction prices, but the other two annual national prices – export and farm gate prices – show the relation to annual ICE futures prices (Figure 4). Prior to liberalization in 1992, farm gate prices were isolated to some degree from international prices with low correlation. The significantly lower farm gate prices are also related to high export taxes of up to 45 percent. This changed with the introduction of the market-based pricing system with both, export and farm gate prices, having been highly correlated to ICE prices particularly since the early 2000s with correlation coefficients of above 0.90. Hence, national prices follow relatively closely global futures prices from season to season as global

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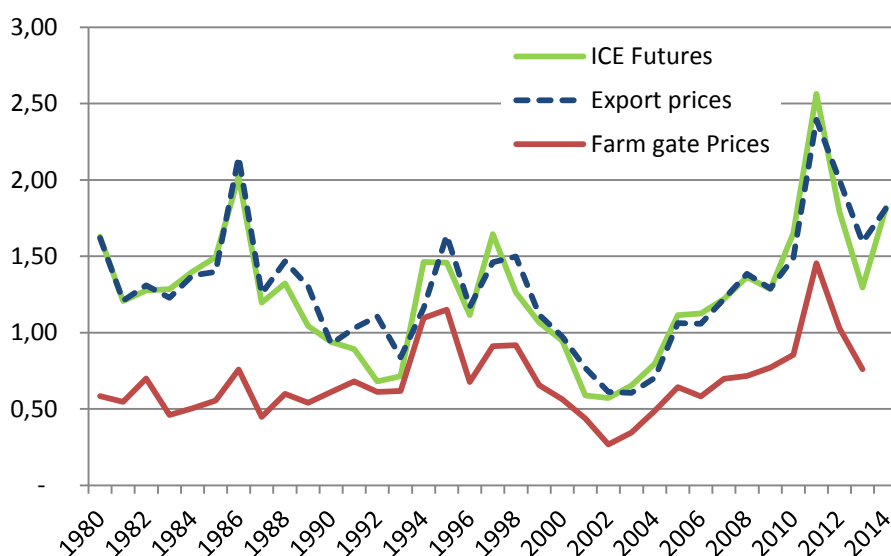
<sup>6</sup> This is different to for example the auction in Tanzania that is blinded, facilitating the separation of local traders and buyers from international exporters. Further, the auction covers only twice a month during the marketing seasons which shields actors further upstream from daily price fluctuations, limiting the transmission of short-term price volatility from futures markets (Bagwari/Newman 2013).

<sup>7</sup> This paper focuses on price risks. However actors in the coffee commodity chain are exposed to different risks, including weather or disease related quantity risks, particularly for producers and processors, and quality, credit and performance risks, particularly for exporters, international traders and roasters (Dana/Gilbert 2008; ITC 2012).

<sup>8</sup> In addition to price risk, currency risk can be a thread to certain actors along the commodity chain independent from coffee price changes. As Ethiopia has a crawl-like exchange rate regime with continuous but slow appreciation, currency risk is however quite limited for all local actors.

futures prices are used as a reference for national export prices by international traders and through EXC these prices are transferred to processors and farmers. Because of this inter-seasonal prices fluctuate quite strongly. Worako et al. (2008) confirms this showing increased transmission from the world coffee market to the local market after liberalization.<sup>9</sup> The strong link to ICE futures notations in the ECX system is also confirmed in the following interview quotes: “The benchmark is the NY futures price” (local exporter); “We are price takers, not decision makers. [...] The price is determined in New York.” (local exporter); “The ECX price and the ICE price are highly correlated, but there are some circumstances where ECX price is lower than ICE price or – to a lesser extent – when ECX price is higher than ICE.” (ECX representative)

**Figure 4: Comparison of annual price levels: ICE coffee futures, export and farm gate prices (US\$/pound)**



Note: UN Comtrade data is used for export prices before 1997.

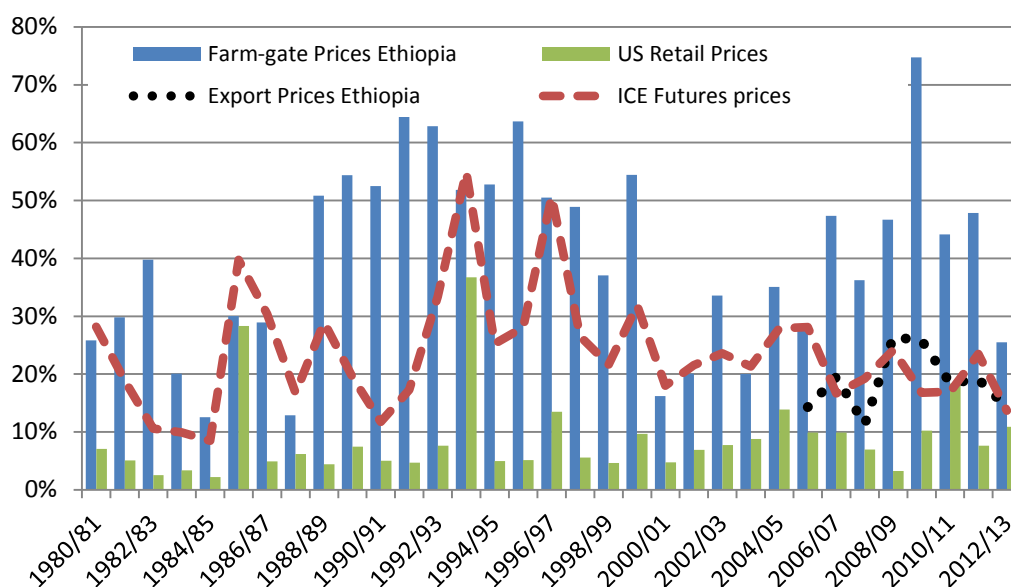
Sources: ICO, ICE, Ministry of Trade, UN Comtrade.

Concerning, intra-seasonal volatility, the comparison of volatilities of monthly Ethiopian farm gate prices, export prices, ICE futures prices and US retail prices (Figure 5) reveals that prices paid to coffee farmers in Ethiopia are more volatile than export and ICE futures prices in most years (see also Worako et al. 2011). Since 2005, annualized price volatility accounted for 43.8 percent for farm gate prices, more than double to volatility of export prices (18.6 percent) and ICE futures (19.9 percent). Farm gate and export price volatility was very high in the aftermath of the ICA collapse in the 1990 with the later declining thereafter while the former has been again very high since the mid 2000s (ICO 2011). Market reform is seen as a significant cause of increased price volatility in Ethiopia (Gemech/Struthers 2007). The effect of the ECX trading system on volatility remains unclear, as ECX auction price data are not officially published by the exchange and only daily ECX notations between July 2012 and July 2013 were released (ECEA 2013b). During that period, daily price volatility is lower in periods where high volumes are traded. This may be an important factor in explaining higher farm gate price volatility as given the sequential production system transactions with red cherries at primary marketing centres take place before the major ECX trading months. As these transactions use the current – at these times

<sup>9</sup> Worako et al. (2008) also find asymmetric price transmission, meaning that farmers are hit harder by lower prices as price transmission is more pronounced when global prices decrease.

more volatile – EXC prices as a basis, price volatility for farmers and processors might be high. Another reason for high farm gate price volatility is national bargaining power with processors and exporters generally being able to secure their margins also in the context of fluctuating global prices by passing their costs to farmers (Dana/Gilbert 2008). In contrast to Ethiopian prices, volatility in US coffee retail prices is significantly lower (with exceptions for few single marketing years). As green bean inputs are a small share of total costs in manufacturing and retailing, coffee price fluctuations are transmitted to a limited degree to downstream prices.

**Figure 5: Comparison of monthly price volatilities: ICE coffee futures, export, farm gate and retail prices (US\$/tonne)**



Note: Annualized (September to August) volatility based on log returns of monthly price data, farm-gate prices in US Dollar, ICE futures price are average of KC2 and KC3 contracts, retail prices refer to US city average of ground roasted coffee (APU0000717311), monthly export price are only assessable from July 2005 onwards.

Source: ILO, BLS, ICE, Ministry of Trade Statistics.

## 5.2. Price risks by different actors

**Coffee farmers** are the natural “longs” of the coffee world. As they have coffee to sell at harvest time, their price risk refers to the difference of expected prices on which they made production decisions and the actual price during the harvest season.<sup>10</sup> They face medium to long-term price risks with regard to their production decisions (inter-seasonal volatility) as well as shorter term price risks within the harvest and marketing season (intra-seasonal volatility). With minimum prices for farmers having been gradually abandoned in the post-liberalization regime, farmers were left uninsured against coffee price fluctuations between and within seasons. With the introduction of ECX, the government aimed for price transparency and lower transaction costs in coffee trade which led to better information on prices by farmers and the transmission of ECX prices to the farm gate. This has however also led to daily EXC price volatility being transferred to farmers and further being accelerated as processors can generally ensure their margins by passing through their costs to farmers.

<sup>10</sup> The harvest season is from October to December for red cherries and from October to around March for dried cherries.

The ability to mitigate these price risks is very limited for individual farmers. Production can only be adapted in the long run as production is a long term process with coffee trees only delivering beans after three years with maximum yields at an age of around eight years. The higher priced fresh red cherries have to be sold immediately after harvest while farmers that have the possibilities to dry and store dried cherries properly can influence the time of selling to primary transaction centres. But storage facilities are often limited and expensive, and wrong handling might be harmful to the value of cherries. Farmers cannot transact back to back business neither sell on fixed price forward contracts as coffee is sold at primary transaction centres during the marketing season in cash terms. Totally out of their reach are hedging activities on derivative markets in New York.

However, two options for partial PRM or more accurately getting higher prices exist – selling coffee illegally as contraband (Assefa/Minten 2015) or being part of cooperatives. As prices in the domestic market are similar to export prices, larger farmers or group of farmers can process coffee and sell it domestically. This is however restricted in the ECX system as all coffee beans have to go through grading at the regional ECX warehouses. It is however estimated that around 30 percent of coffee is sold illegally to local and regional markets. Cooperatives generally received higher export prices and offer the possibility of receiving a secondary payment. Based on the calculations of a cooperative in the Sidama area, members received on average 18 percent on top of their initial coffee sales price from 2004 to 2013. Further, cooperatives offer additional services ranging from input provision to social services. More generally, the presence of cooperative buyers in primary transaction centres prohibits price arrangements of private processors at the expense of small holder farmers.

Price risks for **processors** (akrabies) refer to the difference between the expected parchment coffee sales price after processing which is the ECX auction price and farm gate prices for which red of dried cherries were bought. Generally, processors buy beans from farmers, conduct processing and sell then through the auction at ECX having a long exposure. Compared to producers, the period of exposure is shorter but can still vary between one to several months depending on processing technique, equipment or weather conditions. The maximum storage period after processing is however limited to six months by regulation. This excludes inter-seasonal price risks for akrabies but may – at the same time – increase intra-seasonal volatility as the time period for selling to ECX is limited.

Despite the lack of risk management tools such as back to back selling, forward sales or insurance and even less hedging on derivative markets, processors can to a certain degree limit the processing time and hence reduce the duration of price risk. They have further other possibilities to influence prices and control price risks, particularly in the ECX system that counterbalances to a certain degree the asymmetric power relations between exporters and processors to the benefit of the less-powerful processors. Akrabies and specifically their brokers at the ECX have a certain bargaining power compared to exporters as they have information on available volumes of coffees by grade and origin, particularly in periods with low trading volumes. Thus, akrabies might use stocks to influence prices to some degree. This is accelerated in situations where exporters are short which is generally the case (see below). Akrabies can also use the domestic market to a certain extent as an alternative outlet as they influence coffee quality by sorting processed coffee. This bargaining power of akrabies and their brokers is also seen as a cause of the high price fluctuations at the ECX. The ECX provides further advantages to processors, including guaranteed markets and security of payment which allows improved access to credits, and lower transportation costs due to the fact that coffee is delivered to regional ECX warehouses and not to exporters' plants in Addis Ababa.

The price risks of **exporters** depend on the sequence of buying and selling. If the exporter has green coffee beans in stock, the risk is associated with the expected sales price to international buyers. If exports sell short, the risk depends on the expected buying price of parchment coffee beans at the ECX auction. Most exporters are short on coffee, at least for part of their export volume, as full coverage is capital intensive and there are regulations that limit extensive storage to guarantee continuous export flows (Tefera/Teferea 2013). Exporters are in charge of transporting parchment coffee from regional warehouses to Addis Ababa where a secondary processing step is conducted before transporting green coffee to the port in Djibouti. Altogether this requires around four weeks. Exporters are the local actors with the lowest exposure to price risks given the relatively short time they generally hold coffee. This is true specifically for diversified export companies where coffee only accounts for a small share of their income.

Exporters have more risk management options available, most importantly selling forward to international buyers, which is still the dominant sales form due to national regulation. Ethiopian exports are not allowed to open PTBF contracts with buyers as export prices and volumes have to be reported to the National Bank of Ethiopia the day after an export contract is closed. Hence, contracts with unknown prices are not permitted. Ethiopian exporters commonly use forward contracts for delivery in up to three months with fixed prices based on ICE futures prices corrected for differentials according to the quality level and origin of the coffee. International traders have to adjust to the local institutional setting in Ethiopia in contrast to other East African countries where PTBF contracts are commonly used (Bargawi/Newman 2013; Newman 2009). Another PRM option is back to back selling or buying that in combination with forward sales can limit risk exposure on both sides. A further way to mitigate price risks is the close cooperation with akrabies and producers that are often owned by relatives or business partners. Although vertical integration is not permitted and the ECX system should prevent intra-firm transactions, some exporters use this method to diversify price risks.

As with other local actors, also exports do not use hedging on derivative markets. This is restricted by foreign exchange controls as well as by the high costs, risks and complexities involved – even more so in the context of financialization – and the necessity to have access to financial resources and brokerage services.<sup>11</sup> Further, trading on derivative markets is not adapted to the contexts of local actors in producing countries – for instance are the volumes of local exporters often very small compared to lot sizes in futures markets. A particular problem is the increasing short termism of trading and the related intra-day volatility of commodity prices which leads to more frequent and unpredictable margin calls requiring permanent access to finance. For actors that do not have financial units and the resources and capacities to interact actively with derivative markets and weather any losses associated with sudden adverse price changes, hedging has become an even more difficult risk management instrument.

The major task of **international traders** is the transformation of commodities in space (transportation) and time (storage) as well as the provision of services to sellers and buyers including financial services (Pirrong 2014). These activities require extended information and risk-management systems. International traders' price risk exposure and PRM and their core activities more broadly are highly connected to their use of financial derivative markets: First, as international traders generally hedge all or most of their trades, their price risk is largely limited to differential risk which is substantially lower (ITC 2012; Gibbon 2001; Pirrong 2014).

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<sup>11</sup> High costs accrue not only for purchasing the contracts themselves but also for financing margin calls. Futures require margins that are adjusted on a daily basis to reflect market movements. Financing become necessary when oscillations in the current price fall outside the margin that is set below the original purchase price by the futures contract. Financing margin calls can be very expensive and requires permanent access to financial resources. A problem of options is that the premium is expensive compared to futures contracts (ICT 2012).



Hedging has even become more effective with the widespread use of PTBF contracts which are however not used in Ethiopia related to national regulations. However, hedging requires expertise, resources and permanent monitoring of financial markets where smaller traders without own financial units face difficulties. Second, trading and hedging operations require funding. For access to finance, financial strengths and particularly risk management are prerequisites, even more so since the global economic crisis. Hence, hedging is increasingly required not only to reduce traders' internal risk exposure but to be creditworthy for banks and other funders. This may accelerate concentration among international traders with smaller traders having difficulties to find finance and meet lot sizes on futures markets while large trading houses can expand their financial strengths and increasingly also offer trade finance and financial services to their clients (George 2012). Third, international traders use derivative markets for speculation purposes for their own or their customers' accounts (Gibbon 2014). While this opens opportunities for further profit avenues, this might also lead to price distortions, specifically in combination with the influx of financial investors on commodity derivative markets. This also highlights that for international traders "volatile economic conditions increase value creation opportunities" (Pirrong 2014: 9) as they can profit from arbitrage and speculation opportunities on physical and financial markets.

The ability of international traders to reduce differential price risks is related to factors such as market share, multi-country and multi-commodity coverage (diversification), and vertical integration. Differential risk from a single coffee producing country or region can be counterbalanced if sourcing is diversified by types, qualities and origins of coffees. Hence, large multinational, particularly multi-commodity traders, can also deal with these risks more effectively than smaller traders specialized in coffee from specific regions. Despite common issues, the Ethiopian coffee market is unique with regard to international traders. As the participation of international traders within the country is limited to representative functions, they enter the coffee chain only via contracts with exporters, cooperative unions or commercial farmers. Vertical integration via ownership of exporters, processors or producers is not allowed.<sup>12</sup> International traders also have to follow government regulations regarding types of contracts used with PTBF contracts being not allowed.

**Roasters** process green coffee to roasted or instant coffee as well as blend different types of coffee. They either buy from international traders or directly from exporters, and sell to retailers, coffee houses or have established own retail distribution channels. Price risks for roasters consist of the difference between the expected wholesale/retail price of roasted or instant coffee and the price of green beans. The involved risks are however smaller compared to other actors further upstream in the coffee commodity chain, as green bean inputs amount to around half of marginal costs (Noton/Elberg 2014). Nevertheless, short-term green bean price hikes can squeeze mark-ups in the roasting sector. While green coffee bean costs accounted for around 25 percent of shipment value of roasted coffee in the US in 2002, this share increased to around 50 percent during the coffee price boom in 2012. Although gross margins are inversely related to coffee price fluctuations due to more sticky retail prices, US roasters, for instance, were able to capture gross margins ranging from 35 to 44 percent in the period from 1997 to 2012 (Leibtag et al. 2007; U.S. Census Bureau's Survey of Manufacturers 2012).

Large roasters have the possibility to hedge their green coffee price risks via futures markets. For instance, Starbucks reported that the company hedged the majority of its green coffee need for 2015 and 2016 already in the first months of 2015 via futures as coffee prices declined (Reuters 2015a). Moreover, vertically integration into upstream and downstream activities gives large roasters opportunities to diversify risks. The increasing

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<sup>12</sup> International traders have the possibility to enter the Ethiopian market via plantations. This option is however limited by provision of land by the government.

market concentration in this segment of the coffee value chain also raises the question of oligopolistic price setting, even though this topic is discussed controversially among scholars (see Daviron/Ponte 2005; Gilbert 2008). The largest share (75 percent) in retail value of coffee sales accrues to retail and roasting companies with only 20 percent of retail value remaining in Ethiopia (own calculations based on ITC 2012, ICO, MoT and UN Comtrade).

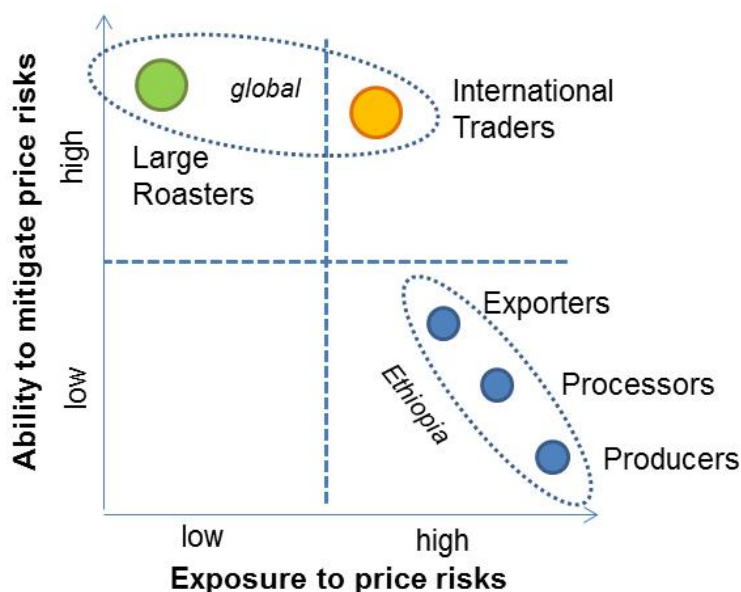
### **5.3. Distributional outcomes**

Overall, the assessment of major actors in the coffee commodity chain on the global level and in Ethiopia by the two criteria exposure to price risks and ability to mitigate price risks, reveals that actors in Ethiopia are generally substantially exposed to price risks while their ability to control these risks is more limited compared to international actors (Figure 6). The exposure to price risks within Ethiopia is connected to price transmission from ICE futures to the local market that increased after liberalization in the 1990s. The creation of ECX even furthered transmission of global prices through the EXC auction and primary transaction centres from exporters to processors and farmers. This has ensured price transparency and reduced transaction costs but it might have accelerated price volatility. This is the case as, first, daily global prices and their volatility are more directly transmitted to all national actors and, second, as volatility is exceptionally high at ECX outside of major trading months, which are the months when transactions at the primary transaction centres take place between farmers and processors. Thus, particularly farmers are highly exposed to price fluctuations in the short run at harvest time as well as in the long-term with regard to production decisions. The exposure to price risks is somehow lower for processors and exporters, also given the shorter time they are exposed to price risks. These actors also have more possibilities to control price risks than farmers – but they are still limited as official risk management mechanisms are not available within Ethiopia.

In contrast, international traders and roasters, acting on the global level, are exposed to lower price risks, particularly large roasting companies. Most importantly, these international actors have the ability to use financial derivative markets to mitigate price risk to a large extent which gives them an important advantage in dealing with price risks relative to local actors in Ethiopia (Dana/Gilbert 2008). International traders commonly use additional strategies to control differential price risk such as diversification to other commodities and/or producing countries or vertical integration along the coffee chain. These strategies are also interlinked to the ability of international traders to control risk via derivative markets as access to funding and trade finance is closely connected to risk management. Further, they use derivative markets for new profit avenues, trading on their own account or offering services and products for physical traders and financial investors. The roaster segment is characterized by the dominance of a limited number of actors which creates the opportunity to “stabilize” wholesale or retail coffee prices while exposure to green coffee price fluctuations is limited and can be further controlled through hedging as well as through diversification in origin and type of coffee.



**Figure 6: Exposure to price risks and ability to mitigate price risks by actors**



Source: Own elaboration.

## 6. Conclusions

Price instability and related risks are a major threat to Ethiopian actors in coffee production and trading. All local actors are exposed to price risks as the institutional setting in Ethiopia uses market-based price discovery based on global futures prices – the central pricing mechanism for international coffee trade. This was further strengthened through the introduction of ECX. Thus, prices are transmitted from global futures markets to national prices. This is particularly problematic given the increased short-termism and the high amplitudes and speed of price changes at commodity derivative markets in the context of financialization. Local actors experience these risks, however, to different degrees. In particular farmers are most vulnerable to price volatility owing to their exposure to inter-seasonal and intra-seasonal price changes. Processors and exporters are generally less affected by price risks than farmers, the overall exposure remains however high.

The strong regulation of the coffee market in Ethiopia has important implications on the structure and distributional outcomes in coffee commodity chains particularly by restricting national value addition in coffee production, processing and trading to local actors. But the regulatory and institutional framework in Ethiopia does not provide price stabilization or risk management tools.<sup>13</sup> National price stabilization would complement this system, particularly for small holder farmers that bear the highest exposure to price volatility and have the most limited possibilities to mitigate these risks, which harms their incomes and specifically long-term production decisions. This would however require to dismiss the strong market-based and price transparency and transmission focus of the current pricing system through EXC.

<sup>13</sup> Further, the access to financial derivative markets for hedging is restricted for Ethiopian actors given foreign exchange controls – in addition to the high entry barriers regarding costs, risk and uncertainties which make them anyways an ineffective instrument for the purposes of local actors.

On the global level, price risk exposure is generally lower compared to local actors. The control of price risk strongly depends on access to financial derivative markets for hedging which both large international traders and roasters have. Risk-management via derivatives is essential for international trading companies – first, to minimise market price risk and, second, as risk-management provides the precondition for access to finance which again translates into improved possibilities to diversify risks and for economies of scales. Further, they increasingly use derivative markets for financial trading purposes and related services beyond hedging expanding their profit avenues. Roasters have lower risk exposure to green coffee prices and usually use derivatives for hedging. Further, they may influence wholesale or retail coffee prices depending on their market share.

To conclude, this analysis for the Ethiopian case supports the finding of Newman (2009) on coffee chains originating in Tanzania and Uganda that uneven exposure to price volatility and access to PRM strategies have important distributional implications and tend to exacerbate existing inequalities in coffee trading. Large international and financially adept actors stand to gain from opportunities for financial trading and service provision alongside hedging activities on derivative markets while smaller traders and particularly local actors in producer countries face greater challenges in an environment of price instability and short-termism with no access to financial markets for risk management. However, as in Tanzania and Uganda (Newman 2009), the actual impacts on local actors and particularly producers are mediated by local market structures and price setting arrangements with the ECX strengthening price transparency but also the transmission of futures price volatility to local actors.

On a conceptual level, our analysis of the global coffee commodity chain reveals the necessity to consider the interdependences between chain governance and global macro and local contexts to assess distributional outcomes for local producers of export crops. Particularly, the role of financial markets, i.e. commodity derivative markets, and financialization in determining prices and value, related risks and PRM options as well as more broadly the structure of physical chains and the actions and motives of different actors is crucial. Not taking this additional dimension of power into account and its interrelations with traditional lead firm power in commodity chain analysis makes a distributional analysis incomplete. It circumvents the central question of how value is created or “set” and income and risks distributed, which is at the centre of chain and network approaches, and is strongly influenced – if not dominated – by financial markets and their interaction with the physical sphere of production and trade in the context of financialization.

Local contexts and market structures mediate the implications of financialization - and global structures, processes and actions more generally – on development and distributional outcomes, including exposure to price risk and risk management, in commodity chains. But they do this only to a certain extent as they cannot address overall global power asymmetries and vulnerability – the major driver of inequalities in income and risks along global commodity chains. For coffee chains this is particularly the dominant role of international traders and roasters which has been ascertained by their increasing links to commodity derivative markets. Through acting on these markets they have expanded their possibilities to determine prices along chains, cope with price risks and pursue additional financial activities and profit avenues.

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## Author

**Bernhard Tröster** is an economist with specialization in international development as well as financial markets. Since January 2014, he has been researcher at ÖFSE with a focus on international trade and commodities & development. He also conducts Doctoral Studies in Social and Economics Sciences at the Vienna University of Economics and Business.