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Coffee and Cocoa Price Risk Management (CC- PRM)

PRM models and value chain analysis

June, 2019

Agenda

Price volatility in coffee sector

Taxonomy of price risk mitigation models

Value chain and PRM model analysis

- Coffee Latin America

- Coffee Africa

- Cocoa Africa

There is a complicated relationship between prices that farmers receive and international prices for coffee

1

International prices determined in New York and London stock exchanges

International prices (+ quality mark-ups) are a reference point for export prices for producer countries

2

Export prices at each producing country

Export prices are defined partly by the international prices and partly by local market conditions, including farm-gate prices and costs along the value chain (from green bean coffee to parchment)

3

Farm-gate prices received by farmers

Farm-gate prices are determined by export prices and power dynamics and efficiencies along the value chain (i.e., what share of the export price are farmers able to receive)

Notes: 1. Is the price calculated based on the market share of exports of each group of coffee weighted in accordance with ICO. Other milds includes Arabica production from: Bolivia, Burundi, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, India, Jamaica, Malawi, Mexico, Nepal, Nicaragua, Panama, Papua New Guinea, Peru, Rwanda, Venezuela, Zambia and Zimbabwe. 2. Average price paid to the grower at farmgate level, or the minimum price guaranteed by the Government to the grower, by form and weight reported in the national currency in which the coffee is purchased and converted into US cents/lb). This is commonly coffee in parchment, not green.
Source: ICO, 2018

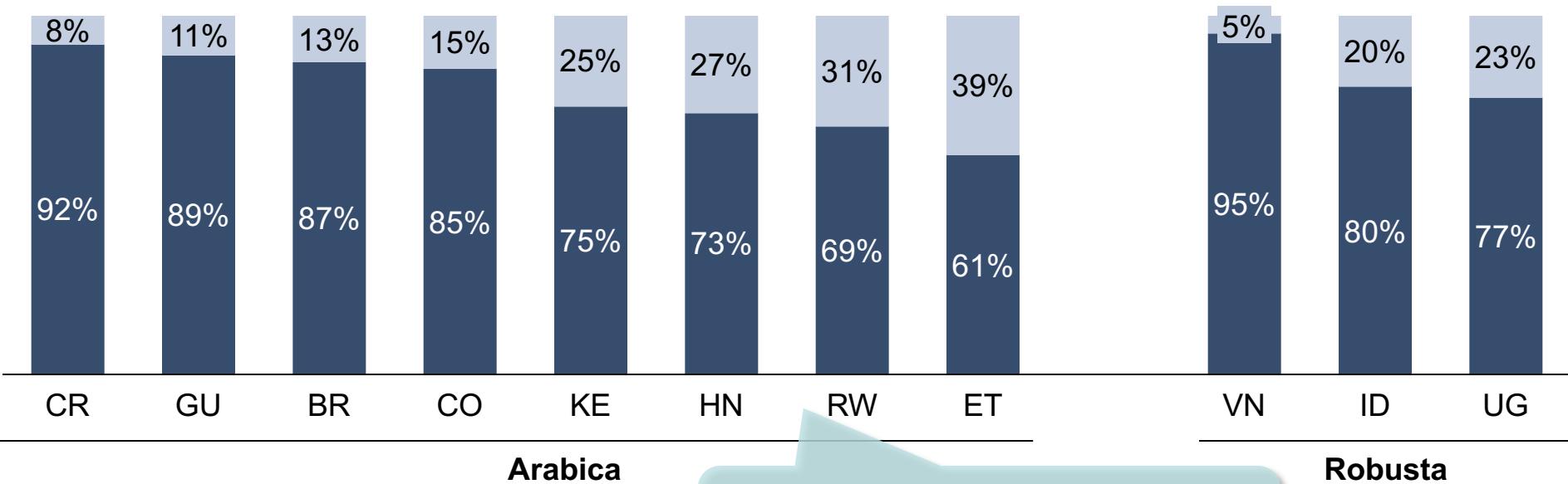
The price that farmers receive also depends on local market conditions and the structure of the value chain

Share of farmer-gate price and supply chain costs (% of export price)

Supply chain
Farm-gate

Farmers sell coffee at different stages of processing, some sell in cherry others in parchment. The farm-gate prices are the average prices paid at the farm-gate level, or the minimum guaranteed by the government, depending on the stage of processing and amount sold in national currency converted to US cents/lb

Vietnam's efficiency is driven by competition between national and international exporters

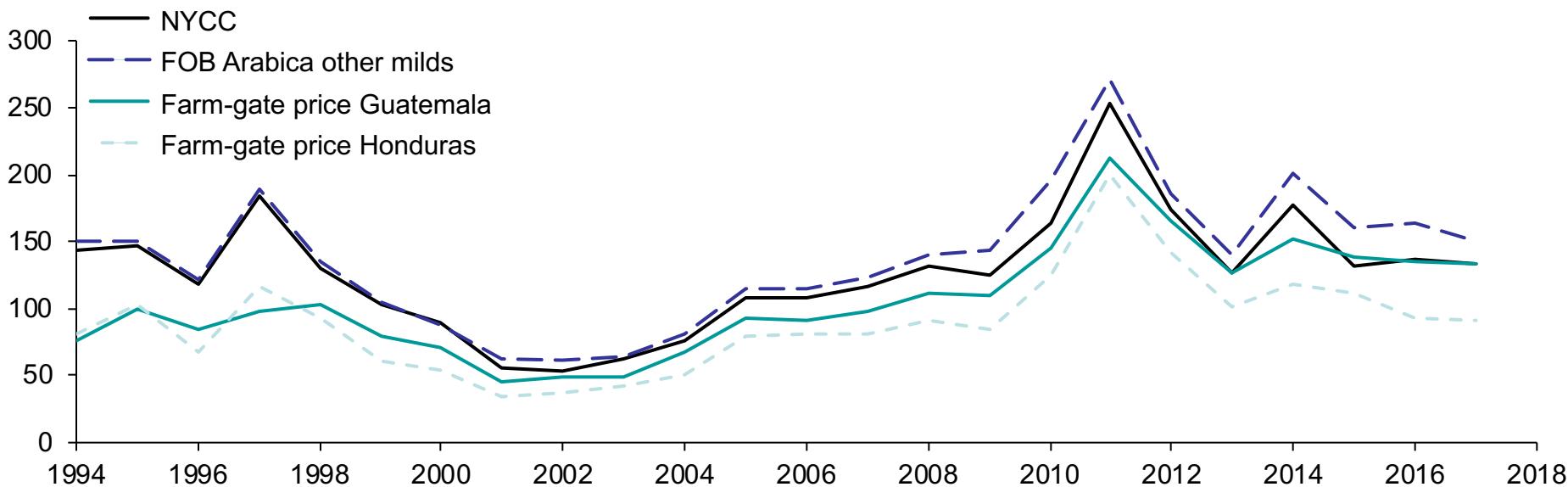


Countries with limited govt. intervention, competitive markets, and farmer organization tend to rank higher in efficiency

International coffee prices are volatile, making it hard for supply chain actors to predict prices and creating the need to hedge risk

International reference prices and export prices

USD cents per lb, 2016-2018



Arabica prices have fallen on average 9.7% CAGR, from 2011 to 2017 for green bean FOB negotiations; while retail prices in large consuming countries like USA have only fallen 2.5% CAGR for the same period

International coffee prices are determined by global supply and demand and non-commercial investors

International coffee prices are defined on the commodity NY and London commodity exchange markets, and they depend on a variety of forces



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Non-commercial players (e.g., hedge funds, institutional investors) investing in futures of coffee. For instance, in the coffee futures market longer-term speculative involvement can reach as much as 30% of the open interest,¹ playing a significant role in setting international coffee prices



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Market supply (production and stocks): Historically there has been a high oversupply of commodity coffees. The biggest players, Brazil and Vietnam produce more than 50% of the world's coffee, playing a disproportionate role in influencing market prices



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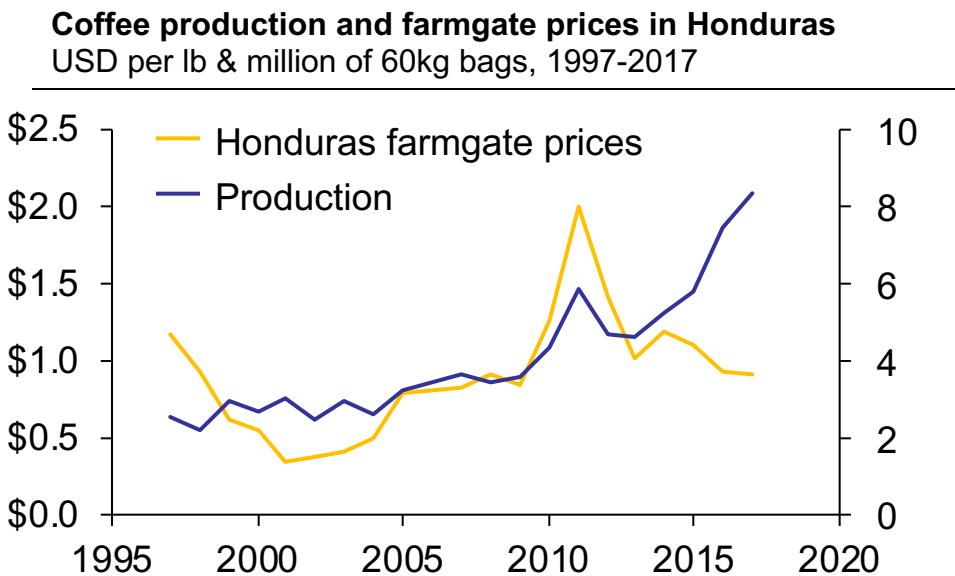
Market demand: Demand for coffee has risen steadily over the past five years, ~1.6% CAGR over the past five years and consumption has been above production three of the five last years.² Large coffee traders, ECOM, Louis Dreyfus, Newmann, and Volcafe, purchase about 40% of all global coffee, playing a big role in the global coffee market³. Other sources cite OLAM⁴, Volcafe and Sucafina⁵ as industry leaders buying coffee.⁶

Notes: 1. Open interest is the total number of open or outstanding options and/or futures contracts that exist at a given time, meaning these are the positions created by traders that are not backed by physical trading but hold implications for the commodities' price. 2. This is estimated on thousand of 60kg. Bags. 3. Market situation in 2012, expected to have maintained relatively similar. 4. Industry expert. 5. Coffee Barometer, 2018. 6. According to the Coffee Barometer, 2018, the dominant companies are privately held and are not required to share data, making it hard to estimate their size and influence. Source: Socio Studies, "The Global Coffee Commodity Chain," 2017 , ICO, 2018, International Trade Center, 2018,

Price volatility has immense implications on coffee farmers' livelihoods, making price risk mitigation a necessity

Prices in small producer countries don't necessarily reflect local market fundamentals, making it difficult for farmers to predict prices...

...And with little margin to absorb negative shocks, drops in prices put farmers' livelihoods at risk



- 70% of global coffee is produced by an estimated 25 million farmers around the world, who operate with thin margins or losses e.g., Guatemalan farmers report their production costs to be around \$104 per quintal while farmgate prices are around \$85
- This, coupled with limited access to financial services means that farmers have little capacity to smooth their income and absorb negative shocks

It is difficult for farmers to predict prices both:

- In the short run, where prices are often dependent on the speculation in the NYSE
- In the long run, where prices tend to depend on global production and consumption

Under this context, we are seeking to answer the following key questions

- **How can farmers cope with the risk of low and changing prices?**
- How can farmers capture a higher share of the price in the VC?
- What mechanisms exist that can help farmers better manage price risk?
- What are key success factors and market features required to implement these mechanisms?

Agenda

Price volatility in coffee sector

Taxonomy of price risk mitigation models

Value chain and PRM model analysis

- Coffee Latin America
- Coffee Africa
- Cocoa Africa

Our approach

- **To understand this question we analyzed existing price risk management (PRM) models used in coffee and cocoa value chains across the world**
 - We mapped what PRM models have been used in the cocoa and value chains in the main producer countries around the world
 - We studied 11 coffee and cocoa value chains to identify what PRM models
 - Based on the findings, we developed a typology of PRM models and provide examples of the different models. We also identify key success factors and market conditions that facilitate the successful implementation of these models
 - This will help us identify what models would work best under the specific conditions in Guatemala and Honduras

There are three main price risk mitigation (PRM) models that address price volatility in different ways

Price risk mitigation models

MODELS	DEFINITION
1 Increase transparency in the market	Reduce information asymmetries and lack of transparency to improve decision-making across the value chain. These types of models allow the 'true price' of products to be discovered, either by addressing information asymmetries, providing the ability to trace origin and farming and processing practices, or develop price discovery mechanisms through centralized marketplaces.
2 Pool risk between actors	Decrease the price volatility experienced by pooling risk between actors in the value chain. These models focus on aggregating risk between different players in the value chain or across the country, to reduce the experienced volatility of independent players.
3 Reallocate risk across actors	Reallocate risk across different actors using financial mechanisms and protect value chain actors from price speculation. These mechanisms leverage financial markets, over the counter PRM mechanisms, and contracts to manage risk.

Within each model, there are different mechanisms (PRMMs) that can be used

Taxonomy of PRMMs

MODELS	PRICE RISK MITIGATION MECHANISMS (PRMMs)
1 Increase transparency in the market	1.1. Market information to track prices and quantities and reduce info asymmetries along the VC 1.2. Certifications to prove the quality of the product and guarantee production standards 1.3. Market price discovery mechanisms to set local prices in a transparent way
2 Pool risk between actors	2.1. Risk pool of producers to share the risk of changing prices between multiple farmers 2.2. Price stabilization through minimum price guarantees, often pooling risk at national levels 2.3. Supply stabilization to influence prices via availability of coffee in the market
3 Reallocate risk across actors	3.1. Insurance to protect farmers from negative effects of unexpected events 3.2. Over the counter contracts to reallocate risk from farmers to other actors in the value chain 3.3. Derivatives to hedge risk of actors up the value chain

The PRMMs can be led by different actors

PRMMs by type of actor

MODELS	PRODUCERS	SUPPLY CHAIN ACTORS	SUPPORT ACTORS
1 Increase transparency in the market	1.1. Market information 1.2. Certifications	1.3. Market price discovery mechanisms	
2 Pool risk between actors	2.1. Risk pool of producers		2.2. Price stabilization 2.3. Supply stabilization
3 Reallocate risk across actors	3.1. Insurance	3.2. Over the counter contracts 3.3. Derivatives	

We studied more than 30 different PRMM examples in coffee and cocoa producing countries, most of which are led by supply chain actors

Examples of PRMMs by type of actor encountered during the study

MODELS & MECHANISM	PRODUCERS	SUPPLY CHAIN ACTORS	SUPPORT ACTORS	
1	1.1. Market information	• 1.3 Certification of specialty coffee in all countries	• 1.1 Technoserve SMS bookkeeping • 1.3 AFEX and Binkabi agricultural commodity trading platform in Nigeria • 1.3 Cup of Excellence online auction in multiple countries • 1.3 AFCA specialty coffee competition and online auction	• 1.1. Price data dissemination through mobile phone in all countries • 1.3 Ethiopia and Kenya auctions • 1.3 Online Arabica auction in Uganda • 1.3 Kogi government digital agricultural market place in Nigeria
	1.2. Certifications			
	1.3. Market price discovery mechanisms			
2	2.1. Risk pool of producers		• 2.1 ICCO PRM capacity building program for cooperatives in partnership with CAN in Nigeria	• 2.2 NAEB fixed prices in Rwanda
	2.2. Price stabilization		• 2.1 UCDA cooperative strengthening program in Uganda	• 2.2 Abidjan Declaration to synchronize prices in Ghana and Côte D'Ivoire
	2.3. Supply stabilization		• 2.1 HRNS program to build Coffee Farmers' Alliances in Uganda • 2.1 FEDECAFE in Colombia • 2.1 Ankole in Uganda	• 2.2 Coffee Institute fixed average prices and restitution of upside differential to SHFs in Costa Rica • 2.3. Fixed prices + stabilization fund in Ghana and Côte D'Ivoire
3	3.1. Insurance	• 3.1 Nespresso and Blue Marble Microinsurance Index based weather insurance in Colombia	• 3.2 CMC hedges and forward sells 70% of expected annual harvest in Ghana	• 3.3 Commodity Exchange in Ethiopia
	3.2. Over the counter contracts	• 3.1 Index based weather insurance in Kenya and Uganda	• 3.2 Long-term contracts in Guatemala	
	3.3. Derivatives	• 3.1 De Los Anders hedging strategies in Colombia	• 3.2 Sustainable Harvest price-to-be-fixed contracts + options in LatAm • 3.3 Larger coops use derivatives in all countries • 3.3 Oikocredit-MIF PRM program in Guatemala and Honduras	

In addition, there are models that focus on increasing farmer resilience that are important enablers for the implementation of PRMMs

The objective is to increase farmers' resilience and increase farmer income. These models focus on increasing the price received by farmers, increasing productivity, and providing access to other support services (e.g., finance, capacity building, aggregation)

1

Increase the price received

1.1. **Processing** cherries to wet or dry parchment to capture higher share of price

1.2. **Premiumization** to increase overall price of coffee produced

1.3. **Trace the origin** of the product and the process along the value chain and increase price

2

Increase productivity

2.1. **Renovation and rehabilitation** to improve the productivity of trees planted

2.2. **Fertilization** based on soil conditions and specific needs to improve quality and productivity

2.3. **Mechanization** of farming to reduce labor costs

3

Increase access to support services

3.1. **Access to financial services** for working and investment capital

3.2. **Professionalization of farmers** to improve farming practices and farm management

3.3. **Farmer aggregation** to increase bargaining power and access to other services

For each PRMM we provide a description, examples, key success factors, and requirements for successful implementation

DESCRIPTION

We asked five questions

- How does it mitigate price risk?
- How does it work?
- Key actors / who leads it?
- What is the potential impact on SHFs?
- How feasible is it to implement?

EXAMPLES

We sourced examples from:

- Landscape of PRMM used in the coffee and cocoa value chains across the world
- Mapping of 11 coffee and cocoa value chains

WHAT ARE THE KEY REQUIREMENTS?

Six potential characteristics of the value chain and country context that help us identify what PRMM might be relevant



Farmers produce **high quality** coffee



Farmers and/or coops have **access to finance and resources**



Farmers belong to a **tight value chain**



Farmers are **aggregated** in well managed cooperatives



The value chain is **vertically integrated** (e.g., value chain is consolidated at the processing, buyer, exporters level)



There is high **intervention from institutions** in the sector



Key requirement for the implementation of the PRMM



Enabler / key success factor for the PRMM



Not relevant for the implementation of the PRMM

Legend

Market information helps SHFs increase their bargaining power and better predict future market trends

DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> How does it mitigate price risk? <p>Enables actors in the VC to better predict prices and quantities sold at different stages in the process and thus to better manage risk. It can also increase SHFs' capacity to negotiate by providing relevant information about the market</p>	 The quality of the coffee in itself does not matter for info collection
<ul style="list-style-type: none"> How does it work? <p>Price and quality information is collected (can be by farmers, coops, buyers, governments, etc.) and disseminated through different means (e.g., SMS, internet, newspapers)</p>	 Farmer coops can serve as a centralized center to collect and share info
<ul style="list-style-type: none"> Key actors / who leads it? <p>Commonly social enterprises, funders (e.g., TNS) or governments</p>	 Farmers need to have access to mobile phones / other form of info dissemination
<ul style="list-style-type: none"> Potential impact? LOW <p>Price info alone might not be sufficient to mitigate risk</p>	 Vertical integration facilitates consolidation and flow of info
<ul style="list-style-type: none"> Ease of implementation? HIGH <p>With ICT / mobile phones, relatively easy to collect and share info</p>	 A functioning ITC infrastructure needs to be in place

EXAMPLES

- COMSA price information in Honduras (CS 1)**
- TechnoServe (TNS) book keeping in Rwanda (CS 2)**
- Moyee Coffee FairChain blockchain platform (CS forthcoming)**
- IHCafe price dissemination online and through SMSs in Honduras**
- FEDECAFE price dissemination on newspapers in Colombia**
- Kogi government digital agricultural market place in Nigeria**

In CS2, information gathered about prices and quantities provides more visibility to exporters, improving their capacity to hedge risk with financial mechanisms. It is an example of market information + derivatives

CS 1: In Honduras, COMSA shares the daily price at which they buy coffee from farmers to increase visibility about the market

1

PRM mechanism: Market information + derivatives

How does the mechanism work?

→ Information → Cash flow



COMSA offers a purchase price for wet and dry parchment above market level. Everyday, COMSA announces the price through WhatsApp



COMSA sets the purchase price based on NYCC prices + Fair Trade (FT) and Organic (FTO) premiums divided by all COMSA members (including FTO a non FTO)



COMSA separates coffee depending on certifications and quality and negotiates prices directly with importers and roasters. By pooling risk between different qualities, it can offer a price above market to all producers they buy from.

What is the track record?

- COMSA's daily WhatsApp messages reach all their members, who can then decide what day to sell
- Producers in the region who are not COMSA members can also register for the WhatsApp messages to receive price information and compared to local intermediaries

What are the success factors?

- Wide-spread penetration and use of mobile services allowed COMSA to share daily prices with all members and non-members
- Strong financial management in COMSA allows them to define the premiums above market price they will offer based on (i) the FTO premiums and (ii) their demand for coffee for the season and capacity to sell that coffee at higher prices

How replicable is it?

- The information mechanism is easy to replicate. Requires defining the purchase price and sharing through a simple communication system (e.g., WhatsApp, SMS).

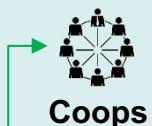
CS 2: In Rwanda, an SMS-based inventory management system allows exporters to implement hedging strategies for coops

1

PRM mechanism: Market information

How does the mechanism work?

→ Information → Cash flow



SHF affiliated to coops receive a **guarantee price from exporters**



Wet mill station accountants send **daily SMS messages with production data**



A cloud-based system collates data from wet mills, developed by Technoserve **allows exporters holistic visibility** of their portfolio



Exporter uses **accurate production data** from coops to lock in the agreed price on the **futures market**

What is the track record?

- At the end of 2012, the SMS bookkeeping was implemented at more than 50 Rwandese cooperatives. In 2013, it expanded to Tanzania and Ethiopia
- Between 2010 and 2012 approximately 1,000 MT of coffee from cooperatives affiliated with the program had been hedged on the New York futures market
- The system allows exporters to hedge the coffee they bought from a specific cooperative, and guarantee a predetermined price to the cooperatives

What are the success factors?

- Wide-spread penetration and use of mobile services enabled TNS to reach a wide base of users with the system
- The system utilizes existing, readily available, and easy-to-use technology (i.e. SMS), enabling speedy adoption, rapid expansion, and reduced user error
- Tight value chains increased exporters' willingness to support cooperatives in implementing hedging strategies once all relevant data became available

How replicable is it?

- The system is not expensive and only requires mutual commitment between cooperatives and exporters, without significant involvement from external actors

Certifications to prove quality and origin of the product can define minimum prices for certified coffee

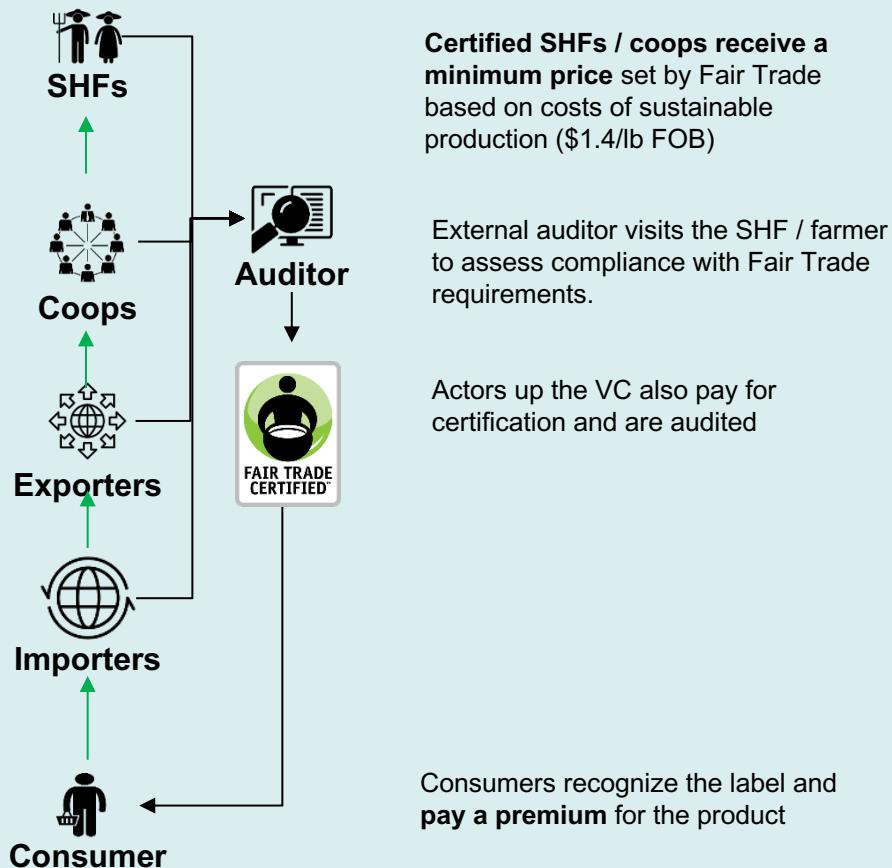
DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> How does it mitigate price risk? Enables farmers to certify the quality of their product and process and receive a quality mark-up. In the case of Fair Trade, there is a minimum \$1.4/lb price FOB guarantee, and \$0.3/lb premium for organic coffee 	 <p>Certifications apply for any level quality of coffee. By introducing better practices required by certifications, quality of coffee may increase</p>
<ul style="list-style-type: none"> How does it work? An independent body/ actor provides written assurance that a product meets specific requirements. Certified producers should receive either the minimum price guarantee of FT(O) or quality premiums. 	 <p>Cooperatives provide support and oversight for certification processes and standards</p>
<ul style="list-style-type: none"> Key actors / who leads it? Most commonly by coops or (large) farmers working with organizations specialized in certifications (e.g., Fair Trade, UTZ, Organic) 	 <p>Certifications often require investments in inputs, R&R, management process</p>
<ul style="list-style-type: none"> Potential impact? MEDIUM Certifications may allow farmers to join a tighter VC with more stable prices and who provide support services 	 <p>Multiple steps of the VC need to follow certification standards and need to be controlled by the same actor</p>
<ul style="list-style-type: none"> Ease of implementation? MEDIUM Requires investment and support to gain and maintain certification 	 <p>Tight VCs facilitate compliance with certification standards</p>
<h3>EXAMPLES</h3> <ul style="list-style-type: none"> Fairtrade certifications (CS 3) Certification of specialty coffee in all countries (UTZ, Organic, etc.) 	 <p>The certification process is generally not led by government or institutions</p>

CS 3: Fair Trade certification leverages consumer recognition to allow farmers to receive premiums and guarantee minimum prices

1

PRM approach: Certifications

How does the mechanism work?



What is the track record?

What works well

- In 2017, 1,600 coops benefited from premium payouts of ~\$200M, and Fair Trade coffee sales increased by 15%
- Enhances market access and stability via long term contracts
- Yields and productivity increase

What doesn't work well

- The costs of certification are high and sometimes do not outweigh the benefits. For instance, ~18% of coops interviewed by Fair Trade said the costs outweighed the benefits of certification.
- The impact of the price premium becomes less significant if farmers are forced to sell part of their certified products to the conventional market with no or limited return on investment. This occurs when access to a certified market is limited

What are the success factors?

- Strong cooperatives to maintain certification standards
- Access to capital facilitates investment requirements
- Access to a reliable market for certified products

How replicable is it?

- Replicable in places with strong, professionalized cooperatives with access to working capital, and a market for certified products

Market price discovery mechanisms are platforms that link producers and buyers, increasing transparency in prices setting

DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> How does it mitigate price risk? <p>The price is defined based on supply and demand in a common marketplace that increases transparency</p>	 Effective with high quality coffee for which buyers are willing to offer significant premiums
<ul style="list-style-type: none"> How does it work? <p>Marketplaces to sell a commodity, such as auctions, bring producers and buyers (e.g. exporters, roasters) together and allow for transparent price discovery. Online auctions for specialty coffee help bring producers/ coops and buyers in diverse geographies in direct contact, avoiding intermediaries. This helps establish fairer prices, and ensure that producers receive higher share of price.</p>	 Cooperatives help individual SHFs access (digital) marketplaces and put them in contact with buyers
<p>Key actors / who leads it?</p> <p>Set up by governments, sector associations (e.g., IHCAFE, ANACAFE), or private support actors. Sellers and buyers place bids</p>	 This PRMM is mainly led by supply chain actors, and not by farmers or coops
<ul style="list-style-type: none"> Potential impact? MEDIUM <p>Transparent price discovery mechanisms can lead to higher and more stable farm gate prices. However, these mechanisms are often better suited for high-quality specialty coffee and therefore are unlikely to reach significant scale. Larger scale price discovery mechanisms, like the Auction in Kenya and the Ethiopian Commodity Exchange, have not resulted in higher farm gate prices for farmers, as they continued to receive similar shares of export FOB prices after the introduction of the exchange. This is mostly due to inefficiencies in the local VCs.</p>	 Integrated VCs where producers and buyers can get in contact and bypass intermediaries that do not add value are often a result
<ul style="list-style-type: none"> Ease of implementation? MEDIUM <p>Digital platforms require infrastructure and oversight mechanisms. Local implementation needs to be sound to ensure that the objective of achieving higher and more stable prices are achieved.</p>	 Buyers of high-quality coffee keen to have a closer link with producers and willing to pay higher prices
EXAMPLES	
<ul style="list-style-type: none"> African Fine Coffee Association (AFCA) Taste of Harvest specialty coffee competition and online auction (CS 4) Cup of Excellence by the Alliance for Coffee Excellence (ACE) in Guatemala, Honduras, Colombia, Costa Rica and Rwanda Online Auction Arabica in Uganda Coffee Auction in Kenya Ethiopia Commodity Exchange 	<p>It is harder for SHFs to reach traditional auctions because they would need to process and physically transport coffee</p>

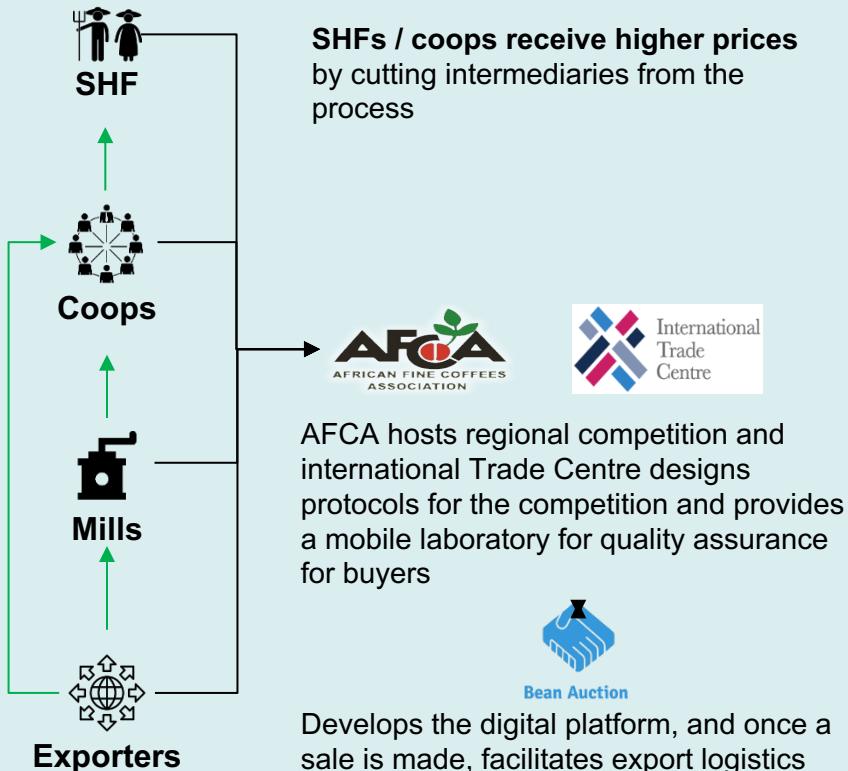
CS 4: AFCA's online auctions connect specialty coffee producers with international buyers, resulting in significantly higher prices

2

PRM approach: Pool risk between actors

How does the mechanism work?

→ Information → Cash flow



What is the track record?

- In 2016 and 2017 pilot auctions were held in several African countries involving 13 active international bidders for lots put up for sale by 18 cooperatives. More than 16,200 kilograms of coffee were sold for ~\$110,000
- As a result, producers received higher prices. E.g., ToH, winning coffee from Tanzania, was sold to Swiss buyers at prices 58% to 108% above market rates. Tasting competitions and auctions were held in November 2017 for coffee from Zambia and Malawi, at a 160% premium above normal market rates
- Similar competitions and auctions are planned for the Democratic Republic of the Congo, Kenya and Uganda.

What are the success factors?

- Bean Auction Ltd's IT, local partnerships and proven supply chain management techniques
- AFCA's network of industry and local government connections
- Tight VC that cuts intermediaries who don't add value and create a closer link between growers and roasters
- Producers of high quality coffee sufficiently sophisticated to participate in the auction

How replicable is it?

- The platform can leverage a country's existing ITC infrastructure and only requires adaptations for local legal requirements.
- It is more suitable for high-quality / specialty coffee markets, and therefore unlikely to be replicable at a large scale.

Risk pool of producers helps SHFs receive prices above market for commodity coffee

DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> How does it mitigate price risk? Farmer groups offer a minimum price to associated farmers by pooling the risk from multiple members 	 Most effective with different types of quality coffees
<ul style="list-style-type: none"> How does it work? The farmer group purchases different levels of quality product. The group provides a minimum price guarantee and manages the risk by selling with a mark-up the higher quality product. Producers of higher quality receive a premium once it is sold and exported 	 Strong and well managed coops to aggregate farmers and pool risk
<ul style="list-style-type: none"> Key actors / who leads it? Generally led by cooperatives or farmer groups 	 Vertical integration decreases the number of interactions; easier to ensure the consistency of the product across producers
<ul style="list-style-type: none"> Potential impact? HIGH Increases SHFs bargaining power and guarantees minimum price 	 Financing required to set up a group/ coop and ensure its functioning
<ul style="list-style-type: none"> Ease of implementation? MEDIUM Requires the presence or creation of capable and well connected cooperatives and access to high quality markets. Sophisticated coops with the right skills, expertise and capital are able to manage risk well. Otherwise, using this mechanism can go wrong and have a negative effect on farmers due to fraud or mismanagement of resources 	 Tight VCs are not required for coops to be able to pool risk
	 Not particular role played by the government

EXAMPLES

- **ACODIHUE in Guatemala (CS 5)**
- Ankole in Uganda
- FEDECAFE in Colombia
- UCDA cooperative strengthening program in Uganda
- HRNS program to build Coffee Farmers' Alliances in Uganda
- ICCO PRM capacity building program for cooperatives in partnership with CAN in Nigeria
- Mzuzu in Malawi

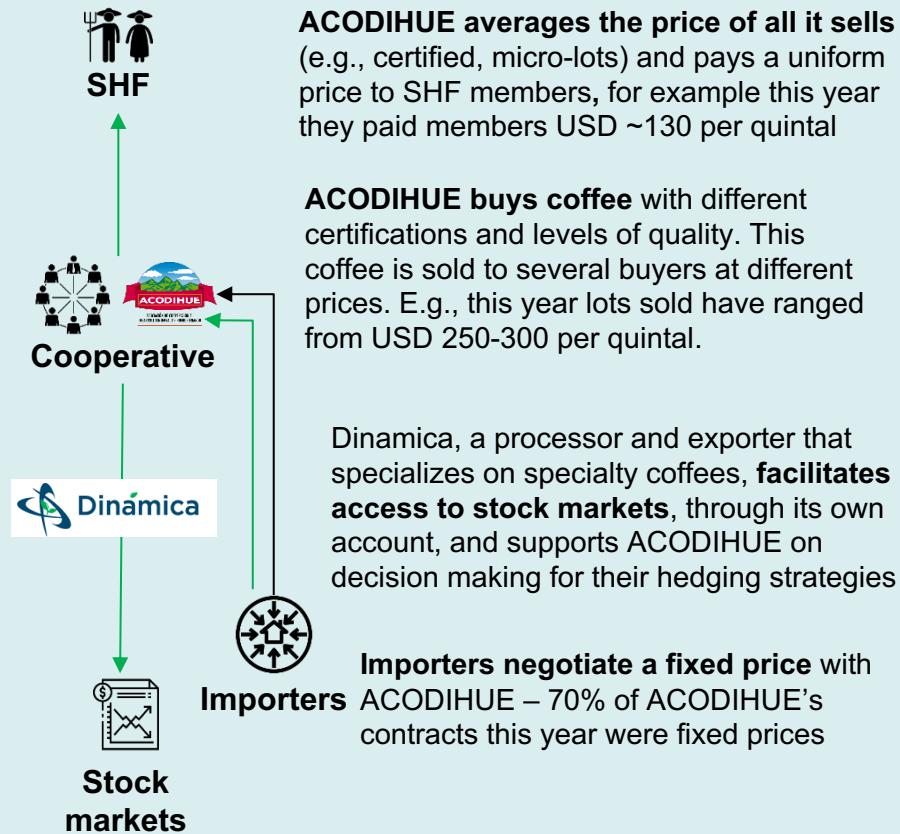
CS 5: In Guatemala, ACODIHUE pools production from five coops, averages selling prices, and pays back uniform price to SHFs

2

PRM mechanism: Price stabilization

How does the mechanism work?

→ Information → Cash flow



What is the track record?

- ~1,500 SHFs members of ACODIHUE are guaranteed a stable minimum price through negotiated fixed price contracts the coop has with buyers. Today these SHFs are receiving on average USD 40 more per coffee quintal compared to market prices
- ACODIHUE's hedging strategy with call options has helped it assure it will be able to procure the coffee it sells, but it has not been put in action since it began four years ago, due to the constant low prices (i.e., the call options help assure ACODIHUE can pay at least market prices to its SHFs in case prices rise beyond the negotiated price with the importer)

What are the success factors?

- ACODIHUE's capacity to commercialize differentiated coffee, including a close traceability of different coffees, their producers, and their certifications
- ACODIHUE's access to Dinamica's account to buy derivatives and their support to understand and manage their positions

How replicable is it?

- This can be replicated by cooperatives grouping producers of different types / qualities of coffee
- Scalability may be difficult because there is a limited demand for specialty certified coffees. For example ACODIHUE is commercializing 6k of the 40k coffee quintals members produce – forcing some to sell their remaining coffee through other means, likely at commodity coffee market prices
- Scalability can be hindered as some certificates that allow for mark-up require significant investments

Price stabilization tools ensure SHFs receive a minimum price

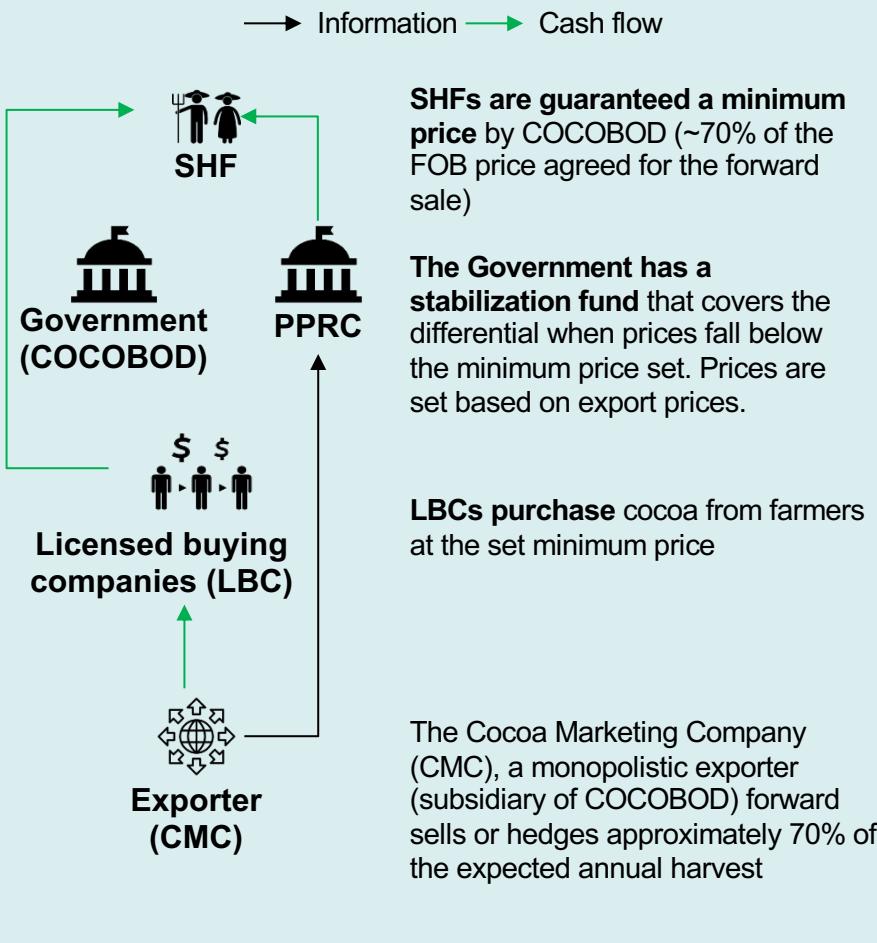
DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> How does it mitigate price risk? 	<p>Setting a fix price or minimum price level cancels the effect of large drops in market prices</p>
<ul style="list-style-type: none"> How does it work? 	<p>Prices can be stabilized either by setting price floors through regulation or through stabilization funds raised to cover the differential when prices fall below a minimum threshold</p>
<ul style="list-style-type: none"> Key actors / who leads it? 	<p>Governments or sector associations</p>
<ul style="list-style-type: none"> Potential impact? MEDIUM 	<p>Ensures SHFs receive a minimum price. However, it may be unsustainable for government / sector associations to maintain the model with consistently low prices. It can also reduce the competitiveness of the local market if farm gate prices increase compared to other countries producing similar quality coffee.</p>
<ul style="list-style-type: none"> Ease of implementation? MEDIUM 	<p>Requires the strong government or sector association intervention and tailored policies</p>
EXAMPLES	
<ul style="list-style-type: none"> Fixed prices and price stabilization fund in Ghana (CS 6) NAEB fixed farm prices in Rwanda FEDECAFE price stabilization fund and minimum price guarantee Coffee Institute fixed average prices and restitution of upside differential to SHFs in Costa Rica 	 Can be applied to commodities irrespective of the quality  Coops can help aggregate farmers and ensure SHFs receive the minimum price  No additional resources required  Can be applied irrespective of whether the VC is vertically integrated or not  Tight VC helps traceability (to encourage quality production and compensation) and assess what minimum price is suitable. It also helps ensure that the minimum price set is honored by different actors  Strong government capacity to monitor prices and production and respond to market changes to set appropriate price floors and/or manage price stabilization funds

CS 6: In Ghana, COCOBOD regulates farmgate prices by using a stabilization fund

2

PRM approach: Price stabilization tools

How does the mechanism work?



What is the track record?

What works well

- Guarantees farmers market access and a set price, which is advantageous when the world market price is volatile
- Fixed price protects farmers against abuse of market power
- Facilitates tax-collection, which in turn is re-invested in the sector

What doesn't work well

- High transaction costs to maintain the system leads to lower price realization for farmers at the farmgate than in liberalized markets
- Use of a stabilization fund (i) risks distorting the global market by creating an unintentional supply stimulation for cocoa (which can cause a decline in global prices), and (ii) causes the government to absorb the shock of price fluctuations (can increase inflation or government debt)
- Set farmgate price is not adjusted for inflation throughout the year

What are the success factors?

- Strong government oversight of the sector enables them to control who farmers sell their cocoa to, enforce set prices and capture all sales through a monopolistic exporter

How replicable is it?

- Technically simple, difficult to replicate if the VC is not well organized and/or if the govt. has limited oversight of the sector

Supply stabilization mechanisms influence prices by artificially controlling the supply of coffee in a country

DESCRIPTION

- **How does it mitigate price risk?**

Influencing prices by managing the supply of product in the market

- **How does it work?**

Government buys coffee, keeps it in warehouses, and sells it when supply is low / prices are high to regulate the amount of supply in the market and induce changes in the price

- **Key actors / who leads it?**

Governments or sector associations

- **Potential impact? LOW**

Does not imply a minimum price guarantee, and does not address power dynamics or asymmetries of information along the VC

- **Ease of implementation? LOW**

Requires the strong government intervention, warehouses and sourcing policies

WHAT ARE THE KEY REQUIREMENTS?



Can be applied to commodities irrespective of the quality



Coops will have to respect minimum prices



Farmers remain price takers



Vertical integration can facilitate supply management by reducing the number of players in the sector



Tight VCs where coffee is regularly delivered to registered warehouse over which the government has oversight



Strong government involvement to manage coffee supplies

EXAMPLES

- Supply stabilization funds in Ghana

Insurances protect SHFs by reimbursing the losses they incur if prices drop below a minimum threshold

DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> • How does it mitigate price risk? 	 <p>Can be applied to commodities irrespective of the quality</p>
<ul style="list-style-type: none"> • How does it work? 	 <p>Cooperatives can play an intermediary role between SHFs and insurance providers or could provide insurance themselves</p>
<ul style="list-style-type: none"> • Key actors / who leads it? 	 <p>SHFs require access to basic financing to pay for the insurance</p>
<ul style="list-style-type: none"> • Potential impact? HIGH 	 <p>Does not matter if VC is vertically integrated or not</p>
<ul style="list-style-type: none"> • Ease of implementation? MEDIUM 	 <p>In tight VCs, VC actors may be able / willing to provide insurance and/or finance to support SHFs</p>
<ul style="list-style-type: none"> • De Los Andes Cooperative in Colombia insurance against price drops (CS 6) 	 <p>Requires the presence of financial service providers that develop tailored insurance products. Requires effective monitoring system to accurately calculate control risk parameters and promptly refund farmers in case of unforeseen events</p>
EXAMPLES	
<ul style="list-style-type: none"> • De Los Andes Cooperative in Colombia insurance against price drops (CS 6) • Nespresso and Blue Marble Microinsurance Index based weather insurance in Colombia • Index based weather insurance in Kenya and Uganda 	

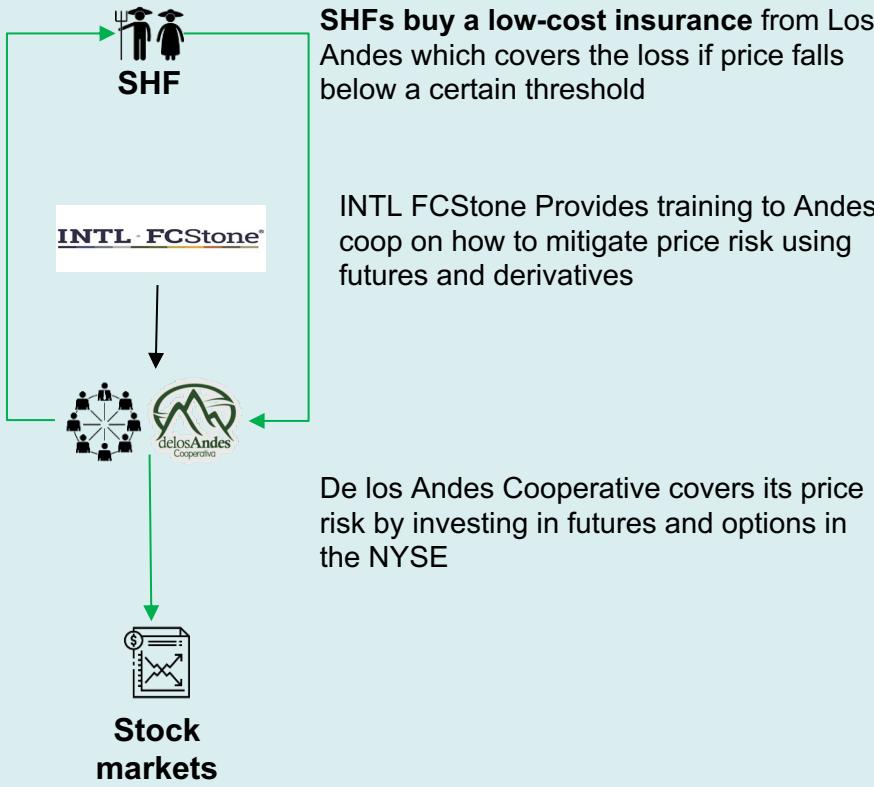
CS 6: In Colombia, the De Los Andes cooperative offers its farmers access to insurance against price drops

3

PRM approach: Reallocate risk across actors

How does the mechanism work?

→ Information → Cash flow



What is the track record?

- De Los Andes Cooperative has been using PRM mechanisms for the past 10 years. The existing mechanism has been in place since 2004
- Today, more than 50% of their associated farmers use the PRM mechanisms offered by De Los Andes. In 2018, of 44 million kgs of coffee bought, 24 million kgs used PRMs
- In 2018, De Los Andes farmers got an average price per coffee sack of COP 860,000 (\$278) compared the average market price of COP 740,000 (\$240) per sack

What are the success factors?

- De Los Andes is a strong cooperative, with strong leadership and commitment to supporting farmers
- De Los Andes has sufficient financial resources, which allows them to invest in PRMMs and offer subsidized services to some of their farmers
- De Los Andes received significant support from INTL FCStone with training and implementation
- Colombia has a relatively well developed financial sector

How replicable is it?

- With the right partners in country – a strong and committed cooperative – this could be replicated
- Would require financial support to take the course, support implementation, and invest in the PRM mechanisms

Over the counter contracts allow SHFs to set prices for future sales upfront, protecting them from price drops

DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> • How does it mitigate price risk? 	<p>Farmers can secure an agreed price for their harvest securing them against future price drops</p>
<ul style="list-style-type: none"> • How does it work? 	<p>Contracts negotiated by two parties with tailored agreements on price, quantity, and time of sale. E.g., the farmer and buyer agree in advance on a price for a future sale, if price falls, the farmer is guaranteed the agreed price. Contracts involve a physical transaction at maturity</p>
<ul style="list-style-type: none"> • Key actors / who leads it? 	 <p>Can be applied to commodities irrespective of the quality</p>
<ul style="list-style-type: none"> • Potential impact? MEDIUM 	 <p>Cooperatives with a solid understanding of the economics of their business can help SHFs stipulate better contracts</p>
<ul style="list-style-type: none"> • Ease of implementation? MEDIUM 	 <p>Farmers need financing to produce the coffee committed to in the contract. Producers need to understand in depth the economics of their farm</p>
<ul style="list-style-type: none"> • EXAMPLES 	 <p>Close links to buyers/ exporters to reduce the role intermediaries play</p>
<ul style="list-style-type: none"> • Sustainable Harvest price-to-be-fixed contract + call option in Guatemala and Honduras (CS 7) 	 <p>Tight VC facilitate long-term agreements between producers and buyers</p>
<ul style="list-style-type: none"> • Long-term relationship contracts in Guatemala 	 <p>Requires a stable legal framework to enforce contracts. Presence of social enterprises and/or financial service providers willing to provide financing, technical capacity, and other services</p>
<ul style="list-style-type: none"> • CMC hedges and forward sells 70% of expected annual harvest in Ghana 	

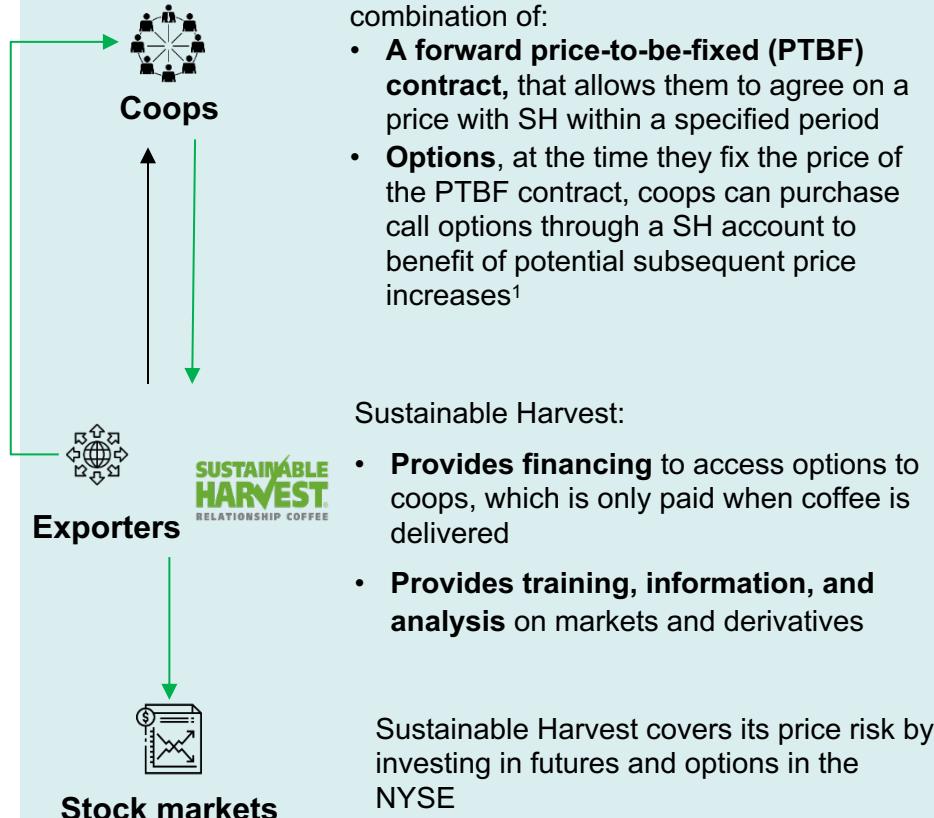
CS 7: In Latin America, Sustainable Harvest helps cooperatives hedge price risk by combining forward contracts and options

3

PRM approach: Reallocate risk across actors

How does the mechanism work?

→ Information → Cash flow



Participating coops use a 'variable sale', a combination of:

- **A forward price-to-be-fixed (PTBF) contract**, that allows them to agree on a price with SH within a specified period
- **Options**, at the time they fix the price of the PTBF contract, coops can purchase call options through a SH account to benefit of potential subsequent price increases¹

Sustainable Harvest:

- **Provides financing** to access options to coops, which is only paid when coffee is delivered
- **Provides training, information, and analysis** on markets and derivatives

Sustainable Harvest covers its price risk by investing in futures and options in the NYSE

What is the track record?

- Through the program, between 40-50% of all SH harvest contracts with a timespan longer than 3 months are now traded with the variable sales mechanism
- The Call option acts as an insurance for cooperatives
- Improved monitoring, trading, and risk management provides more and cheaper finance as lenders understand better how this system functions and the assurances it provides

What are the success factors?

- **Strong and well managed cooperatives** that have a deep understanding of the farmer economics and their financials
- **Capacity to trace the quality** of coffee throughout the VC
- **Buyer's willingness to subsidize** the cost of options because contract defaults seriously compromise activities

How replicable is it?

- Can be implemented by other importers who wish to secure their supply, and work with cooperatives that understand their economics
- Similar models have been developed by other importers

Derivatives allow cooperatives to implement hedging strategies that protect SHFs from price drops and benefit from price rises

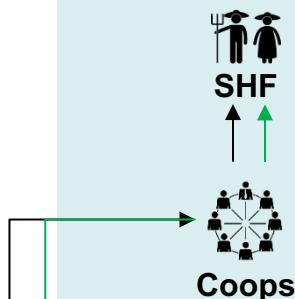
DESCRIPTION	WHAT ARE THE KEY REQUIREMENTS?
<ul style="list-style-type: none"> How does it mitigate price risk? 	 <p>Value chain actors can hedge against future price fluctuations</p>
<ul style="list-style-type: none"> How does it work? 	 <p>Contracts with standard requirements on price, quantity, and time of sale. E.g., the farmer and buyer agree in advance on a price for a future sale, if price falls, the farmer is guaranteed the agreed price, if price rises they can benefit from higher profits. Derivatives do not involve a physical transaction at maturity.</p>
<ul style="list-style-type: none"> Key actors / who leads it? 	 <p>Sophisticated cooperatives with a solid understanding of their economics and PRMMs and access to finance</p>
<ul style="list-style-type: none"> Potential impact? HIGH 	 <p>Ensures SHFs do not incur losses when prices drop, and benefit from higher prices if they rise</p>
<ul style="list-style-type: none"> Ease of implementation? LOW 	 <p>Strong understanding of economics and financials of the business</p>
<ul style="list-style-type: none"> Requires sophisticated cooperatives, with a good understanding of PRM and access to commodity exchanges and finance 	 <p>Tight VC facilitate long-term agreements between producers and buyers</p>
EXAMPLES	<p>Presence of buyers that are willing to cooperate in setting up hedging strategies</p>
<ul style="list-style-type: none"> Oikocredit-MIF PRM program in Guatemala and Honduras (CS 8) 	<p>Presence of organizations and service providers to help cooperatives access financial markets and stable legal environment to enforce contracts</p>
<ul style="list-style-type: none"> ICCO Put Options program in Cote d'Ivoire (CS 9) 	
<ul style="list-style-type: none"> Larger coops use derivatives in most countries e.g., De los Andes Cooperative CS6) 	
	</

CS 8: In Honduras, Oikocredit provides training and financing to cooperatives to develop hedging strategies using derivatives

3

PRM approach: Reallocate risk across actors

How does the mechanism work?



Participating coops can offer OTC PRMMs to SHFs associated (e.g., future contracts, insurance)

Cooperatives receive training to better understand how the contracts they sign (and whether they are taking a long and short position) affects their risk, which helps them better plan how much coffee to purchase and/or sign appropriate contracts with farmers

Cooperatives access futures markets and hedge the coffee of their affiliated farmers

Oikocredit provides financing to cover costs related to price risk management



Organizational strengthening: training for PRM implementation and use

Apprenticeship network peer-to-peer learning network from coop-to-coop

Stock markets

What is the track record?

- Launched in 2017, the program has supported 16 selected cooperatives from Honduras, Guatemala, Costa Rica, Nicaragua, Colombia, and Peru over a three-year period

What are the success factors?

- The program supports coops addressing key barriers to the successful implementation of PRM strategies:
 - Technical knowledge:** Cooperative managers need to understand their cost structures and how price affects their business before introducing PRM tools
 - Organizational development:** It does not only focus on understanding PRM tools, but it also builds capacity to effectively implement PRM strategies
 - Financial barriers:** It increases access to finance and more expansive PRM financial tools through the Oikocredit credit facility and a new loan specifically designed to finance derivatives
- The program has a multi-year approach, compared to traditional one-day trainings/ workshops
- Its methodology relies on well-prepared trainers that can tailor the message to their audience, rather than experts that have the tendency to focus on technicalities

How replicable is it?

- Replicate with well-established cooperatives in different countries
- Leverage past program beneficiaries to become mentors in future apprenticeship programs

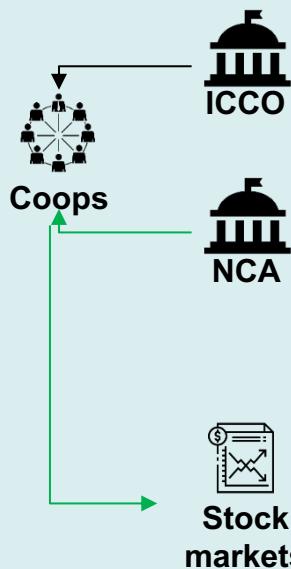
CS 9: In Cote D'Ivoire the ICCO piloted a put options program¹, but it was expensive and poorly understood by SHFs

3

PRM mechanism: Reallocate risk across actors

How does the mechanism work?

→ Information → Cash flow



In 2005, the **International Cocoa Organization (ICCO)** helped 21 cooperatives **hedge price risk** using two types of **put options**

National coffee and cocoa agency (NCA) **subsidized the premium payment** so cooperatives only paid 15 CFA per kg

Strategy A: 80 lots of **put options²** were bought on the London stock exchange. The strategy set a minimum farm-gate price of 440-460 CFA francs per kg (~1,025 GBP per ton) at a cost of 62.93 CFA per kg

Strategy B: 45 lots of **participatory options programs²** were bought on the New York exchange. This set a minimum sale price of 1,703 USD per ton, at a maximum premium price of 46.6 CFA francs per kg

What is the track record?

What works well

- Strategy A realized a gross profit of 105 GBP per ton and a net profit of 29 CFA francs per kg. This is because at expiration, cocoa was traded on the London market at ~920 GBP per ton

What doesn't work well

- The cost of the hedging strategy was very high making it unaffordable for farmers and unsustainable for NCA to subsidize. The option premium price was ~12-2% of the farm-gate price, and high brokerage fees were paid to international traders
- The approach was unsustainable because SHF and cooperatives did not understand the hedging strategy
 - They relied on consultant to devise hedging strategy
 - At expiration of Strategy B, since the options were unprofitable because cocoa was traded at 1,900 USD per ton in New York, SHFs were reluctant to pay their contribution to the variable maximum premium owed
- Program did not protect against interseason price fluctuations

What are the success factors?

- Farmer and cooperative (i) understand their exposure to price risk, (ii) are willing to pay for insurance despite high cost and (iii) have capacity to access and use the futures and options market
- Local banks have the financial experience to provide cooperatives with hedging services and cocoa trading facilities
- Hedging of the exchange rate and basis risk is available

How replicable is it?

- Replicate with well-established cooperatives in different countries

Noted: 1. During the period when the Ivorian cocoa market was fully liberalized, 2. With put-options the premium is paid upfront. Whereas with participatory options programs, the premium is paid at expiration. This is because the premium is flexible and varies depending on market price (although a maximum premium payment is estimated upfront)

Sources: ICCO, "Pilot project on price risk management for cocoa farmers", 2008; Stakeholder interviews; Dalberg analysis

Agenda

Price volatility in coffee sector

Taxonomy of price risk mitigation models

Value chain and PRM model analysis

- Coffee Latin America
- Coffee Africa
- Cocoa Africa

Agenda

Price volatility in coffee sector

Taxonomy of price risk mitigation models

Value chain and PRM model analysis

- **Coffee Latin America**

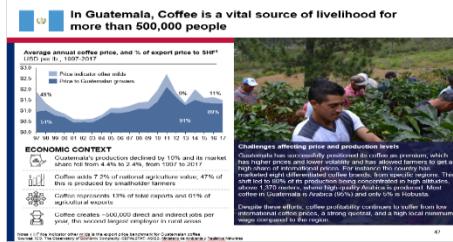
- Coffee Africa

- Cocoa Africa

For each country we provide an overview of the sector, the key VC features, the main PRMMs used, and lessons learned

Value chain and PRMMs country analysis

1. Coffee/ cocoa sector overview

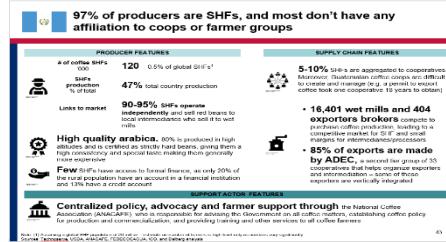


Objective: Provide an overview of how coffee/ cocoa impact the local economy and SHFs' livelihoods.

Main features:

- Economic impact on the country's economy in terms of GDP, exports, and employment
- Price volatility and share of price retained by producers
- Main challenges encountered by SHFs in relation to coffee / cocoa production

2. VC and sector features

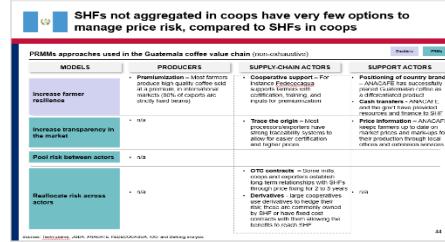


Objective: Analyze the main VC features that define how prices are determined in the country context

Main features:

- **SHF participation** to understand the type of farmers and linkages to markets
- **Product quality** as it influences prices and the types of VC actors involved
- **SHF access to finance** because it is often needed to access PRMMs
- **Farmer aggregation** because coops play a role in increasing farmer bargaining power and potential access to PRMMs
- **VC integration** to understand the power dynamics in the VC
- **Government intervention** to understand the enabling environment

3. Main PRMMs used



Objective: Provide a summary of the main PRMMs used and studied in the country.

Main features:

- Main PRMMs organized by type of model and type of actor that leads its implementation

4. Lessons learned on PRMM



Objective: Reflect on the key implications of the PRMMs on prices and identify lessons learned

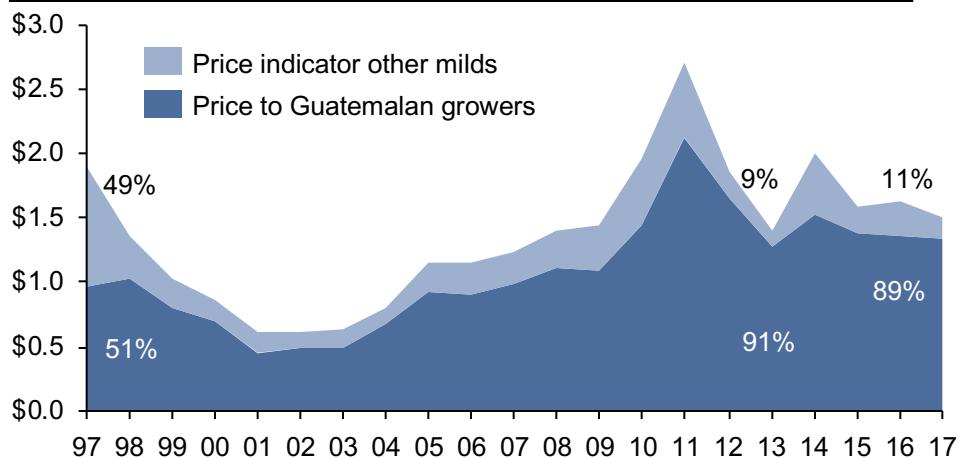
Main features:

- Reflect on how the VC and sector features determine what PRMMs are used
- Reflect on the efficacy of the main PRMMs implemented in the country, and how these affect prices and the SHFs' exposure to price risk
- Main lessons learned on price risk mitigation from the country



In Guatemala, Coffee is a vital source of livelihood for more than 500,000 people

Average annual coffee price, and % of export price to SHF¹
USD per lb., 1997-2017



ECONOMIC CONTEXT



Guatemala produced ~503 million coffee lbs. in 2017; representing 0.6% of GDP and 6.2% of agricultural GDP



Production fell 0.5% CAGR 1997 to 2017



Coffee represents 13% of total exports and 61% of agricultural exports



47% of coffee is produced by SHFs. It creates >500,000 direct and indirect jobs per year, the second largest employer in rural areas



Premium coffee with low productivity

Guatemala has successfully positioned its coffee as premium; which has higher prices and has allowed farmers to get a high share of international prices – particularly those with highest differentiation such as micro-lots and organic certificates. For instance the country has marketed eight differentiated coffee brands, from specific regions. This shift led to 80% of its production being concentrated in high altitudes, above 1,370 meters, where high-quality Arabica is produced. Most coffee in Guatemala is Arabica (95%) and only 5% is Robusta.

Despite these efforts, coffee profitability continues to suffer from low international coffee prices, a strong quetzal, and low productivity partly as a result of high local minimum wage compared to the region.



97% of producers are SHFs, and most don't have any affiliation to coops or farmer groups

PRODUCER FEATURES



# of coffee SHFs	120,000 – 0.5% of global SHFs ¹
SHFs production % of total	47% total country production
Links to market	70-80% of Guatemalan coffee passes through intermediaries , as SHFs outside of coops sell through intermediaries and SHFs in coops sell part of their production to them



High quality arabica. 80% is produced in high altitudes and is certified as strictly hard beans, giving them a high consistency and special taste, making them generally more expensive. However a fraction of this value makes it back to producers



Most coffee SHFs are financed by intermediaries or coops. Financing available is costly (18%-21% interest rates) and provided with strings attached such as having to sell coffee to the intermediary at low market prices



SUPPORT ACTOR FEATURES



Strong international marketing efforts led by the National Coffee Association (ANACAFE) have successfully positioned Guatemalan coffee as a premium product worldwide. ANACAFE is also responsible for providing extension services and advising on national policies for the coffee sector, both areas where national players recognize room for improvement.



SUPPLY CHAIN FEATURES



- 19% of SHFs are members of FEDECOCAGUA**, the largest second-tier cooperative in Guatemala
- Limited trust** in cooperatives and how they transfer wealth to producers are commonly quoted as a main barrier for SHFs to join them
- Limited options in the local market** coupled with an urgency to sell, limits SHFs' bargaining power and enables coordination between buyers (e.g., the three or four local players can easily set a similar price for coffee in cherries and parchment)
- 85% of exports are made by ADEC**, a second tier association of 33 exporters



SHFs not aggregated in coops have very few options to manage price risk, compared to SHFs in coops

PRMMS approaches used in the Guatemala coffee value chain (non-exhaustive)

Enablers

PRMMS

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Premiumization – Most farmers produce high quality coffee sold at a premium in international markets (80% of exports are strictly hard beans). However this value doesn't always reach the SHFs, and stays with the intermediaries	<ul style="list-style-type: none">Cooperative support – Most cooperatives support farmers with certification, training, and inputs for premiumizationTrace the origin – Most exporters can trace coffee back to its origin region, allowing quality premiums	<ul style="list-style-type: none">Positioning of country brand – ANACAFE has successfully placed Guatemalan coffee as a differentiated product
Increase transparency in the market			
Pool risk between actors		<ul style="list-style-type: none">Risk pooling – some exporters sell lots at different prices, but pay a uniform price to farmers (e.g., ASDECAFE, ACODIHUE)	
Reallocate risk across actors		<ul style="list-style-type: none">OTC contracts – Some producer organizations (e.g., ACODIHUE) have established multiple year buying agreements at fixed pricesDerivatives - Large cooperatives use derivatives to hedge their risk; these are commonly owned by SHF or have fixed cost contracts with them allowing the benefits to reach SHF	



Most coffee farmers are price takers with little bargaining power

MAIN OBSERVATIONS ON PRICES

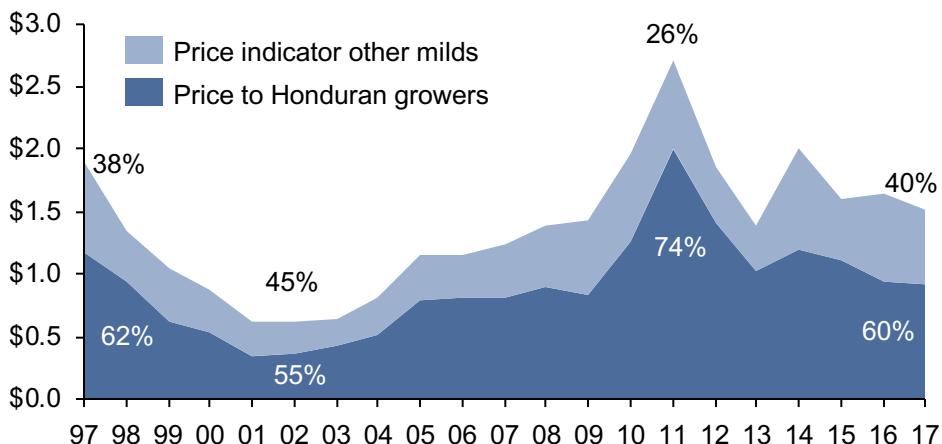
PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">SHFs working independently (70%-80%) are the most exposed to price risk, as they commonly lack processing capacity, urging them to sell their coffee the same date as harvestCertification is the most common measures to capture higher prices for farmers in coops, but their effect is marginal as SHFs are selling certified coffee USD 6-12 higher per quintal than market prices. This mark-up is harder for SHFs outside coops, as accessing certificates can be costly and hard to maintain	<ul style="list-style-type: none">Effective cooperatives have shown great value in helping SHFs hedge their price risk, mainly because: (i) SHF are the owners (i.e., main beneficiaries) of cooperatives, or (ii) provide fixed contracts to SHFs – or contracts with fixed mark-ups – hedged on derivativeIntermediaries are focusing more on providing services that allow for high traceability of coffee as a means to increase buyers' willingness to pay	<ul style="list-style-type: none">The government invested in positioning the country's coffee as premium, resulting in benefits to most farmers

LESSONS LEARNED ON PRICE RISK MITIGATION

- Government efforts in positioning Guatemalan coffee as premium resulted in price benefits to most coffee farmers. However, our research suggests that supply of premium coffee may be starting to exceed demand and/or buyers for high quality coffee are harder to find. For example producers of high quality coffee are only being able to sell part of their production as premium and the rest of their production at commodity coffee prices – even though both have similar qualities
- SHFs working independently hold an exposure to price risk, which could be mitigated through efficient cooperatives

In Honduras, producers are still recovering from the rust epidemic six years ago and still hold debts from R&R efforts

Average annual coffee price, and % of export price to SHF¹
USD per lb., 1997-2017



ECONOMIC CONTEXT



In 2017, Honduras produced 1.1 billion lbs of coffee, making it the 5th largest producer, globally. Coffee represents 4% of GDP



Production increased 6.4% CAGR between 1997-2017



In 2018, coffee represented 13% of total exports and 61% of agricultural exports



Coffee creates ~1 million direct and indirect jobs per year, and 95% of coffee producers are SHFs



Innovation for high quality and recovery from rust

Honduras produces 100% arabica and much of its production is high quality coffee, ideal for the specialty market, with some groups innovating in processing to develop specialty coffees. However, most farmers continue to sell their coffee as commodity at low prices.

Coffee producers are also facing increased costs to prevent rust, and do not have access to credit to invest in preventive measures. Many coffee producers are already in debt from previous loans for planting, renovation and maintenance during previous harvests.

95% of producers are SHFs and 85% are not aggregated; established cooperatives are sophisticated



Created by Alistair MacLennan, 2017

PRODUCER FEATURES

of SHFs
'000

100 – 0.5% of global SHFs¹, and 95% of all producers in the country

SHFs
production
% of total

64% of total country production

Links to market

85% SHFs operate in loose VCs and sell coffee cherries to local intermediaries who sell it to wet mills

100% arabica, but 80% is sold as conventional coffee. The coffee is of good quality but has not positioned itself as much as Guatemala or Colombia.



Created by Alistair MacLennan, 2017

Specialty coffee exports increased by 145% compared to 2017, and is produced mainly by SHFs associated to cooperatives



Created by Alistair MacLennan, 2017

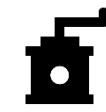
For most SHFs, the main source of financing are intermediaries, lending working capital at 8-10% monthly and requiring farmers payback in coffee



Created by Alistair MacLennan, 2017

SUPPLY CHAIN FEATURES

15% of SHFs are aggregated to cooperatives. There are several Honduran coffee cooperatives that are sophisticated and well organized, with a good understanding of PRMMs



Created by Alistair MacLennan, 2017

Local intermediaries compete to purchase coffee, leading SHFs to sell to whoever provides the best terms and mix different quality coffees, hindering the capacity to get quality price premiums

10 international exporters export ~80% of coffee, with Compañía Hondureña del Café counting for almost 30% of exports

These international exporters are vertically integrated, and own dry and wet mills

SUPPORT ACTOR FEATURES



Created by Alistair MacLennan, 2017

IHCAFE conducts research and development to improve productivity of coffee growers in the country. However, with few extension workers (e.g., in Copan there is 1 extension worker for 3,000 farmers), **most producers perceive little support from IHCAFE**. IHCAFE collects ~\$13 per every quintal of coffee exported, which is subtracted from the price farmers receive; of these \$9 go to repay debts, farmers who have paid their loans are given back their \$9/quintal



Only sophisticated coops implement proper price risk management

PRMMs used in the Honduras coffee value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none"> Processing - IHCAFE technical assistance to increase productivity, provided through research and training centers Diversification - IHCAFE diversification support – to help SHFs diversify their incomes 	<ul style="list-style-type: none"> Productivity - Cooperatives and farmer groups (e.g., Cafico, COMSA) provide technical assistance and financing to their members 	<ul style="list-style-type: none"> Premiumization - IHCAFE National premiumization strategy to position the country as a leader in the specialty coffee segment Access to finance - IHCAFE Fideicomiso cafetalero - coffee producer saving fund to subsidize SHFs' outstanding loans
Increase transparency in the market	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Price information – IHCAFE publishes real time, up to date information on NYCC market prices
Pool risk between actors	<ul style="list-style-type: none"> n/a 	<ul style="list-style-type: none"> Pool risk - Cooperatives and farmer groups buy different qualities of coffee and ensure a minimum price to their members 	<ul style="list-style-type: none"> n/a
Reallocate risk using financial markets	<ul style="list-style-type: none"> n/a <p>Sophisticated coops are able to access comprehensive PRMMs involving complex financial mechanisms</p>	<ul style="list-style-type: none"> OTC contracts - Sustainable Harvest (SH) price-to-be-fixed + options, initiatives where cooperatives can purchase call options through a SH account Derivatives - Oikocredit-MIF PRM program to train cooperatives to integrate PRM and financial tools into their operations and policies Contracts and derivatives - large cooperatives use derivatives to hedge risk 	<ul style="list-style-type: none"> n/a



Non-aggregated SHFs have limited access to PRMMs and are forced to accept uncompetitive prices from intermediaries

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">With limited capacity to process and access to finance, SHFs have to sell coffee beans in wet parchment and are forced to accept prices set by local intermediariesSelling coffee as wet parchment, prevents SHFs from capturing premiums, because exporters cannot test the quality of the coffee	<ul style="list-style-type: none">85% of producers are not aggregated, and this limits their access to support services and PRMMsHigh competition between local intermediaries limits the usage of forward contracts as SHF are incentivized to sell to the best buyerIntermediaries often mix various batches of wet parchment during processing, further harming coffee quality	<ul style="list-style-type: none">IHCAFE is responsible for implementing sector policies and providing technical assistance, but has no direct control over prices and loose value chain interactionsCommercial banks are reluctant to lend to SHFs, but the Secured Transactions Law enables intangible items such as supply contracts to be used as collateral

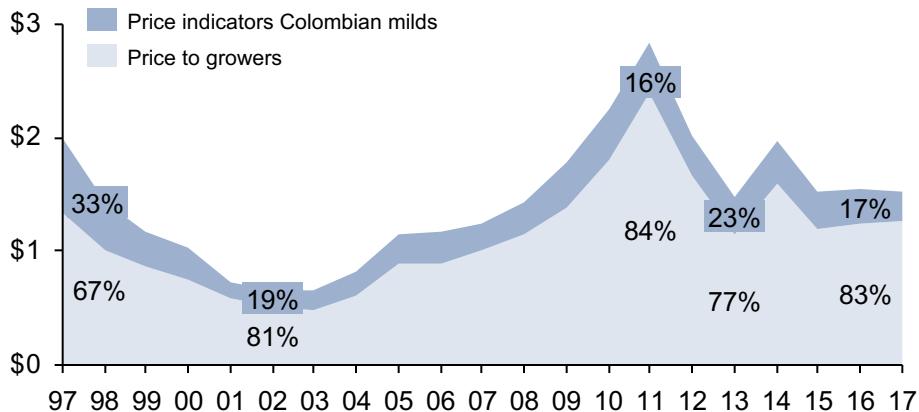
LESSONS LEARNED ON PRICE RISK MITIGATION

- Honduran coffee sells at lower prices and receives lower price differentials compared to other countries in the region (e.g. Guatemala). This means that even small price fluctuations significantly impact profit margins. For this reason, many Honduran cooperatives have gained significant experience in managing price risk, resulting in the implementation of sophisticated PRMMs
- Non-aggregated SHFs have limited knowledge of and access to PRMMs
- Lack of resources and finances hinder SHFs' capacity to apply premiumization strategies and force them to accept uncompetitive prices



Coffee provides income to more than 20% of Colombia's rural population

Average annual coffee price, and % of export price to SHF¹
USD per lb., 1997-2017



ECONOMIC CONTEXT



In 2017 Colombia produced 1.9 billion green coffee lbs, representing 0.8% of GDP



Production increased 0.7% CAGR between 1997-2017



Colombian exports grew 1.9% CAGR over the past ten years; representing 11.3% of global exports



There are 550,000 coffee growers in Colombia; it's the largest employer in agriculture - 30% of agri-employment



High quality coffee and strong support from FEDECAFE

Colombia successfully positioned its coffee as high-quality coffee with producers plant specialty and commodity level Arabicas. The National Federation of Coffee Growers (FEDECAFE) has played an important role in developing a brand, and supporting coffee growers across the country (e.g., training, financing, PRMMs)

While FEDECAFE has a purchase guarantee at a set price defined based on international prices, farmers are still exposed to price volatility and low prices. Production costs are high given high labor costs, and taxes. Exchange rate fluctuation increases volatility experienced by farmers.



Colombia has a strong institutional framework, centralized by the National Federation of Coffee

PRODUCER FEATURES

of coffee SHFs **385,000** – 1.5% of global SHFs¹

SHFs production % of total



Links to market

Efficient supply chain

with farmers receiving ~80% of the export price. Almost all farmers wet-mill at home and sell dry parchment



High quality Arabica, USD 20-25 cents per lb is the average premium Colombian coffee receives above the benchmark "C" Arabica price



45% of production is of certified coffees

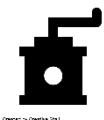
27% of the rural population have accounts in formal financial institution, and only 13% have credits

SUPPLY CHAIN FEATURES



Almost all farmers are members of the Federación Nacional de Cafeteros (FEDECAFE)

21% of SHF are members of cooperatives – 33 coops are affiliated with FEDECAFE and 35 coops are not



Competitive ecosystem with an extensive network of: marketing companies, cooperatives (68), buyers or intermediaries, threshers (150) and exporters (173)

FEDECAFE is Colombia's largest exporter with a market share of 25%. It also engages in other activities including roasting and retail

SUPPORT ACTOR FEATURES



Most coffee growers are members of FEDECAFE which provides technical support, processing services, loans, PRMMs, among other services to all farmers. In addition, FEDECAFE manages the National Coffee Fund, which is funded through contributions from every pound of coffee exported and used to make investments in the sector (e.g., R&D, purchase guarantee, infrastructure)

Note: (1) Assuming a global SHF population of 20 million – estimate on number of farmers is high-level only as numbers vary significantly

Sources: FEDECAFE, ICO, Technoserve, Global Coffee Platform, and Dalberg analysis



Most PRMMs are led by FEDECAFE, supported by the government

PRMMs used in the Colombian coffee value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Improved inputs – since 2008 the coffee sector began renovating its coffee trees. FEDECAFE and the govt have supported farmers by facilitating access to improved varieties and capital. So far 725,000 of its 940,000 coffee hectares have been renewed		
Increase transparency in the market		<ul style="list-style-type: none">Price information – FEDECAFE improves market transparency by constantly publishing prices and informing of available PRM models	
Pool risk between actors	<ul style="list-style-type: none">Certification - Colombia has the highest production of certified coffee. On average, Colombian coffee has been more expensive than other milds – 7 cents - and Brazilian Arabica – 25 cents		<ul style="list-style-type: none">Cash transfers – the govt provides direct cash subsidy when market prices fall below USD 1.5, to guarantee farmers a minimum price of USD 1.5
Reallocate risk across actors	<ul style="list-style-type: none">n/a	<ul style="list-style-type: none">OTC contracts –coops provide future contracts to farmers hedged on their own positions in international marketsDerivatives (Futures) – FEDECAFE offers futures to SHFs, for up to two years in advance	



SHFs have decision making in terms of the PRMMs they use, mainly offered by coops and FEDECAFE

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">Producers can select from a number of PRMMs offered by FEDECAFE or cooperatives	<ul style="list-style-type: none">FEDECAFE offers PRMMs to farmers, such as price floors and future contractsFEDECAFE has a strong lobbying arm nationally and internationally, used to reduce volatility, (e.g. recently began to advocate the removal of coffee from the NY stock exchange to reduce price volatility and increase its traded price)Other cooperatives provide additional hedging options, such as Coop Andes who provides options to farmers hedged on their position in financial markets	<ul style="list-style-type: none">The government commonly provides financial support to mitigate farmer risk, including pest and disease risk, foreign exchange risk, and creditsColombia is starting to consume more coffee locally - consumption has risen 5% CAGR over the past five years - allowing for a bigger concentration of the complete value chain in country. This permits higher value capture in-country and lower exposure to volatility of green coffee prices

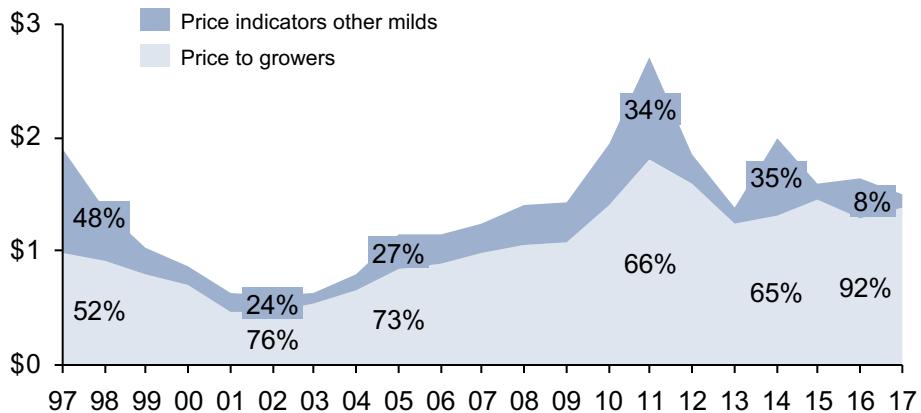
LESSONS LEARNED ON PRICE RISK MITIGATION

- A strong and effective government agency that has physical position with coffee (i.e., they trade coffee) can provide benefits to all farmers in the market and canalize effective PRMMs to them
- Cooperatives can channel their position in open markets to their members effectively (e.g. Andes Cooperative buys standard options, futures, or forwards and makes them accessible to SHFs)



In Costa Rica, the coffee sector is the main source of livelihood in rural areas

Average annual coffee price, and % of export price to SHF¹
USD per lb., 1997-2017



ECONOMIC CONTEXT



In 2017, Costa Rica produced 206 million lbs. of Arabica, representing 0.3% of GDP



Production decreased by 2.7% CAGR between 1997-2017



Costa Rican exports fell 3.0% CAGR over the past twenty years; representing 0.8% of global exports



There are 51,000 coffee growers in Costa Rica; of which 95% are SHF



High quality coffee, shrinking sector

Costa Rican coffee is well known for its high quality. All Costa Rican coffee produced is Arabica – Robusta cannot be produced by law. Farmers in Costa Rica receive a high share of the export price; on average, between 1997 and 2017, farmers received 80% of FOB export prices, in 2017 they received 92%.

Coffee production in Costa Rica has been threatened by a shrinking coffee sector. Producers have been declining from 55.3 thousand in 2005 to the estimated 45.5 today. This is mainly driven by urbanization and high land prices in areas primarily near the Central Valley, which is a traditional coffee region.



The Costa Rican coffee sector is closely controlled by the National Institute of Coffee (ICAFE)

PRODUCER FEATURES

of coffee SHFs



45,500 – 0.2% of global SHFs¹

SHFs production % of total

63.5% total country production

Links to market

Most stakeholders are linked in highly transparent value chains, in terms of coffee origin and prices paid, regulated by ICAFE

High quality

coffee, that incentivizes the export of most of its production – to sell at higher prices – and the import of cheaper coffee for national consumption



51% of the rural population has debit accounts in formal financial institutions, but only 11% have a credit with them



SUPPLY CHAIN FEATURES

Most coffee producers are organized in cooperatives - there are 192 coffee cooperatives in Costa Rica



Traditionally these cooperatives are vertically integrated to their own mill

More intermediaries are increasing competition, for



instance there are 239 mills today, more than twice as many as ten years ago

Most mills are also exporters, however there are also 72 registered coffee exporters – for a total of ~300 exporters

There are 37 coffee toasters, able to deliver a product ready for consumption

SUPPORT ACTOR FEATURES

The Government reduces price risks to SHFs: the government and ICAFE use a system where coops/millers, who are also commonly the exporters, have to take all the price risk. Millers buy the coffee from SHFs and pay a price set by ICAFE at delivery. Once the coffee is exported, if the market price at which it was sold is higher than the price set by ICAFE, the miller has to pay the difference to the farmer. If the price at which it was sold is below the ICAFE price, the miller assumes the cost.





All PRMMs are led by processors and exporters that hedge their positions

PRMMs used in the Costa Rican coffee value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Organic premium production – Costa Rica focuses on producing premium artisanal arabica, protecting its country brand and higher prices	<ul style="list-style-type: none">Pre finance – cooperatives and processors provide credits to SHF to assure the production quantity and quality	
Increase transparency in the market		<ul style="list-style-type: none">Price information – all coffee sold by processors must be registered in ICAFE's public database, allowing for clarity in their margins. ICAFE has complete visibility and provides transparency of all coffee negotiations	
Pool risk between actors		<ul style="list-style-type: none">Price stabilization – A law transfers all price risk to processors, guaranteeing SHFs will reap benefits of upswings in prices	
Reallocate risk across actors		<ul style="list-style-type: none">Derivatives – large cooperatives and exporters use derivatives to hedge risk, for instance COOPETARRAZU, one of the biggest coops in Costa Rica, has been using derivatives since 2011	



Producers have minimum exposure to price risk, as most of the risk is transferred to processors and exporters by law

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">Producers have low exposure to price risk, motivating them to focus on producing high quality coffee as the premium they are paid depends directly on the index quality of the beans they deliverProducers' decisions on who to sell their coffee to is mainly driven by the upfront payment made when they deliver their coffee, as the other payments are standardized by Costa Rican law	<ul style="list-style-type: none">Intermediaries have two main functions (i) preparing coffee for export, maintaining close traceability of each farmers' production, and (ii) hedging their price risk, as any losses due to price volatility falls directly on themLarge cooperatives such as COOPETARRAZU have internal teams dedicated to hedging activities – these teams constantly monitor financial markets and adjust the cooperative's exposure to market swings	<ul style="list-style-type: none">Costa Rica is unique in terms of price risk as a law dictates a complete traceability of coffee traded that mitigates price risk for SHFsProcessors and exporters have to register all their coffee trades with ICAFE, who controls that each farmer gets paid, benefits from price upswings, and is protected from price downswings¹

LESSONS LEARNED ON PRICE RISK MITIGATION

- A strong central policy can minimize price risk for SHFs by reallocating this risk to players higher up the value chain that have more capacity to buy expensive hedging instruments and constantly monitor and adjust their exposure to risk
- Strong stewardship and transparency to all players was mentioned as a key success factor by players, as everyone knows exactly how much each player makes and what they are doing in the value chain

Agenda

Price volatility in coffee sector

Taxonomy of price risk mitigation models

Value chain and PRM model analysis

- Coffee Latin America

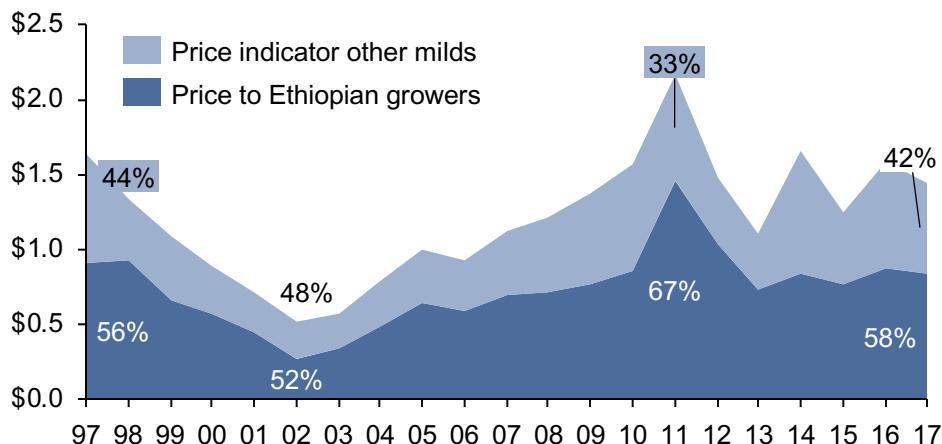
- **Coffee Africa**

- Cocoa Africa



In Ethiopia, coffee accounts for more than 20% of the country's exports, and employs 15% of the population

Average annual coffee price, and % of export price to SHF¹
USD per lb., 1997-2017



ECONOMIC CONTEXT



Ethiopia is the largest African coffee producer, and the 6th largest in the world (accounts for 4% of global production)



From 2007 to 2017, coffee production volumes increased by 72% in Ethiopia



Since there is strong internal demand only 50% of coffee is exported. However coffee still accounts for 22% of exports



Coffee employs roughly 15% of the country's population at different points of the value chain



Coffee is dominated by SHFs with low productivity

Ethiopia is considered the birthplace of coffee and can count on thousands of indigenous varieties of high quality Arabica.

However, Ethiopia's coffee production is driven by small farms of less than 1ha and low yields, making it difficult for SHFs to surpass the poverty line with coffee alone. SHFs generally have other income sources, investments in coffee productivity and good agricultural practices are scarce (only 6% adopt GAP), and this compromises the actual quality of the coffee produced and the possibility for SHFs to retain higher margins.



90% of producers are SHFs that operate in semi-structured VCs, that culminate in the Ethiopia Commodity Exchange (ECX)

PRODUCER FEATURES

of SHFs
'000

2,000 -2,500 – 10% -12.5%
of global SHFs¹



SHFs
production
% of total

Links to market



High quality arabica: Ethiopia has abundance of indigenous coffee varieties (most are trademarked with the rights owned and protected by the Government), and 2/3 could qualify as specialty



7% of SHFs has access to loans, the majority of whom obtain them through cooperatives

SUPPLY CHAIN FEATURES



10% of SHFs are member of cooperatives, and account for 10% of total exports. Cooperatives report issues including timing of payments and services offered, and SHF prefer to sell to local licensed intermediaries



All the exported coffee must be sold through the ECX (only state-owned farms and cooperatives can sell directly to international buyers)

The Ethiopian Agricultural Commodities Warehousing Service Enterprise controls all the ECX warehouses and quality control operations, and the Ethiopian Commodity Exchange Authority oversees all the transactions

SUPPORT ACTOR FEATURES



Sector institutionalization is improving, with several reforms being implemented: (i) Growth and Transformation Plan II to increase coffee productivity and double coffee production by 2020, (ii) reform of the Ethiopian Coffee Exchange to boost exports of specialty coffee, (iii) re-establishment of the Coffee and Tea Marketing Authority in 2016, and (iv) implementation of the Coffee & Tea Research Institute



The ECX has spurred the creation of market information systems that increase transparency in the VC

PRMMs used in the Ethiopian coffee value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Diversification of cropsTechnoServe 'Coffee Initiative' (2008-2017) trained roughly 160,000 Ethiopian SHFs on GAP to increase their returns	<ul style="list-style-type: none">TechnoServe Risk Sharing Facility between the International Finance Corporation and Nib International Bank to provide loans to 62 coffee cooperatives, collateralized by coffee stocks	<ul style="list-style-type: none">Positioning of country brand – the government is positioning the country as a differentiated product (specialty coffee can now be sold directly to importers)
Increase transparency in the market		<ul style="list-style-type: none">Price information - ECX mobile push service that delivers up-to-date daily market information to farmers via text messagePrice information - Moyee Coffee FairChain (blockchain platform) shows real-time payments to Ethiopian farmers for their coffee cherries.	<ul style="list-style-type: none">Trace the origin - IBM ECX traceability system (eATTS) gives VC actors reliable information on the origin and journey of the beans to ensure their quality, consistency, and safetyPrice discovery - Ethiopia Commodity Exchange (ECX) allows spot trading of coffee, but not exchange of futures or options
Pool risk between actors			
Reallocate risk across actors		<ul style="list-style-type: none">OTC contracts - Warehouse receipt system – platform that links data from warehouse operations, clearing and settlement, and market-information. The financing component provides short-term loans to small-scale traders	



The increased transparency in the VC created by the ECX has not directly improved SHFs' profit margins

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">Farm-gate prices are at 60% of FOB price, and the low margin indicates that inefficiencies in the VC persistFarm-gate prices are ~10% higher when sold through cooperatives and exported through unionsPrice dispersion has decreased in areas where the ECX opened warehouses, mainly due to increased transparencySpecialty coffee producers can now sell directly to international buyers, with potential better profit margins	<ul style="list-style-type: none">'Akarabies' deliver their coffee to the local ECX warehouse, where they are guaranteed a rate based on real-time trading on the ECXCooperatives currently obtain 25-30% higher export prices, but pay a farm-gate price only 10% above averageThe ECX makes it technically illegal for an exporter to be both involved at the farm level and in the export of coffee	<ul style="list-style-type: none">With the ECX, export price margins have not significantly increased, but transparency has improvedTraceability remains an issue, especially for specialty coffee, but innovative solutions are being developedStudies show that the ECX has not led to significant improvement on how price volatility gets transmitted from international to domestic markets

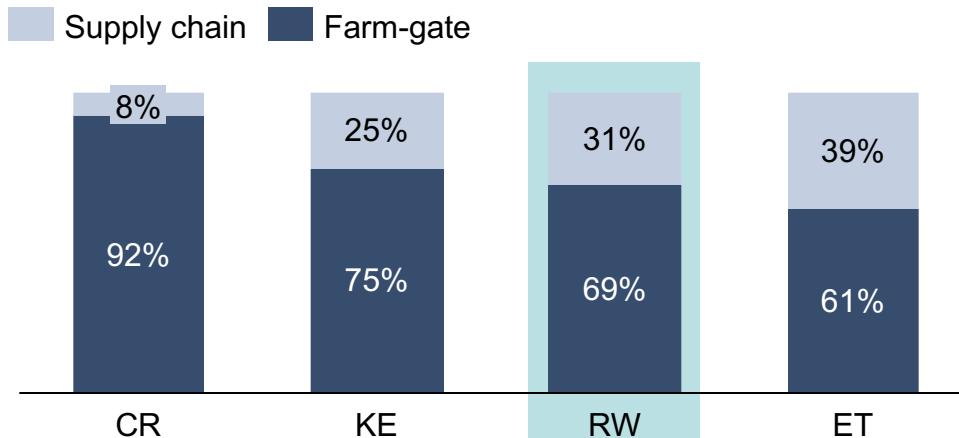
LESSONS LEARNED ON PRICE RISK MITIGATION

- The ECX has increased transparency and developed infrastructure (warehouses), but its strict regulations have resulted in higher transaction costs, that are potentially offsetting the benefits of innovations such as electronic payment and traceability systems
- Bringing SHFs closer to the international markets by cutting out middlemen has not resulted in SHFs retaining a higher share of the price, mainly due to higher transaction costs, low access to credit, and inefficient management by VC actors



In Rwanda, despite the government's efforts to improve quality, SHFs have few incentives to invest in coffee

Share of farm-gate price and supply chain costs, 2017¹
(% of export price)



ECONOMIC CONTEXT



Rwanda is a small player at a global level, and in 2018 accounted for only 0.2% of global production



Between 2000 and 2018, coffee production declined by ~1% per annum, and in times of low prices, farmers prioritized other crops



In 2018, coffee represented ~7% of total export value, and 20% of the total agricultural export value



Coffee contributes to the livelihood of 400 thousand SHFs and their families. Although small farm size (0.1 ha) means coffee is not their main income source



Government strategy to overcome land constraints

Rwanda's limiting production factor is land. The government is therefore pushing a national strategy to increase the quality and value of its coffee. As a result the share of fully-washed coffee (that sells at higher prices) grew from 35% to 60% in the last 10 years.

As part of the strategy, the government sets farm-gate prices at the beginning of each harvest season. These prices are low and do not differentiate for quality. This, together with small plot sizes with limited potential to scale operations, provides little incentives for farmers to invest in upgrading their coffee production. As a result, farmers tend to prioritize crops with higher margins.



100% of producers are SHFs, and the Zone Policy matches farmers to coffee washing stations operating in the same area

PRODUCER FEATURES		SUPPLY CHAIN FEATURES
# of SHFs '000	400 – 2% of global SHFs ¹	
 SHFs production % of total	100% of total country production	 18% of SHFs are member of cooperatives, and account for 10% of total exports
Links to market	SHFs sell to an assigned coffee washing station (CWS) determined by government policy	 300 coffee washing stations are allowed to buy coffee at a fixed price only from SHFs that operate in their same 'zone', as defined by the Zone Policy. However, CWS are operating under-capacity, and SHFs in respective zones cannot always provide enough coffee supplies, triggering (illegal) competition for coffee from different areas and somewhat higher prices
 Good quality arabica,	but not as unique as coffee from other East African countries 24% of production is sold as semi-washed because SHFs cannot access/ rely on coffee washing stations (CWS)	8 companies control 87% of total exports. These international exporters are vertically integrated, owning their own dry mills, and there are 88 registered exporters in total
 15% of farmers have access to credit, much of this is provided by local traders or the informal sector		



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via Flickr

SUPPORT ACTOR FEATURES

Strong government intervention, with the National Agricultural Export Bureau (NAEB) driving a national coffee strategy and defining farm-gate price.

Large unions include Coffee Exporters and Processors Association of Rwanda (CEPAR), Rwanda Agriculture Board, Rwanda Coffee Cooperative Federation are the main industry associations, but these associations have recurring efficiency challenges.

The Zone Policy assigns each CWS to a specific geographic area (zone), allowing it to buy coffee only from SHFs operating in the same zone.



The most influential PRMM is a fixed farm-gate price, and there are good advancements on increasing transparency

PRMs approaches used in the Rwanda coffee value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Diversification of crops (e.g. maize, potatoes or passion fruit)TechnoServe 'Coffee Initiative' (2008-2017) trained roughly 33,000 Rwandan SHFs on GAP to increase their returns		<ul style="list-style-type: none">NAEB quality strategy - national coffee strategy focused on increasing quality by promoting 'fully washed' coffee
Increase transparency in the market		<ul style="list-style-type: none">Price information - Technoserve transparent Inventory Management System Solution, is a SMS bookkeeping Platform designed to give lenders transparency into CWS operations and use the data to hedge on futures market	<ul style="list-style-type: none">Price information - NAEB's Internal Management System (IMS) to report on daily production in CWSsPrice information - NAEB mobile phone platform to access market data (e.g. ICO daily price)
Pool risk between actors			<ul style="list-style-type: none">Price stabilization - NAEB fixed farm-gate prices to mitigate price volatility
Reallocate risk across actors			



To be effective, fixed farm-gate prices should consider SHFs' cost of production and differentiate for quality

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">Producer prices are on average 24% lower than in the rest of East Africa, and the transition to higher quality coffee has not led to significant improvement for SHFsCoffee profitability is lower compared to other crops, leading SHFs to invest their time and resources on their other crops (e.g., maize, potatoes, passion fruit) when prices are too lowFixed farm-gate prices do not differentiate for quality, so SHFs have little incentive to invest to upgrade their coffee	<ul style="list-style-type: none">Competition between coffee washing stations is high, as most operate below capacity and are in constant need to improve their utilizationBesides the Zone Policy, high competition between coffee washing stations induces farmers to sell to the best buyer, even in other areas	<ul style="list-style-type: none">NAEB sets farm-gate price at the beginning of the picking season and can revise them every time there is a variation of USD 0.10 per pound on the international market priceFarmgate prices are decided by NAEB and CEPAR, and SHFs have no role or voice in fixing the reference price

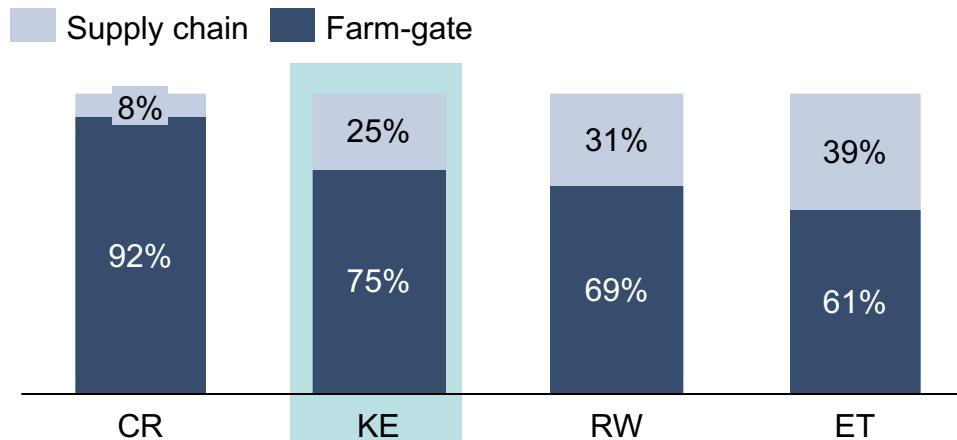
LESSONS LEARNED ON PRICE RISK MITIGATION

- Government intervention in setting farm-gate prices crowds out the need and incentives for other VC actors to implement PRMMs
- Fixed prices as a PRMM benefit SHFs if (i) they include considerations on cost of production, (ii) adequately reflect differences in coffee quality. If not, this PRMM can disincentivize SHFs to make investments in upgrading their coffee production



Kenya's coffee production declined by 60% in the last 20 years as SHFs are opting for more profitable activities

Share of farmer-gate price and supply chain costs, 2017¹
(% of export price)



ECONOMIC CONTEXT



In 2018, Kenya was the 5th African coffee producer and the 18th in the world, accounting for 0.5% of global production



Production decreased by 60% in the last 20 years, mainly due to poor management, low productivity and price swings



In 2018, coffee accounted for 4% of the country's exports, and less than 9% of the total agricultural export value



The sector is dominated by SHFs, with an average farm size of less than 0.5ha, providing approximately 400,000 thousand jobs



SHFs are leaving coffee for more profitable activities

Kenya's coffee crisis is driven by factors that include high cost of inputs, price volatility, obsolete infrastructure, unattractive taxation, and poor governance in coffee cooperatives. This crisis has severely affected SHFs.

Today, coffee farmers barely break-even on their coffee crops, and supply chain actors (cooperatives and agents) absorb most of the profit. Income from coffee is far below the poverty line for an average Kenyan family. These conditions are leading SHFs to abandon coffee in favor of more profitable crops and activities, further affecting both quantity and quality of Kenya's production.



Kenya's SHF coffee sector is built around cooperatives and 85% of coffee is sold through the Nairobi Coffee Exchange

PRODUCER FEATURES


of SHFs
'000

650 – 3.5% of global SHFs¹

SHFs
production
% of total

60% of total country production

Links to market

100% of SHFs are members of cooperatives for processing as required by law

High quality arabica grown in the highlands around Mount Kenya

10% of SHFs have access to loans through the Coffee Development Fund²

Marketing agents and traders provide larger volumes of credit but interest rates are high

SUPPLY CHAIN FEATURES



100% of SHFs are member of cooperatives that own mills but high levels of mismanagement are reported and yields are half than on large estates

600 cooperatives that generally own wet mills and contract dry mills and/or agents to bring coffee to market. Officially the producers own the coffee until it is sold

8 licensed marketing agents represent cooperatives at the Nairobi Coffee Exchange (NCE)



60 local and international dealers buy at the NCE

85% of coffee is marketed through the NCE and the remaining 15% is sold through direct export contracts

SUPPORT ACTOR FEATURES



Weak enabling environment: Government of Kenya does not run any specific price support or direct subsidy program for coffee farmers or other coffee value chain players.

National government and county governments cooperate in a “Task Force for Coffee sub-sector Reforms” but observers complain about lacking coordination and poor implementation of legislative measures

Note: (1) Assuming a global SHF population of 20 million – estimate on number of farmers is high-level only as numbers vary significantly. (2) The Coffee Development Fund is a state corporation under the Ministry of Agriculture in Kenya, established in 2006 as a financing vehicle for revitalizing the coffee sector. CoDF provide long-term affordable credits to farmers organized into cooperatives. Sources: USDA, Annual Coffee Report, 2018; The Observatory of Economic Complexity, website (2018); GCP, “Kenya - economic viability of coffee farming”, 2017; USAID – “Kenya Coffee Industry Value Chain Analysis”, 2010; MAFAP – “Analysis of incentives and disincentives for coffee in Kenya”, 2013.



The NCE is the main organization working to mitigate price risk, it triggers the use of OTC contracts

PRMs approaches used in the Kenya coffee value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Diversification of cropsTechnoServe 'Coffee Initiative' (2008-2017) trained roughly 52,000 SHFs on GAP to increase their returns	<ul style="list-style-type: none">Trace the origin – specialty coffee cooperatives have a traceability systems to allow for easier certification and higher prices	<ul style="list-style-type: none">Task Force for Coffee sub-sector Reforms – government task force to revitalized the coffee industry
Increase transparency in the market			<ul style="list-style-type: none">Price discovery - Nairobi Coffee Exchange (NCE) – auction that allows spot sales and VC actors can monitor coffee auctions live on screens at the counties
Pool risk between actors			
Reallocate risk across actors	<ul style="list-style-type: none">Insurance - Index based weather insurance – provides SHFs a financial cushion in case they lose production due to unfavorable weather	<ul style="list-style-type: none">OTC contracts - Warehouse receipts – coffee is stored in public warehouses before being sold on the auction, and WRS are issuedOTC contracts - Warrants - commercial mills issue warrants where buyers pay for the coffee before its actual availabilityDerivatives – large estates and cooperatives that sell directly to international buyers use derivatives to hedge their risk	<ul style="list-style-type: none">Advanced payment - SHFs are paid at least 40% of the prevailing price on the spot for the cherries they deliver



Excessive regulations and sustained delays in payments from coops are disincentivizing SHFs to produce coffee

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">SHFs can only process through cooperative wet mills which have relatively high cost structures and limit farmers' share of the FOB price (~75%)SHFs legally retain ownership of the coffee until it is sold at the auction and the majority of the cost, will not be paid until that time, increasing exposure to price volatilitySHFs are responsible for processing and marketing costs - which are deducted from the proceeds of the auction	<ul style="list-style-type: none">Cooperatives receive ~80% of FOB price for processed coffee; there is a lot of variation in the share of this price transferred to SHFs (between 20-75%)Mills, marketing agents and dealers are often sister companies and suspected of artificially reducing competition and suppressing pricesCooperative return the proceeds of the auction back to SHFs but this can take up to half a year¹The lead time between production, delivery and payments creates a lack of transparency and a disincentive for SHFs	<ul style="list-style-type: none">The Task Force for Coffee sub-sector Reforms recommends several measures to improve transparency, including the rule on prompt payment (farmers should be paid at least 40% of the prevailing price on the spot for the cherries they deliver)It also subsidizes a program for SHFs that offers a package including fertilizer, planting materials for new varieties, and TA. Implementation of these measures is slow

LESSONS LEARNED ON PRICE RISK MITIGATION

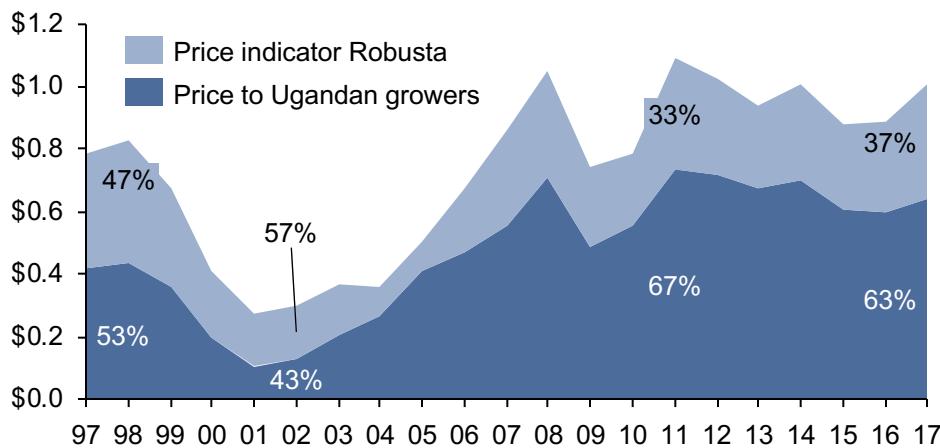
- The NCE has increased transparency in volumes and prices at the wholesale level but the concentration and vertical integration of 8 marketing agents are keeping prices low
- Price transparency does not benefit SHFs: they lose control over their production once they bring it to cooperatives for processing (although they retain legal ownership) and cannot know the quality of their coffee and the consequent price they should be entitled to

Note: (1) Payments are made to the bank representing the cooperative. The payments may sit there for as long as four months before they are credited to the cooperative net of any loan repayments for individual members of the cooperative. The cooperative then pays growers in one to four weeks. USDA, Annual Coffee Report, 2018; The Observatory of Economic Complexity, website (2018); GCP, "Kenya - economic viability of coffee farming", 2017; USAID – "Kenya Coffee Industry Value Chain Analysis", 2010; MAFAP – "Analysis of incentives and disincentives for coffee in Kenya", 2013; Dalberg analysis.



In Uganda, coffee contributes to 50% of SHFs' income, and the National Coffee Strategy is regenerating the industry

Share of farmer-gate price and supply chain costs, 2017
(% of export price)



ECONOMIC CONTEXT



In 2017, Uganda produced 673 million lbs. of coffee, making it the second largest coffee producer in Africa



Production increased by 2.0% CAGR between 1997-2017



Ugandan exports increased 0.4% CAGR over the past twenty years; representing 3.8% of global exports today



There are 1.2 M coffee growers in Uganda; of which 99% are SHF



Sector in crisis ran by SHF

In 2006, Uganda reached the peak of its “coffee-crisis”, as coffee production reached an all time low. The country has been recovering since with the support of the National Coffee Strategy that aims at reinvigorating the industry. Today, Uganda produces 7% of Robusta and 1% of Arabica, worldwide.

SHFs are responsible for ~70% of coffee production. Small farm sizes, low yields, poor cultivation practices, and mismanagement by value chain actors compromise coffee quality and impede SHFs from obtaining premium prices for coffee. As a consequence, coffee represents less than 20% of the average family plot, and provides around 50% of cash income in an average year, not enough to reach the poverty threshold.



Uganda is home to a significant share of global SHFs and the VC is characterized by fierce competition

PRODUCER FEATURES

of SHFs
'000

1,200-1,700 – 6-9% of global SHFs¹



SHFs
production
% of total

70% of total country production

Created by Asif Ali Khan
from Flaticon.com

Links to market

Most SHFs operate in loose VCs dominated by local intermediaries



85% Robusta high local competition and poor processing practices disincentivize investments to increase quality



70% of SHFs have access to credit, mainly provided by local traders at high interest rates. Only 10% of SHFs own a bank account and has access to commercial financing

Created by Ferenc Molnar
from Flaticon.com

15% of SHFs are aggregated in 345 cooperatives which only account for 3% of exports

Producer organizations are responsible for the aggregation and marketing of coffee but SHFs often distrust them



6,000 intermediaries, not registered with Uganda Coffee Development Authority (UCDA), aggressively compete for coffee

369 primary processing facilities, most operating under capacity and with aged machinery

54 marketing companies, that are registered local entities representing international exporters with 10 of them accounting for 80% of the market

SUPPORT ACTOR FEATURES



Improving enabling environment: The Uganda Coffee Development Authority (UCDA), the industry regulator, launched a National Coffee Strategy meant to (i) increase productivity; (ii) expand cultivation coffee areas; and (iii) improve the coffee business environment

The National Union of Coffee Agribusinesses and Farm Enterprises (NUCAFE) represents 210 coffee farmers and farmer organizations, for a total of 205,000 SHFs



Both UCDA and supply chain actors are creating digital price discovery platforms

PRMMs used in the Ugandan coffee value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Diversification of cropsUCFA, SAP, GIZ mobile payments – allows SHFs to record sales transactions, receive payments, and access creditHRNS – Building Coffee Farmers' Alliances in Uganda (UCFA) (2009-2013): project to improve livelihoods of SHF through better productivity and increased revenues.	<ul style="list-style-type: none">Premiumization – UCDA is improving the quality of seeds and seedlings through strengthened researchFarmer aggregation - UCDA is strengthening producer cooperatives to enhance commercialisation for SHFs and ensuring broad access to TA, inputs, and finance	<ul style="list-style-type: none">Uganda National Coffee Strategy Plan for 2015-2020 – plan to increase export revenue five-fold, by enhancing access to extension services, agricultural inputs, marketing services
Increase transparency in the market		<ul style="list-style-type: none">Trace the origin - NUCAFE digital traceability system – digital platform with SHF profiles and maps of coffee farms to trace coffee directly to its origin	<ul style="list-style-type: none">Price information - Uganda Coffee Development Authority (UCDA) price SMS - has a system that delivers local and international prices daily via SMSPrice discovery - Online auction - in early in 2018, Uganda initiated an online auction for its specialty coffees in an effort to boost prices.
Pool risk between actors			
Reallocate risk across actors		<ul style="list-style-type: none">OTC contracts - Warehouse receipts - Smaller exporters can access finance but only under strict collateral requirementsDerivatives – only the large exporters, affiliated with international buyers, use derivatives to hedge their risk	



Uganda is strengthening cooperatives and implementing digital PRMMs to contrast unhealthy competition in the VC

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">SHFs cannot generally sell at premium prices because lack of credit and poor cultivation practices induce them to harvest before the coffee is ripeAssured demand for their coffee disincentivizes SHFs to invest in better production and higher qualityStill, farmer share of export price is relatively high at 77%, given the intense competition between intermediaries	<ul style="list-style-type: none">SHFs report distrust in VC actors, indicating to weighing practices at points of sale, adulteration of coffee to increase its weight or volume, and general distrust about prices paid for coffeeIntermediaries do not pay much attention to the quality because the price they receive almost doubles the farm-gate price, and the profits they make are still very attractive and compensate for the rejected coffee beans	<ul style="list-style-type: none">UCDA is strengthening farmer organizations and producer cooperatives to enhance commercialization for SHFs and ensuring broad access to extension, inputs, and financeAs part of the National Coffee Strategy, UCDA is supporting the commercialization of Ugandan Arabica coffee and in 2018 launched an online auction for Arabica varieties to help SHFs access premium prices

LESSONS LEARNED ON PRICE RISK MITIGATION

- High competition in the VC and guaranteed demand can refrain SHFs from investing in premiumization strategies and improved production practices
- UCDA is strengthening cooperatives to off-set the bargaining power of intermediaries and traders and push for improvement in coffee quality
- Digital price discovery mechanisms such as online auctions are effective solutions to increase price transparency and give more bargain power to SHFs

Agenda

Price volatility in coffee sector

Taxonomy of price risk mitigation models

Value chain and PRM model analysis

- Coffee Latin America

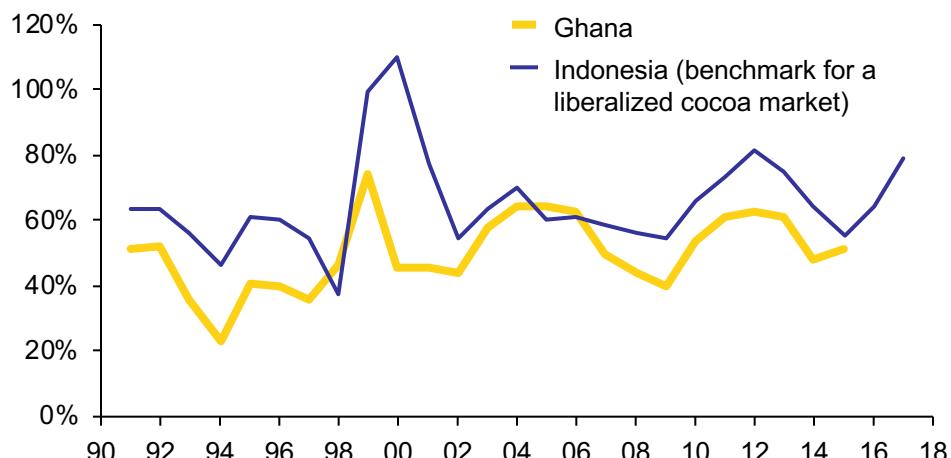
- Coffee Africa

- **Cocoa Africa**



Ghana is the 2nd largest producer and exporter of cocoa; nationally the sector is tightly regulated by COCOBOD

Annual cocoa farm-gate price in Ghana and Indonesia as a % of the average world market price, 1991-2017



ECONOMIC CONTEXT



In 2018, Ghana was the 2nd largest cocoa producer globally, accounting for 20% of total production



From 2000 to 2012 production increased by 100%, since then it has stabilized at ~880 thousand tons annually



In 2018, beans and processed cocoa represented 10% and 5% of total national exports (\$17 billion), respectively



It employs ~850 thousand SHFs and contributes to the livelihoods of 6 million people (~25% of population)



Government intervention; high quality and low price volatility but low productivity and limited price realization

The Ghana Cocoa Board (COCOBOD) is a government institution that regulates most facets of the sector. For instance, it carries out extension services, mediates exports, sets farm-gate prices and margins for VC actors, and carries out strict quality control.

Overall, government intervention has ensured high quality cocoa is sold at a premium. However, limited extension services and access to credit and inputs means a large yield gap remains. Similarly, government price setting has reduced price volatility for farmers but hampered price realization for farmers due to high transaction costs



High government involvement creates tight VC dynamics and ensures high quality output

PRODUCER FEATURES

of SHFs
'000

850 – 15% of cocoa SHFs
globally



SHFs
production
% of total

90% of total country production

Links to market

SHFs sell fresh cocoa beans to assigned licensed buying companies (LBCs) allocated by COCOBOD



High quality Ghanaian cocoa receives price premiums in international markets



Low yields Government facilitates access to inputs but a large yield gap remains (actual yield: ~420 kg per ha, versus a potential yield of 1400 to 1800 kg per ha)



25% of SHFs borrowed money in 2018, mainly on a trust basis through LBCs. Only one third used credit to buy inputs

SUPPLY CHAIN FEATURES



11% of SHFs are aggregated into cooperatives. Farmer organizations are poorly managed and have little capacity due to a dependency on COCOBOD



41 LBCs purchase cocoa from farmers and cooperatives. Most LBCs are locally owned but international companies such as Cargill and OLAM also own LBCs



~50% of farm-gate buying-rights belong to the PBC, an LBC with close ties to the government



High government involvement - COCOBOD regulates (i) price/margin-setting for producers and LBCs, (ii) LBC buying-rights and (iii) quality control. The Cocoa Marketing Company (CMC), a subsidiary of COCOBOD, has a monopoly as a final off-taker. Input provision and credit access remain liberalized, although the government subsidizes input access



There is a concentration of sector-led PRMMs, mainly in the form of price stabilization

PRMMs used in the Ghanaian cocoa value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none">Premiumization - High quality cocoa is sold at a premium in international markets	<ul style="list-style-type: none">Access to finance - LBCs provide SHFs and cooperatives with investment support and inputs, since they compete on service provision not prices	<ul style="list-style-type: none">Access to finance - (i) Cocoa Extension Public-Private Partnership (CEPPP), (ii) Sustainable SHF agribusiness program (SSAB)Foster productivity - WCF Cocoa Livelihoods program to improve productivity
Increase transparency in the market	<ul style="list-style-type: none">Certification through UTZ, Rainforest Alliance, Fair Trade, Organic		<ul style="list-style-type: none">Price information - SAT4Farming public-private partnership to provide digital information services to SHFs
Pool risk between actors			<ul style="list-style-type: none">Price stabilization - COCOBOD fixes margins and prices for all VC actors and runs a price stabilization fundPrice stabilization - Abidjan Declaration signed with Côte D'Ivoire to synchronize cocoa prices
Reallocate risk across actors		<ul style="list-style-type: none">Derivatives - CMC hedges and forward sells 70% of expected annual harvest	



Price realization for SHFs is limited by high COCOBOD transaction costs and few incentives to self-aggregate

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">• Price realization for SHFs is low. In 2014/2015, SHFs received only 48% of the average annual international market price• Ghanaian cocoa is often traded with a 7-10% premium on the market price due to high quality. However, few farmers benefit from direct price top up through certification¹• Living income studies show current farm-gate prices are not sufficient to make a decent living or make investments to improve farming	<ul style="list-style-type: none">• Although cooperatives are the main means by which SHFs can access PRMMs beyond the government stabilization mechanisms (such as certification), only 11% of SHFs are aggregated into cooperatives• COCOBOD sets farm-gate prices by having its subsidiary the Cocoa Marketing Company (CMC) forward sell ~70% of the expected annual cocoa harvest	<ul style="list-style-type: none">• COCOBOD takes ~8% of the FOB price at which cocoa is sold to cover operational costs and to reinvest in the sector. When market prices drop, COCOBOD dips into a government stabilization fund to guarantee SHFs a minimum farm-gate price• VC actors criticize COCOBOD for lacking transparency and being inefficient

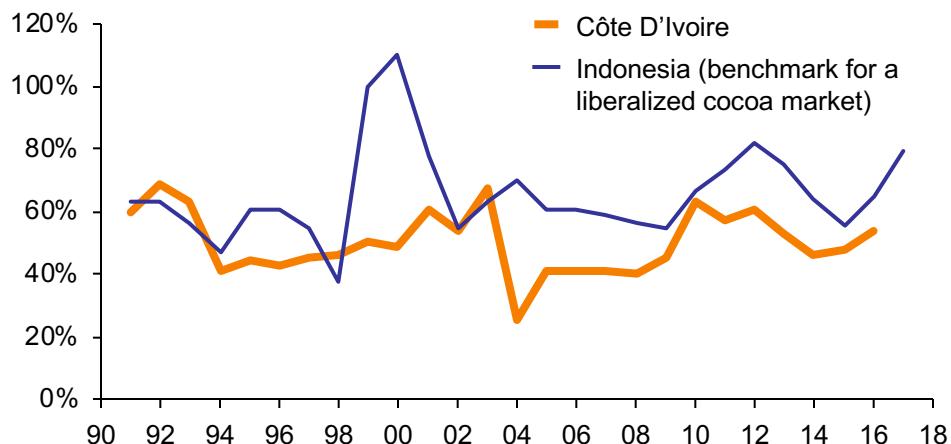
LESSONS LEARNED ON PRICE RISK MITIGATION

- Government intervention in setting farm-gate prices and reducing experienced price volatility may limit price realization for farmers given high transaction costs to maintain the system
- Regulated pricing structure diminishes the incentives for farmers to self-aggregate into cooperatives because aggregating into groups is unlikely to result in higher bargaining power for farmers if prices are set by regulation. Farmer groups are a common vehicle to provide SHFs to access PRMMs.

Note: 1. COCOBOD does allow LBCs to pay producers a premium, on top of the fixed government market price, for certification. Sources: SEO Amsterdam, "Market concentration and price formation in global cocoa value chain", 2016; SEO Amsterdam, "Determination of cocoa prices in Cameroon, Nigeria, Ghana, Côte D'Ivoire", 2016; Aiden Environment, "Pricing mechanisms in the cocoa sector", 2018; KIT, "Analysis of the income of cocoa producing households in Ghana", 2018; Stakeholder interviews; Dalberg analysis.

Despite being the biggest producer globally, productivity and price realization of cocoa remains low in Côte D'Ivoire

Annual cocoa farm-gate price in Côte D'Ivoire and Indonesia as a % of the average world market price, 1991-2017



ECONOMIC CONTEXT



In 2018, Côte D'Ivoire was the biggest producer and exporter of cocoa globally (42% of global supply)



Since government intervention on pricing restarted in 2012¹, production has increased by ~37%



Cocoa and derived products represent ~50% of total national exports (\$10 billion), and cocoa contributes to ~15% of Ivorian GDP



Cocoa directly employs ~1.2 million SHFs who generally gain the majority of their income from it (~70%)



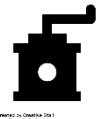
Government intervention; high quality and low price volatility but low productivity and limited price realization

The Conseil Café Cocoa (CCC) is the regulatory body of cocoa in Côte D'Ivoire. Like COCOBOD in Ghana, CCC sets farm-gate prices annually and carries out strict quality control. However, it does not provide comprehensive extension services.

Overall, government intervention has ensured high quality cocoa is sold at a premium internationally. However, low input use translates into low productivity. Additionally, although the price-setting intervention has reduced experienced price volatility, price realization by Ivorian farmers remains low.

Note: 1. The Conseil Café Cocoa (CCC) price setting intervention recommenced in 2012 after a ~20 year period when the sector was fully liberalized. Sources: FAO, "FAOSTAT", 2018; GrolIntelligence, 2018; Cocoa Barometer, 2018; OEC, 2018; KIT, "Demystifying the cocoa sector in Ghana and Côte D'Ivoire", 2018; SEO Amsterdam, "Determination of cocoa prices in Cameroon, Nigeria, Ghana, Côte D'Ivoire", 2016; Aiden Environment, "Pricing mechanisms in the cocoa sector", 2018

Government sets farm-gate prices and SHFs operate in tight VCs that are highly integrated at the exporter level

PRODUCER FEATURES		SUPPLY CHAIN FEATURES
	# of SHFs '000	1,200 – 22% of cocoa SHFs globally
	SHFs production % of total	95% total country production
	Links to market	SHFs operate in loose VCs, mostly selling fresh cocoa beans to local buyers (pisteurs) who then sell to buyers, processors or exporters
High quality	cocoa receives price premium internationally	 21% of cocoa producing households belong to a cooperative. Nationally, over 1500 cooperatives are registered with the CCC, but many remain largely inactive or inefficient
Low yields	(~350 kg per ha) are largely a result of low input use. Only 16% and 6% of SHFs use granular or liquid fertilizer, respectively	 5 multinational trading companies control 80% of exports and own 80% of the grinding capacity
25% of SHFs borrowed money in 2018, mainly via informal channels such as pisteurs, friends or family. Only ~10% of SHFs use credit for farm-related activities		Vertical integration is growing to reach the producer and intermediary level. Cargill, who controls ~18% cocoa exports, sources 99% of its cocoa in Côte D'Ivoire directly through cooperatives
SUPPORT ACTOR FEATURES		

 **High government involvement** – The CCC sets a minimum farm-gate price based on the average price at the pre-season auctions it organizes. There, ~80% of the expected harvest is sold to licensed exporters who are expected to provide evidence of hedging or presale, to prevent default. Input provision, farm-gate purchases and margin setting for VC actors remain liberalized



Government price stabilization is the driving PRMM in the industry, although the private sector is increasingly involved

PRMMs used in the Ivorian cocoa value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience	<ul style="list-style-type: none"> Premiumization - High quality cocoa is sold at a premium in international markets 	<ul style="list-style-type: none"> Capacity building - Cargill Coop Academy program Access to finance - Access to affordable funding for cocoa farmer cooperatives by IFC, SIB and Cargill 	<ul style="list-style-type: none"> Capacity building - Quantity Quality and Growth program Capacity building - WCF Cocoa livelihoods program to foster productivity Trace the origin - Cocoa Action program to promote sustainable sourcing
Increase transparency in the market	<ul style="list-style-type: none"> Certification through UTZ, Rainforest Alliance, Fair Trade, Organic 		
Pool risk between actors			<ul style="list-style-type: none"> Price stabilization - Fixed farm-gate price & stabilization fund Price stabilization - Abidjan Declaration signed with Ghana to synchronize cocoa prices
Reallocate risk across actors		<ul style="list-style-type: none"> OTC contracts - Tony's Chocolonely pricing model under which the company tops up the set fixed government price to bridge the "Living Income" gap 	<ul style="list-style-type: none"> Contracts - Forward selling of 80% of expected harvest through the Program of Anticipated Sales

Price stabilization benefits are offset by high taxation and price stabilization disincentivizes SHFs from self-aggregating

MAIN OBSERVATIONS ON PRICES

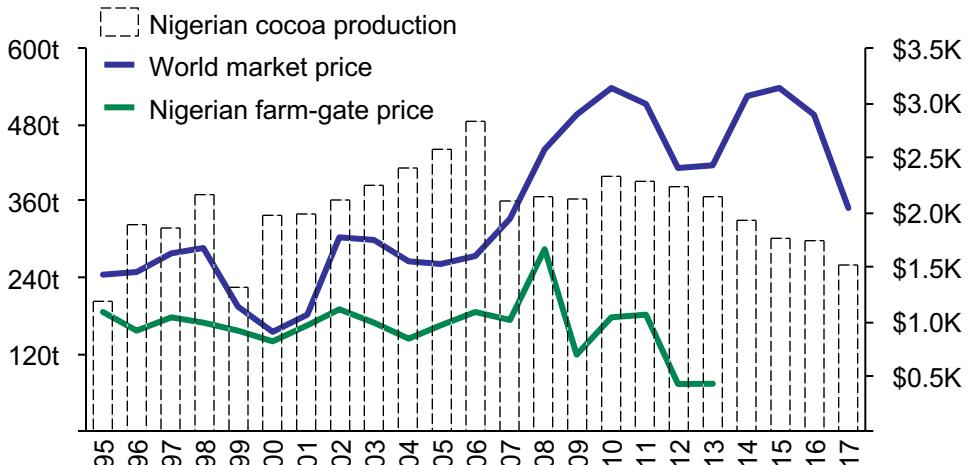
PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">• Price realization for SHFs is low. Over the past decade, farm-gate prices in Côte D'Ivoire have been 20% lower than those in other non-regulated cocoa producing countries. This is considered a result of high taxation on cocoa (~20%)• Living income studies have shown the price attained by SHFs is not sufficient for a sustainable living and to make necessary farm investments	<ul style="list-style-type: none">• Although cooperatives are the main means by which SHFs can access PRMMs such as certification, only 20% of SHFs are aggregated into cooperatives. This is largely because in the Ivorian context, collective action no longer provides the benefits of price negotiation or economies of scale	<ul style="list-style-type: none">• CCC sets the annual farm-gate price after pre-season auctions to forward sell ~80% of the expected annual harvest• In 2017, ~350 thousand tons of cocoa were presold to national traders who did not presell or hedge their cocoa. World market prices dropped and many local traders defaulted on the contracts. The CCC was forced to reduce farm-gate prices by 36% and use the government stabilization fund

LESSONS LEARNED ON PRICE RISK MITIGATION

- Price stabilization by the government does not translate into high price realization for SHFs, largely because of high cocoa taxation
- Government price setting can limit SHFs access to PRMMs (such as certification) by diminishing the incentives for farmers to self-aggregate into cooperatives
- Downstream VC actors (e.g. traders, exporters) with access to PRMMs can play an important role in transmitting the benefits of more stable prices to SHFs

In Nigeria, poor price transmission between producers and exporters has contributed to a decline in cocoa production

Nigerian cocoa production (tons) vs Average annual farm-gate & world market prices (\$ per ton), 1995-2017



ECONOMIC CONTEXT



In 2017, Nigeria was the 6th largest producer of cocoa globally



Cocoa production has declined by ~35% between 2010 and 2017



Cocoa beans and processed cocoa represent ~1.5% of total national exports (\$47 billion)



Cocoa directly employs ~450 thousand farmers, largely centered in the South-western region of the country



Poor price transmission between producers and exporters

A comparison of world market price and farm-gate prices shows an increasing gap, with producer prices stalling or declining even in periods where international market prices increase (2006-2010). In Nigeria, weak price transmission between producers and exporters arises largely as a result of low bargaining power of producers, the presence of many intermediaries in the VC, and a lack of competition between exporters. As a result of low price transmission, and therefore low prices, SHFs have switched to other crops/income-generating activities, resulting in a ~35% decline in production between 2010-2017. Limited incentives for cocoa farmers are exacerbated by price fluctuations, instability in local exchange rates and high inflation rates.

The cocoa VC is dominated by resource constrained SHFs operating alongside powerful, vertically integrated exporters



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PRODUCER FEATURES

of SHFs
'000

450 – 8% of cocoa SHFs
globally

SHFs
production
% of total

80% of total country production

Links to market

SHFs operate in medium tight value chains, mostly selling fresh cocoa beans to brokers who then sell to local buying agents (LBAs)



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Low quality SHFs often sell to brokers instead of LBAs to avoid uncertainties of product grading. LBAs can reject sales or pay less (a negative differential) on the current price due to below standard quality



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Low yields of ~330 kg per ha are amongst the lowest globally given limited access to inputs and aging trees

50% of SHFs borrow money, largely via informal channels. Credit available is short term and is perceived to lock SHFs in an exploitative relationship with brokers



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SUPPLY CHAIN FEATURES

20% of produce made by SHFs is sold via cooperatives. A few strong cooperatives exist. Some SHFs prefer selling to merchants/brokers instead of cooperatives because the former facilitate access to credit



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3 firms control over 50% of exports. These are vertically integrated and rely on LBAs for their purchases

~9-25% utilization of the national processing capacity translated into limited value-captured domestically

Investment in digitalization

of agriculture is growing nationally. However, uptake and use by SHFs remain low. Most apps are tailored towards medium-sized farmers or downstream VC players



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Low government involvement – The government had minimum involvement or investment in the cocoa sector since it was liberalized in 1986. Recent interest to diversify the economy away from oil means the government has expressed a desire to regain some control over the cocoa supply chain, although limited action has been taken so far

SUPPORT ACTOR FEATURES

In the liberalized Nigerian cocoa market there are several digital price discovery PRMMs

PRMMs used in the Nigerian cocoa value chain (non-exhaustive)

Enablers

PRMMs

MODELS	PRODUCERS	SUPPLY-CHAIN ACTORS	SUPPORT ACTORS
Increase farmer resilience		<ul style="list-style-type: none"> Farmer aggregation - Stanmark Nigeria Ltd program to aggregate SHFs Access to finance - Agrotrader Ltd provided \$15M in loans to upstream VC actors Access to finance - CrowdFarmy digital app facilitates access to finance (>10 similar initiatives in Nigeria) 	<ul style="list-style-type: none"> Farmer aggregation - WCF Cocoa livelihoods program to foster productivity and value added Access to finance - Government Export Expansion Grant (EEGs) to help local export firms compete with international ones
Increase transparency in the market	<ul style="list-style-type: none"> Certification - Although this is not widespread amongst SHFs 	<ul style="list-style-type: none"> Price discovery - AFEX and Binkabi agricultural commodity trading platform 	<ul style="list-style-type: none"> Price discovery - Kogi government digital agricultural market place
Pool risk between actors			<ul style="list-style-type: none"> Risk pool of producers - ICCO PRM capacity building program for cooperatives, in partnership with the Cocoa Association of Nigeria
Reallocate risk across actors			

However existing PRMMs in Nigeria risk leaving behind the poorest, most vulnerable cocoa SHFs

MAIN OBSERVATIONS ON PRICES

PRODUCER	SUPPLY- CHAIN	SUPPORT ACTORS
<ul style="list-style-type: none">Limited access to PRMMs means SHFs are largely exposed to volatility in the cocoa marketPrice transmission between SHFs and exporters is low given limited (i) bargaining power of SHFs and (ii) competition between exportersSHFs often sell to intermediaries (although these offer lower prices) because of high transactions costs to reach LBAs and fear that the low quality of their cocoa will translate into a lower price offered by LBAs	<ul style="list-style-type: none">Given that the development of the cocoa industry is market-led, there is a private sector focus on developing profitable agri-tech business modelsMost of the benefits of introducing digital price discovery platforms are going to more commercial mid-sized farmers or downstream VC actors. For instance, very few FarmCrowdy users are cocoa SHFs	<ul style="list-style-type: none">The government has had minimum involvement or investment in the cocoa sector since it was liberalizedIncreased efforts to revitalize the cocoa sector, and more broadly the agriculture sector, have not translated into direct price benefits for SHFs

LESSONS LEARNED ON PRICE RISK MITIGATION

- Private sector PRMMs are targeting large farmers, that are well-connected and are closer to large-off takers. For these reasons, the positive effects of private-sector lead PRMMs do not trickle down to the more vulnerable cocoa SHFs. This may not happen until there is increased support from the government or international foundations and NGOs