

A Study on the Counterparties Risk Management in Cocoa Trading Companies

How commodities trading firms deal with performance risk?

Marie Auckenthaler

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Supervisor:
Prof. António Gomes Mota, ISCTE Business School, Departamento de Finanças

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Resumo

Esta dissertação pretende aprofundar a investigação realizada no âmbito do risco incorrido pelas empresas de comercialização de cacau que estão maioritariamente ligadas a entidades africanas. Assim sendo, os riscos de contraparte, incluindo os riscos dos clientes e dos fornecedores, são analisados. Através de um inquérito realizado às empresas de comercialização de cacau, foi possível determinar quais os tipos de estratégia executados por estas empresas e, conseqüentemente, compreender o modo de pensar das mesmas. Adicionalmente, foi recolhida informação acerca de como lidar com os riscos de contraparte através de diferentes depoimentos de profissionais da indústria do cacau. Após o pré-financiamento e risco de crédito, o risco de incumprimento ou de rejeição são os mais relevantes. Isto deve-se essencialmente à variação de preços, causada pelas alterações climáticas, pelo ambiente político, ou pela falta de capacidades e honestidade. No entanto, diversas soluções podem ser aplicadas para contrariar esta tendência: instrumentos financeiros, tais como cartas de crédito, ou documentos mediante o pagamento, são uma boa opção para prevenção de risco. As empresas de cacau estão também dispostas a usar incoterms, seguros de crédito, e a adotar políticas de Conheça o seu Cliente. O risco de mercado é elevado para ambas as contrapartes, e é por isso que ter a possibilidade de vender e comprar diretamente é considerada uma grande vantagem no mercado de cacau. Contudo, mesmo havendo diferentes fatores eficientes no combate destes riscos, a maioria dos riscos não são realmente abrangidos e são sujeitos a total confiança. Esta dissertação destaca as principais formas de gerir os riscos de contraparte numa empresa de comercialização de cacau.

JEL: G32: Risco Financeiro e Gerenciamento de Riscos

F13: Organização Internacional do Comércio

Palavras-chave: Comércio de cacau, Risco de contraparte, Países em Desenvolvimento, Gestão de Risco

Abstract

This dissertation is conducted to extend the research on the risk faced by the cocoa trading companies which are mostly dealing with African entities. It analyses the counterparties risks including customers and suppliers' risks. A survey determining which kind of strategies are used by the cocoa trading companies allowed us to understand the way of thinking of these firms. Also, many information about how to deal with the counterparty risks have been gathered through interviews with professional from the cocoa industry. After the pre-financing and credit risk, the risks of default and reject are the most important. It is usually due to the price variation, impacted by the climate changes, the political environment, or the lack of skills and honesty. Diverse solutions can be used to fight against the risks: financial instruments are a good solution to prevent the risk, such as the Letter of Credit (LC), or the Cash Against Documents (CAD). Cocoa firms are also willing to use Incoterms, credit insurances and Know Your Customer (KYC). The market risk is very high in both counterparties. That is why having the possibility to directly sell and buy on the exchange is a big advantage of the cocoa market. However, even if many factors can be used to manage these risks, most of them cannot be covered and are subjected to pure confidence and trust. This dissertation highlights the principal ways to manage the counterparty risks in a cocoa trading company.

JEL: G32: Financial Risk and Risk Management

F13: International Trade Organization

Keywords: Cocoa Trading, Counterparty Risk, Developing Countries, Risk Management

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I dedicate this dissertation to my parents, Franck and Laurence, and to my brothers William and Alexandre, who have supported me in all my choices and gave me the possibility to study abroad and accomplish my goals and wishes.

Declaration of Honor

Dissertation delivery

I, the undersigned, hereby declare:

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Full Name: Marie Auckenthaler

Master in Finance; Student Number: 81000

ISCTE-IUL e-mail address: ameru@iscte-iul.pt

ISCTE-IUL, 30 de Junho de 2019

Signature:

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List of Abbreviation

AFCC	Association Francaise du Commerce des Cacaos
CAD	Cash Against Documents
CAL	Cocoa Association of London
CCC	Conseil du Café Cacao
CFR	Cost and Freight
CIF	Certificate Insurance and Freight
CMAA	Cocoa Merchant Association of America
EXW	Ex Works
FCC	Federation of Cocoa Commerce
FOB	Free on Board
GBP	British Pound
ICCO	International Cocoa Organization
ICE	Intercontinental Exchange
INCOTERM	International Commercial Terms
KYC	Know Your Customer
LC	Letter of Credit
MTM	Mark to Market
USD	United States Dollar

1. Introduction

According to Marquet (1992), the international exchanges of commodities represent more than the half in volume, and more than 2/3 in value of the global international trade, gathering importation and exportation. This is explained by the existence of a large number of commodities, but also by an unequal repartition of these resources between countries. Commodities have common characteristics like high price volatility, but they also have important differences. In particular, we can distinguish between agricultural raw materials and mineral raw materials, renewable raw materials and non-renewable raw materials, as well as raw materials benefiting from an organized futures market and those that do not (Fajarnes, 2011).

This study focus on cocoa, which is a vital source of financial resources (in foreign currencies) for governments of developing countries to invest in economic and social development. It is an agricultural commodity present on the future exchanges and therefore, it allows the creation of derivative products. The use of financial instruments is essential to the cocoa trading activity as it permits to manage the principal risk of the sector: the price risk. Financial instruments also manage the foreign exchange risk, which, while not unique to trading companies, becomes more important, as long as the material traded and the commercial contracts are made using a currency different from the trader's home currency.

The trader position includes both the purchase and sale flows of cocoa. It also bears the risk of execution of the contracts like the cocoa transportation, storage and delivery (Scheu and all, 2002). We can say that after the price risk, the most important risk is the performance risk, also called counterparty risk. Counterparty risk is defined as the likelihood that one of those involved in a transaction (customer, supplier, transporters and warehouses) might default on its contractual obligation (Mosconi, 2018).

Consequently, cocoa traders face a wide range of risks. Some of them can be managed by hedging, insurance or diversification but others must be handled by the firms' owners. That is why risk management is an integral part of the operation. Commodities trading companies face a different kind of risks and have different ways to deal with them (Pirrong, 2015). Commodity risk management is emerging as a critical differentiator of business performance (Pwc, 2013).

After explaining how the commodities trading works, the dissertation aims to show the different ways to manage the risk in commodities trading companies. This thesis will focus

more on the counterparty risk, which is one of the major risks in this industry. The first part of this thesis will give an overview of the cocoa market, following by the identification of the different kinds of risks that can occur in a commodities trading firm. Through the dissertation, we will try to show that the risks are all more or less related to the performance/counterparty risk. Consequently, we will try to answer to the following question: How commodities trading companies can manage the counterparty risk?

The dissertation is based on both qualitative and quantitative research. It is empirically based on different interviews and discussions with traders and financial employees from the cocoa trading industry and also on a survey sent out to 120 commodities trading companies.

As commodities trading firms represent a pretty small and unknown industry especially for undeveloped countries like in Africa, where the majority of cocoa is produced, the industry is sometimes qualified as “secret”. There is indeed a real lack of transparency. Consequently, it was hard to find very detailed information. Past research studies about cocoa trading have indeed focused on general risks without detailing specifically on the counterparty one which is the riskiest. On the other side, some studies were focused on counterparty risk, but not on cocoa trading.

The objective is to capture the more important factors that create a risk for the cocoa trading companies and to explain how to minimize the risk as much as possible.

2. Literature Review

2.1. Cocoa Market Overview

2.1.1. Cocoa Market

Contrary to what we could think, cocoa was not born in Africa! Cocoa trees were previously seen in the wild Amazonia and south of central America. Mexico was the major market for cocoa beans until the seventeenth century. Cocoa moved during the 16th century due to the Spanish conquistadors. Facing the increase of demand, the British and French empires introduced cocoa in West Africa in the 19th century. They established the Gold Coast, which is today known as Ghana and Ivory Coast, as the leading world producers (Chapman, 2018).

Lovers of chocolate, Europeans decided to increase the cocoa production to enjoy the cocoa products (Wood, 2001). Cocoa trees, the *Theobroma Cacao* Plant need humidity, good soil drainage and consistent rainfall to grow properly (Pines, 2011).

Leissle (2018) explains that because of the current climate instabilities, African growers are fighting against the threat of climate change and cocoa diseases. Consequently, cocoa production becomes more and more difficult meanwhile multinationals still want to access to a cheap product (Chapman, 2018). Cocoa is important for both producing and consuming countries. Between these two counterparties, the commodities trading companies have an important role to play. They need to ensure a good revenue to the producers and a cheap price to the large industrials. That is why the margin is not very high.

According to Phillips and all. (2006), cocoa plays an important role in economies as a source of foreign currencies. However, cocoa farmers have become very exposed to the risks related with the fluctuation of the commodity price. Different Western African countries tried to set up stabilisation programs in order to fight against this uncertainty of revenue for farmers and producers. The income of each harvest is becoming unpredictable what is a real problem as it is explained by the ICCO. Ivory Coast and Ghana deal with cocoa trading very differently. Ivory Coast moved to a state-controlled system since 2012, whereas in Ghana, it is a free market system like Cameroon and Nigeria.

2.1.2. Cocoa Production

The worldwide production of cocoa beans represented 4.552 million tons in 2018 and it increases each year (Leissle, 2018). Cocoa comes mostly from Western Africa (74%) followed by Americas (17%) and finally Asia Pacific (9%) according to ICCO (2017). The main producers of cocoa are Ivory Coast, followed by Ghana (Wood, 2001). Cocoa has been

Ghana's primary cash crop and backbone of its economy for more than six decades. Cocoa represents between 25 and 30 percent of total export earnings and almost 10% of the GDP of Ghana according to ICCO (2017). However, production in Ecuador in South America is rising. (Appendix 3)

Globally, cocoa is produced by five to six million farmers and it contributes to the livelihood of 40 to 50 million people spread across more than 50 countries in Africa, Latin America, the Caribbean and Asia (Kaplinsky, 2004). For most of them, it represents the only source of income. In Ghana and Ivory Coast for example, cocoa represents more than 30% of export earnings over 1995 to 2014 (Wood, 2001).

Europe is both the largest total importer of cocoa and the largest processing region (Sudcen, 2019). (Appendix 2) Harvesting and drying the beans need an important workforce. Despite some countries like Brazil, where cocoa is consumed and transformed on the spot, cocoa is essentially a culture of exportation (Dusoulier and Stéphant, 2015). When the beans leave the farm, quality cannot get better, so they should be processed as soon as possible.

The picture of cocoa trade would not be completed without describing all forms of cocoa products. Cocoa is traded on the world market in four basic physical forms: cocoa beans, cocoa butter, cocoa liquor and cocoa powder. The transportation's costs are lower for cocoa beans than grinded beans. That's why grinding cocoa beans in countries closer to consumers' markets (Europe and US), is more economically viable (Andrzejuk, 2014).

2.1.3. Cocoa Consumption

Today, civilizations all around the world enjoy cocoa in many different ways. Cocoa beans are transformed in different products which are used in many industries. Cocoa liquor is the main ingredient in chocolate products (Pines, 2011). Regarding cocoa powder, it is used as an ingredient in chocolate-flavoured drinks and desserts. More recently, the cosmetic and pharmaceutical industry are also using cocoa butter in cosmetic products such as moisturizing creams and soaps (Gayi, Tsowou, 2016). The cocoa pods and the pulp surrounding the beans have a variety of commercial use like animal feed, fertilizer for cocoa, vegetables and other crops, mulch, soap manufacturing, pectin production for jams and marmalades, ingredients in the production of soft drinks and alcoholic beverages.

With the annual consumption of cocoa beans topping 4.5 million tons, cocoa is an important commodity in the world market. Products created from cocoa are mainly created and

consumed in industrialised countries: Europe is by far the largest consumer, following by the North America. In 2017, chocolate sales represented 22 USD billion in 2017. Emerging markets should play an important role in the upcoming years. Cocoa is important for both producing and consuming countries (Dusoulier and Stéphant, 2015). Only six multinational companies represent 85% of the cocoa market: Hershey, Mars, Philip Moris, Nestlé, Cadbury and Ferrero.

2.2. Nature of the Operations

In cocoa trading, a clear distinction has to be made between the physical or actual and the future or terminal market. Almost all cocoa coming from origin (Ivory Coast, Nigeria, Ecuador...) is sold through the physical market (ICCO, 2015). Supply and demand that occurs in the physical market impact the future market and is of course reflected in the price quoted. Usually, futures price found on the market are used to set up the price of a physical contract.

2.2.1. Physical Markets

Physical markets are located in New York, London and Paris. The Cocoa Merchant Association of America (CMAA) was created in 1924. Then, the Cocoa Association of London (CAL) was founded in 1928. Finally, Paris created the Association Francaise du Commerce des Cacaos (AFCC). These last two merged in 2001 to form the Federation of Cocoa Commerce (FCC). Today, almost all physical cocoa trading companies are subject to the terms and conditions of CMAA or AFCC (Dand, 2011). These associations permit to find a way to classify cocoa by grading it. Cocoa grading differs across producing and consuming countries. However, the physical market developed standard practices (ICCO, 2015). For example, the FCC distinguishes two grades: good fermented cocoa beans (less than 5% mould, less than 5% slate and less than 1.5% foreign matter) and fair fermented cocoa beans (less than 10% mould, less than 10% slate and less 1.5% foreign matter). These samples are determined through tests carried out through the so-called cut test. It involves counting off a given number of weight of cocoa beans, cutting and examining them. Beans that cannot enter in any category are mouldy, insect damaged, germinated or flat (ICCO, 2015).

2.2.1.1. Activity

Trading firms aim to maximise the price differential between the price they pay for the cocoa beans before transformation and the revenue they earn by selling the beans untransformed or

transformed into cocoa products. Minimising the overall cost of acquiring cocoa beans is therefore a priority for the companies (Trafigura, 2018).

Cocoa trading firms are indeed essentially in the business of transforming cocoa in space (logistic), in time (storage), and in form (processing). Their basic function is to perform a physical “arbitrage” which enhance value between these different transformations.

2.2.1.2. Transportation

The goal of a trader is to buy cocoa to a supplier and sell it to a customer. The transportation of commodities from the supplier region (where they are produced) to the places where they are consumed is necessary. In order to facilitate communication and trading among companies, the ICC published a set of rules in 1936 specifying contract obligations and assigning the responsibilities of buyers and sellers (Youssef, 1993). An incoterm (or International Commercial Terms) defines the rights and duties of seller and buyer playing a role in the international and domestic exchanges. It defines the responsibilities of both the buyer and seller especially regarding the loading, the transportation, the insurance and the delivery. It also gives a price magnitude for transportation costs (Dervisi, 2018). It is a set of rules that allows buyers and sellers to agree on the terms and conditions of the transaction very easily. Incoterms are also used to determine the transfer of responsibility and risk. The agreement defines where, during the transportation, the buyer or the seller will need to bear the risk which can be a cocoa damaged during the transportation for example (Dervisi, 2018; Youssef, 1993). Incoterms are divided in different groups. Cocoa trading companies are used to sell EXW or FOB and buy CIF (detailed in Appendix 4).

2.2.1.3. Storage

As production and consumption locations aren't usually aligned, the timing of commodity production and consumption is usually not in accordance neither. This is typical for agricultural commodities which are produced seasonally (Pirrong, 2015). For cocoa, there are, typically, two crops a year. The main crop is from October to December, usually offering a better cocoa quality and the lower crop from April to June, with smaller beans (Awere, 2018). However, cocoa consumption is regular across the year. But temporal mismatch between production and consumption are not only due to seasonality but also to different economic factors, that may increase or reduce the level of consumption. Additionally, the seasonality, itself, can be amplified by meteorological events (for instance, if it is too dry, cocoa will not grow).

These mismatches in timing and production require the creation of storage in order to be able to deliver cocoa at any time of the year. Cocoa trading companies can stock the commodities through warehouses in bulk or bags in different places. Amsterdam is one of the main places used to storage due to its strategic location and a cheaper cost of maintenance. Inventories can be low when supply decreased a lot or if demand is unusually high. At the contrary, it can be accumulated when supply increase a lot and demand decrease a lot. Storage is a good way to smooth the effects of price, consumption or production changes (Pirrong, 2015).

2.2.1.4. Processing

Commodities must usually undergo transformations in form as explained in Appendix 1. Cocoa beans must be transformed in liquor, used by manufacturers to create chocolate. From this liquor it is possible to create butter used for lipstick or white chocolate. It can also become cake, pulverised in powder, used for other goods like Nesquik or Monbana (Sucden, 2018).

The goal of a commodities trading firm is to optimize all these transformations in order to create value. Commodities trading is not like in luxury industry, where the margin between raw materials and final products is huge. In commodities the purchase price is very close from the sell price, there is not an important margin, that is why it is very important to minimise cost and maximise value on transportation, storage (including the cost of financing inventory) and processing (transformation from bean to products). The commodity trader role is to find and exploit “arbitrages”. An arbitrage exists when the value of a transformation, as indicated by the difference between the price of the transformed and untransformed commodity, exceeds the cost of making the transformation. As explained before, traders buy and sell physical commodities. The profitability of this activity depends on the difference between the price of transformed and untransformed commodities rather than their level. Opportunities for value creation are related to different things: economic environment, volatile or economics conditions (Pirrong, 2015).

2.2.1.5. Price Fixation

This physical market allows participants to buy and sell cocoa on terms that they agree themselves. When traders deal with an African supplier, they usually do not fix the price at the contract creation. As explained, traders earn money thanks to the “differential”, not with the price of commodities as they take the inverse position on the market.

2.2.2. Future Markets

A futures market, also called the exchange market or terminal market, is an auction market where participants buy and sell commodity and futures contracts for delivery on a specified future date. The first formally organized cocoa exchange was founded in 1925 in New York City in response to the cocoa boom and crash a few years before. In 1928, London followed.

2.2.2.1. Cocoa Futures Contracts

The futures market provides pre-set contracts with objective to deliver or receive at a specific place, a standard quantity and quality of cocoa for a fixed price at the expiry of the contract. (ICCO, 2015) As explained before, the expiry date is also standardized and will always be the first Friday of the month of March, May July, September, or December.

Usually, cocoa future contracts are not used to secure the supply of cocoa beans. The purpose of futures market is different. Its objective is to give to that trading cocoa a way to cover their price risks (Dand, 2011).

Today, Cocoa Futures can be traded in two different markets. ICE EU « London » and Ice US « New York ». Both are trades for good fermented main crop, basis 100 beans per 100g, 5 defects, 5 slates. The only two differences are the incoterm used to deliver the commodities and the currencies involved. Instore North Europe and GBP for London and Ex Warehouse US East Coast and USD for NY. Both markets trade indivisible multiple of 10mt equivalent to 1 lot and can quote delivery for 5 months each year: March (H), May (K), July (N), September (U) and December (Z). Trades are possible up to 2 years forward max. (Scheu and all., 2001)

2.2.2.2. The Exchange's Clearing House

These organized exchanges provide the facilities and trading platform that create connexion between buyers and sellers. In addition, they create rules to make sure that trading operations take place in an open and competitive environment. That is why all bid and offers have to be made through the Exchange's "Clearing House" using the exchange's electronic order-entry trading system. The Exchange's Clearing House act as a buyer for all the sellers and as a seller for all the buyers. The key purpose of a Clearing House is to protect the two parties who completed a transaction on the exchange from each other (De Terán, 2008).

In order to enter into a transaction with the Exchange's Clearing House, the trader needs to use a broker who can be an individual, or a firm, that buys and sells cocoa for a third party

account. They never take a physical position and are never the owner of the cocoa. (Scheun and all.; 2001) Clients, through the brokers must deposit an amount of money equivalent to a small percentage of the final contract value to guarantee their commitment on the contract. It is called an initial margin. When the contract is open, the position is marked to market (MtM) daily. The MtM is a measure of the fair value of a position that can change over time (Kenton, 2017). If the market moves against the futures position, it will lose value (if the trader is short and market goes up for example). This value is directly transferred from the seller account to the buyer account. If the amount falls below the maintenance margin amount, the broker sends a margin call to the counterparty, requesting a deposit. If the funds are not credited in a timely maner, the broker will liquidate the position of the client, eliminating the margin call (Biais & all. 2017). On the contrary, if the future position is profitable, the profits will be added on the margin account (ICCO, 2015).

Future market participants are not only commercial traders (hedgers) who try to avoid or at least reduce their possible loss in the physical market by making the inverse transaction on the future market. There are also non-commercial traders, known as speculators who do not use commodities but risk their own capital by trading futures with the hope to make a profit on price changes (ICCO, 2015).

2.3. Risk Management in Commodities Trading

Commodities trading firms store and transport physical assets across the globe, that is why risk management is a core competence of its activity. Managing financial risk is a huge priority. As explained by Weir (2018), commodities trading firms can face three principal risks: the commodity price risk, the commercial credit risk and the default risk. In addition of these three major risks, there are also other risks such as the FOREX risk, the political risk, the climate risk, etc. Risk management is a function of each firm objectives and strategies. For instance, the board of directors needs to establish the « risk appetite » of the entity. According to the institute of risk management, the risk appetite is the amount and type of risk that an organization is willing to take in order to meet their strategic objectives (Deloitte, 2018).

2.3.1. Price Risk

Commodity risk or price risk is the risk that a business's financial performance or position will be adversely affected by fluctuation in the price of commodities. Cocoa producers are primarily exposed to price falls, which means they will receive less revenue for the commodities they produce. Consumers of cocoa such as Nestle, Grand Candy, Mondelez etc.

are also exposed to rising prices, which will increase the cost of the commodities they purchase (Barned, 2012). The commodity price risk is driven by external market forces. It is the risk of a change in the benchmark price for a ton of cocoa (Weir, 2018). The benchmark is defined as an external reference price in the commodities market. It is accepted by both buyer and seller. It is used as a basis to establish the price on a contract. The risk is that the underlying price of cocoa, represented by the future market, move adversely against the physical (Dand, 2011).

In a typical transaction, a trader can agree a purchase and a sale price with two different counterparties to lock in a profit margin. The transaction is usually agreed before shipment. The final price can be fixed at the beginning or when the commodities are delivered. This final price is usually equal to the spot price plus a differential (OwusuSarpong, 2013). In cocoa, the purchase price can be set in advance at 50 basis points over the index price on the day the trader takes the delivery and the sale price at 100 basis points over cocoa when the shipment is delivered for example. If the trader decides to let the deal as it is, the firm will be exposed to fluctuations in the actual price of cocoa. It can also be due to a default from the supplier: if the farmer or the company cannot deliver the cocoa for example. This is the flat price risk exposure (Weir, 2018 and Cordel, 2012).

All companies are exposed to the volatility in the commodities market. Commodity prices are by nature volatile. The volatility is due to a supply and demand imbalances combined with other instabilities created by market participants (traders, brokers, speculators etc.) who can benefit from market inefficiencies (PwC, 2015). According to efficient market theory, an inefficient market is a market in which the price of an asset, does not accurately reflects its true value. This “unreal” value of the market offers bargain opportunities to the participants who can benefit from this differences. Speculators play an important role in these inefficiencies because they buy and sell without covering a real physical position. Cocoa, like most commodities, is very volatile. It is difficult to know how the price will evolve from one year to the next (Dusoulie and Stéphant, 2015).

Physical risks are all the natural phenomena that affect many goods. A production can be affected by the El Nino Southern Oscillation (ENSO) effect for example. Each stage of cocoa beans growing requires ideal weather conditions. Episodes of long drought conditions or heavy rains can cause the bean to dry out or rot. Weather determines the yield of the crop, so it can have a major impact on cocoa price (Pines, 2011). The production may also be less than

expected also if a warehouse burns down or is infected by pest and diseases (Scheu, J.J and all. ;2001). Because of these kinds of risks, the production is impacted. It is very difficult to prevent these risks. That is why commodities trading companies hire people to deal with them. Some qualified people are usually present in each commodities trading company to conduct researches about the production evolution of cocoa.

2.3.2. Hedging

As said before, hedging is a fundamental practice of commodities trading. The first objective after a commercial trade is carried out will be to eliminate its flat price exposure. The principle of hedging is to operate the inverse transaction of the physical one on the market (Weir, 2008).

Futures and forwards are the two main types of available contracts. A forward contract is a private, cash market agreement between a buyer and seller for the future delivery of a commodity, at an agreed price. Forwards contracts are not standardized and not transferable. Cocoa traders in commodities trading companies are more willing to use futures contracts which are standardized contracts for the purchase and sale of physical commodities for future delivery on regulated commodity futures exchange (CME, 2013).

Consequently, thanks to these future contracts used for the hedging, the flat price exposure is eliminated (the price of the hedge must be equal to the future price the trader used in the physical contract). However, the physical price is not exactly the same than the future price. The physical price is equal to the future price plus the differential, agreed between the trader and the counterparty. Consequently, there is still a risk (Weir, 2018 and Dand, 2011). This risk can be a gain or a loss. We talk about differential.

Physical Price = Future Price + Differential

The trader has sold something that he/she did not possess at the inception of the contract.

What about product hedging? It is exactly the same principle for products than for beans but using a weighted average. If the company physically sell 30 mt of cocoa liquor, the trader will need to hedge his/her position in term of cocoa beans. Let's say that 30mt of cocoa liquor is equivalent to 60mt of cocoa beans, the trader will buy 60mt of cocoa beans on the market to hedge the position.

Some people could ask why traders do not hedge their position doing another physical contract rather than hedging on the market. The problem comes from the delivery. It may be difficult to buy back the physical contract from the counterparty as the counterparty would have the possibility to refuse the cocoa buyback. It is indeed possible that the buyback does not suit with their own positions. It is much more secure to hedge on the futures market where traders are free to manage their positions as they want.

Hedging its physical purchase will allow the commodities trading company to dramatically reduce its exposure to price fluctuation.

Let's take an illustration. Suppose a trader from a cocoa trading company like Sucden has the opportunity to buy cocoa in Ghana to be shipped in 6 months. We are in January so the trader decides to buy 100 tonnes of physical cocoa for delivery in June at 50 GBP per ton discount to the price of cocoa ICE. The 50 GBP is the differential. By trading with a famous exporter, the trader is reasonably sure that the delivery will take place but the cocoa price on the market is volatile and even if she/he has an idea of how it will evolve, she/he cannot be sure and will hedge her/his position on the market which is 1700 today. Consequently, at the time of arranging the purchase, he/she would simultaneously sell 100 tonnes of cocoa on the futures market for delivery in July (It is indeed impossible to trade in June on the future market, that is why we take the nearest month after June). The trader is long of 10 lots at 1650 and short of 10 lots at 1700 when the prices are fixed.

Prices on the futures and physical markets are aligned meaning that if the cocoa price fall, the cocoa price will show a profit on the futures and a corresponding loss on the physical deal. A rise in the physical will show the opposite. Such profits and losses remind hypothetical until the shipper delivers the physical cocoa and the trader acts on the futures market. The profits and losses are not realised (Dand, 2011).

During June, the shipper presents documents to the trader for payment against the purchase of physical cocoa. At that time, the price of this type of cocoa for immediate delivery is 1610 per tonne. If the trader would have wait, he/she would have pay the cocoa 40 GBP cheaper. However, this is not a real loss as the price on the future market has fallen, the trader earns on the market the same amount of 40 GBP he/she loss on the physical market. The only possible gain or loss is the differential. Before July (the future market delivery month), the trader will undo his future position by doing the inverse position he/she had on the market, therefore, by

buying ten lots of cocoa in order to square the position in the futures (Dand, 2011). It is very cheap to arrange such an insurance. The hedging is indeed a very common practice.

2.3.3. Diversification and Integration

In a commodities trading company, the diversification means dealing with different commodities at the same time. The diversification allows the company to split the risk in multiple commodities. Let's illustrate it with a company dealing with cocoa and sugar. When the cocoa price decreases due to a high offer and the sugar price increases due to a high demand, this creates a kind of "natural hedge". We can observe the same thing for integration. Integration is the fact to create different products with only one commodity. In cocoa trading it is possible to trade different products: liquor, butter and powder (Appendix 1). If the demand for cocoa beans decreases and that industrials, like Nestle, are really willing to create chocolate, they are going to be more interested in buying liquor.

2.3.4. FOREX Risk

Commodity and currency risks need to be considered together in the risk management of a company. Currency volatility remains indeed a challenge despite the structurally low level of interest rates experienced since the banking crisis of 2008 (PwC, 2013). Foreign Currency fluctuation between the currency of purchase (foreign currency) and currency of settlement (home currency) with respect to the time of obtaining the invoice for settlement up to the time of actually making the import payment create a risk (Deloitte, 2018). Cocoa is usually priced and traded in GBP, organisations which are exposed to commodity risk may also have to carry foreign exchange rate risk. If they do not manage this risk, the organisation will remain exposed to adverse movements in the currency in which the cocoa is priced and/or traded. This influences the profitability of the company (Barned, 2012).

2.3.5. Climatic and Political Risks

Cocoa producers are based in developing countries, either in Africa, in Indonesia or in South America. These developing countries are usually impacted by the climate changes. They face important and recurrent climatic issues such as dryness, tsunami or floods which impact the cocoa production. Producers cannot prevent these kind of risks and cannot ensure the cocoa production (Hecht, 2018).

Developing countries are also facing political issues. Political tensions, revolutions or wars are usually very present in this kind of countries. Consequently, cocoa trading companies

need to consider these factors when trading with developing countries. We will illustrate this part with the example of African countries as they are the bigger cocoa producers.

West Africa is a political unstable region: facing persistent social, ethnic or religious tensions (Dupray, 2017). In Ivory Coast for example, there are uncertainties about the country's safety with the emergence of border tensions with Mali and Liberia.

There are also environmental and human rights issues. The cocoa industry can play a part in the deforestation. In Ivory Coast, 13 748 hectares of forest have been lost in 2018 because of cocoa plantations. Big chocolate companies and government of Ghana and Ivory Coast failed to stop it probably to increase their economical revenue (Maclean, 2018). New rules and legislations have been set up in cocoa trading companies in order to boycott this kind of producers. It is the same for the children labour which is still present in some areas. In case of deals with these producers the entire reputation of the cocoa trading company is in danger.

2.3.6. Counterparty Risks

All the physical risks detailed above can also be considered as counterparty risk. Performance risks can be defined as the risks of partners in a transaction not fully living up to their obligations. The main counterparty risk is the risk of default. It can be due to many different partners and to many different reasons. The two main counterparties are the suppliers and the customers.

When traders act as a cocoa buyer, their supplier will require from the latter that they pre-finance the production process in order to ensure the partial prepayment of the harvest, their transformation, storage, packaging, conditioning, or export (Doise, 2008). The risk is that farmer or supplier may not deliver the crop even if he signed a contract to do so, or can only deliver a part of it.

At the same time, when traders act as cocoa seller, their clients may ask them for a supplier credit (Doise, 2008). The risk is that the client fails in the payment making. It can also occur that the client refuses a delivery for some reason (bad quality, delay not respected, etc.)

The risk can also come from the shipping part. It can occur that a shipper does not ship within the term of the contract (too late or too early) or even do not ship at all, in this case we are in a situation of default (Scheu, J.J and all. 2001). A carrier can deliver the goods in a place different from the one required by the bill of loading, this can lead to a loss of the goods. Additionally, diverse transportation issues can occur: service can be affected by a road that

was disrupted due to excessive rains, a ship may sink, the shipment may become contaminated or infested, a truck may be hijacked, poor ventilation in damp conditions in the storage and the quality of the beans can be damage because of health issues (unauthorised use of banned pesticides on farms) or even a too high level of mould (Scheu, J.J and all. 2001).

All these factors cannot be managed by traders. Risks are lower when there is a high confidence between the buyer and the seller. Performance risks are indeed often due to a lack of morality and responsibility (Scheu, J.J and all. 2001).

3. Methodology

There are a reduced number of papers about how to protect a cocoa trading company against the counterparties risk. We found information linked with the cocoa trading risks in general or about the counterparty risk in commodities trading. Cocoa is mainly produced in Ivory Coast and Ghana, which are two developing countries, and therefore, not transparent at all in term of business. Even if associations and new norms try to oblige cocoa producers' states to be more transparent, it is still extremely complicated to know what is really happening in these countries. Small producers do not usually hedge their physical position, so cocoa trading companies take a huge risk working with them. Small producers are indeed more willing to do not respect the contract terms if they face an important price variation as they will directly be economically impacted. In this case, they will be more willing to make default to the company.

Consequently, we can wonder how cocoa trading companies can take such a risk dealing with risky entities. How do cocoa trading companies cover their position against the counterparty risks?

In order to respond to this question, we carried out a qualitative research followed by a quantitative research. The qualitative research consisted in interviewing some professional to get more information which are not in the available literature. The quantitative research consisted in gathering information regarding the different ways to manage the risks from a company to the other.

Bernard Assouline has been working in cocoa for the last 35 years. He is a trader in Sucden and he has mainly be doing cocoa purchases in Ivory Coast. I had the chance to work with him during my end-of-study internship. Consequently, when I asked him to answer to my interview, he suggested that it would be more interesting for me to spend some time looking at his work. Therefore, it wasn't a formal interview. I asked him some questions during working hours to understand better the subject. I also had the opportunity to join him a couple of days and to understand better the trader job and their manner to deal with counterparty risk. The main goal of this interaction was to gather information about the counterparty risk management in a commodities trading company. And, additionally, to get a trader point of view on the subject.

After understanding that a commodities trading company had also a role of “bank” with the counterparties, I decided to contact Brigitte Defendini, head of the financial department of Sucden to get some explanation about how banks and insurances play a crucial role in the pre-financing and credit companies make to their Suppliers/customers. It was a formal interview. Brigitte explained in great detail the process with the help of Abla Kerdoudi, finance manager.

Regarding the quantitative method, I wrote a questionnaire (available on Appendix 5) of ten questions through Typform, an online software that I shared on LinkedIn. The objective was to get the point of view from other people working in the cocoa trading industry about the risks they are facing in their everyday activity. Questions were usually open like “From your point of view, which is the best way to launch against counterparty risk?” Seventeen people took time to answer to the questionnaire. You can reach it online at <https://marieauckenthaler.typeform.com/to/mS9W1a>. The answers to this questionnaire were very helpful in complementing and in detailing the main findings from the interviews.

The term KYC came back several times in the questionnaire. I decided to ask for more information about this practice to Bertrand, specialised in the risk management and working for Touton, a large company of cocoa trading, to answer to my questions.

4. Results

4.1. Information from our Qualitative Research

4.1.1. Participants Presentation

Bernard Assouline, trader at Sucden, cocoa and sugar trading company, is specialised in cocoa since more than 35 years. For the last 10 years, he was dedicated to buy cocoa in Ivory coast. Brigitte Defendini is working in Sucden for 40 years in the financial department and she is today financial director. Bertrand Fay has been a cocoa trader for 20 years and is now specialised in the risk management of Touton. Abla Kerdoudi is financial manager in Société Générale, and is responsible of the commodities deals of the bank (HIT).

4.1.2. Major Findings Summary

Through these different interviews, we gathered many information about which kind of risk is facing a cocoa trading company and how do they deal with them.

The counterparty risks gather mainly the consumers and the suppliers' risks. The main risks related with the suppliers are the risk of default and the pre-financing risk. Pre-financing is used by commodities trading companies to allow some supplier to produce cocoa. Diverse solutions can be used to mitigate these risks such as dealing directly with the exchange, which consist in cover their position by selling or buying cocoa on the market to replace the physical deal in case of default. They also favour to deal with a state controlled such as Ivory Coast, where the government follows all the cocoa transactions and is obliged to ensure the delivery of cocoa from the producers to the client. Cocoa trading can also use margin calls to manage the risk. It is a demand by the trader that the supplier deposits further cash to cover possible losses. Companies doing pre-financing are more willing to let their supplier fix the contract price when it is more advantageous for them. In another word, trading firms let the supplier choose the price of the contract when the market price is higher to let them earn a maximum. This practice gives a kind of security to the trading firm, more the supplier will have money, more he/she will have the possibility to produce cocoa. They can also use insurance and hedge funds to avoid the risk. Regarding the customers, the credit risk is the most important: to manage it, cocoa trading companies can involve the use of insurance companies and contract for trade credit insurance. They can also use incoterms, which are a series of pre-defined commercial terms which define the obligations and responsibilities of both buyers and

sellers during the transaction. The more recent way to manage this risk is the KYC, which permits to the company to have some knowledge about the customer before to decide to deal with them.

Different financial instruments involving the banks can also be used to manage counterparties risk. The Cash Against Documents, mainly used to manage the supplier's risk is a payment arrangement where both commodities trading company instruct a bank to hand over the transaction of documents until the supplier's payment. The Letter of Credit is very similar and guarantees that the buyer's payment to a seller will be received on time and for the correct amount through the intervention of the supplier's bank. That is why LC is mainly used to manage customer risk.

We can also highlight the importance of integrity, trust and confidence in the profession of trader, joining Scheu's (2001) point of view. A very small mistake can indeed generate huge losses in this kind of industry. The mechanisms of trading in Africa vary a lot from a country to the other, making a big difference between state controlling and free countries.

4.2. Information from our Quantitative Research

After gathering all this information from Mr Assouline, Mrs Defendini, Mrs Kerdoudi and Mr. Fay, I wanted to have a more global point of view of the industry. Using a questionnaire appeared to be the appropriate tool.

The questionnaire was sent to 80 companies dealing with cocoa trading. Only twenty answered to the questionnaire and seventeen have been used for this study. Three of them were indeed unusable due to the lack of answers. The questionnaire can be found in Appendix 5.

The first part of the questionnaire is about counterparty risks in general, focusing on the main type of insurances used by the cocoa trading companies. Then the aim is to see from their point of view which counterparty is the riskier. An extensive part of the questionnaire is focused on supplier's risk: default risk, favourite type of country, pre-financing. Another relevant part of the questionnaire is about customer risks (credit, reject, hedging risks).

Regarding the composition of the sample, they all are working in the cocoa trading industry. 41% of the sample are physical traders, 29% are working in finance, 18% in risk management, and 6% in market trading and others. All are working in the cocoa trading industry and know perfectly their environment.

In order to analyse the results, we will mix our quantitative and qualitative analysis aiming to respond to the three following hypothesis:

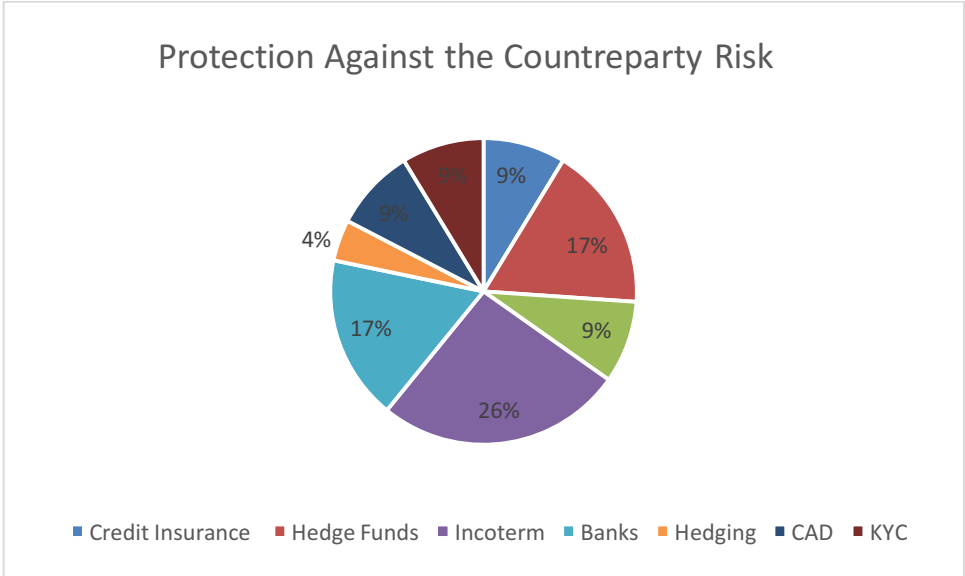
4.3. Hypothesis

H1: Cocoa Trading Companies cannot do anything to protect themselves against counterparty risk

H2: In order to be safer, cocoa trading companies could ask for cover from insurance companies

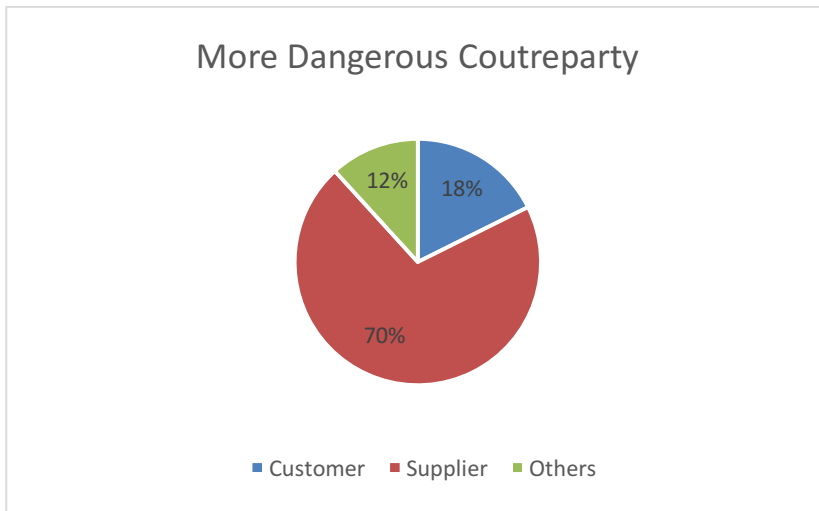
H3: Cocoa Trading Companies can use Margin Call to be protected

As we saw before, counterparty risk can be separated into two main categories: suppliers and customers. The first question of our questionnaire is: “Which type of insurance do you use to protect your company against counterparty risk?”. 26% of our sample think that one of the best ways to protect the company against the counterparty risk is to use incoterms.



4.4. Supplier Risk

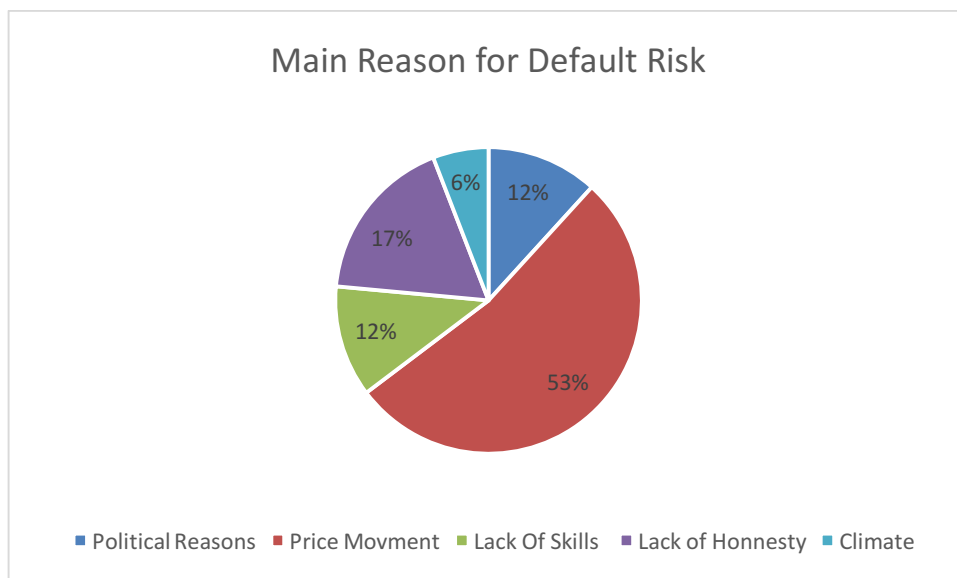
Suppliers are also defined as the “origin” of cocoa explains Brigitte Defendini. In order to get cocoa on time, cocoa trading firms need sometimes to pre-finance their suppliers. In order to take this decision, traders need to “understand” their supplier’s need and to know perfectly the company, the subject etc. To the question “Which is the riskiest counterparty?”, as you can see in the graphic below, 70% of our sample think that the supplier is the riskiest counterparty in cocoa trading. This can be explained by different factors in another section.



Source: Result from the questionnaire – Graph 1

4.4.1. Risk of default

The main risk related with the supplier is the risk of default, that is, not providing the cocoa on time, or do not providing the cocoa at all as explains Weir (2018). If the trader is engaged to sell tons of cocoa to a client, he/she knows exactly which cocoa he/she will sell depending on the variety, quality and origin. Consequently, the trader counts on the supplier to get it on time and be able to deliver it to his/her customers. If the supplier does not provide the cocoa to the trader, we talk about “default”. This default risk can occur due to many different reasons. One of the questions from the questionnaire was “What is the main reason for default from a supplier?”. To this question, 53% of our sample answer that this is related to the price movement. As it is an important element, we will dedicate the next part of the research to this subject. 17% think that the risk of default is due to a lack of honesty. 12% of the sample think that the main reason of supplier default is linked to a lack of skills from their part, impacting the quality or logistics for example. As we can see in the graphic below, 12% of the sample think that the major reason for supplier default is due to political reasons rather 6% think that it is because of climate.



Source: Result from the questionnaire – Graph 2

4.4.1.1. Politics

Contrary to Dupray (2017) and to the small percentage of our sample, Abla Kerdoudi explains that as cocoa is the main product in Ivory Coast and Ghana, even if there are political crisis, there will not have a big impact on the production and trading of the commodities. State will indeed make everything to keep going with the commercialisation of cocoa as it is the first source of revenue of the country. She explains that it is not the case for every commodity and every country. Indeed, in small countries producers, political crisis will impact a lot the production and/or the commercialisation of the commodities. Consequently, by dealing with a major cocoa producer, commodities trading companies minimise the risk of being impacted by the political instability. Mr Assouline explains that each state can decide to block commercialisation with a client/supplier by using blackmail and corruption. This practice is still very present in this industry, particularly in developing countries.

4.4.1.2. Price Risk

The price risk is an important cause of default risk. More than 50% of the sample think that the default risk is mainly related to the price movement. It creates indeed a lack of cash flow for the producers that prevent them to produce cocoa. In addition, if a trader set up a price with a Nigerian supplier when the market was at 1 500 USD, the risk is that the price increase and that the supplier prefers to sell his/her cocoa to someone else at a higher price. In these two cases, the supplier does not make his contract part and the trader will not have the cocoa so will not be able to provide it to his/her client. This is a very uncomfortable situation for the

trader and will have a negative impact on the company if they do not find a solution to provide the cocoa, as promised, to the customer.

4.4.1.3. Climate

Climate can significantly influence a lot the harvest. As mentioned in the literature review, Pines (2011) and Scheu and all. (2001) explains that cocoa requires perfect conditions to grow. If these perfect conditions are not met, cocoa beans can have a really poor quality, creating a real problem for the trader if she/he promised to the client that the cocoa will be from a specific quality. The customer would be allowed to reject the cocoa if it does not fit with the contract terms. In the second case, the trader will not receive the beans what is worst because he/she will not be able to deliver it to his/her client. Regarding the climate risk, there are not real solutions as it is impossible to manage the weather. Producers cannot really be protected from negative harvest scenarios.

4.4.1.4.Lack of Skills

According to 12% of our sample, the risk of default can be explained by the lack of skills from the suppliers. Here, skills encompass the transportation, the storage and the processing (Pirong, 2015 and Dervisi, 2018). If counterparties cannot manage properly these crucial stages, it can indeed lead to a default. If the cocoa is lost during the transportation, sent to a wrong location, storage during too much time, in bad conditions affecting cocoa quality, it can either lead to a delay in the delivery or a default.

4.4.1.5. Lack of Honesty

The lack of honesty is a problem in trading. According to 17% of the sample, it is the main reason for default. As a lot of money is involved in everyday deals, a small wrong step can lead to the loss of thousand billion of GBP and to bankruptcy. Consequently, if the trader set up his/her strategy in function of what the counterparty says, it can be a catastrophe if it does not work. We will explain more with the market risk. In addition, if the supplier does not provide the cocoa by choice and not by obligation, I mean, if the counterparty decides to sell the cocoa to another company offering a better price rather than the contracted part, it is a lack of honesty that leads the contracted part in a bad situation. Usually companies with lack of honesty do not wait to get a bad reputation and can lose the majority of their clients. However, in Africa, many little companies use these kind of practices to make good deals, destroy their companies and create the “same” under new names. “That is why it is important to know your

counterparty. To do not take the risk to deal with this kind of entities.” Explains Bernard Assouline.

4.4.2. Market risk

The second problem linked to the price risk is the hedge. As explained before by Weir (2018) and Dand (2011), the principle of hedging is to make the inverse position of the physical one in order to offset the possible price fluctuation on the market. Consequently, when a physical contract is agreed between two counterparties and firmed, the trader make the inverse position on the market. If the trader buys a thousand ton of cocoa at 1600 GBP to a supplier, he/she will immediately sell a thousand ton of cocoa on the exchange at 1600 GBP. Variation on price should not be a problem as the physical part will secure the market changes. However, if the supplier or the customer does not honour his/her engagement, the trader will be exposed to a real risk on the market that can lead a real catastrophe for the company as Bernard Assouline explains. “If the price moved a lot and if the quantity of the contract was huge, the company can bankrupt as it will not have enough cash to refund the exchange.” The price variation should indeed be compensated between the physical and the future movement. For the only market trader participant of the survey who answer to our questionnaire, this risk is very severe for the company. The reason why it has not been mentioned by others is that market risk is not directly related to counterparty risk in our mind. However, we can see that if the supplier enters in default, the physical part of the contract will not occur but the future contract will already exist on the market. Consequently, if a loss occurs, the future contract which is supposed to hedge our physical contract will not hedge anything and will be exposed to the price volatility. It will become a loss as it will not be covered anymore by the physical part.

4.4.3. Possible Solutions

4.4.3.1. *The Market Exchange*

If cocoa trading company is victim of default from its supplier, the trader can buy immediately cocoa on the exchange that can be delivered immediately. This technique can prevent the company to enter in default to its client. The only issue is that the trader does not know what he/she is buying in term of origin what can be a problem for the client who signed a contract saying that he/she buy a specific quality better than another. Quality of the beans depends indeed of the origin. Also, the price can be very high, and the trader can lose money on the transaction. Bernard Assouline explains that at this moment you buy anyway, even if you have to lose money. “Trading is about parole and integrity, if you are not able to fulfil a

promise you will get a bad reputation. If your reputation is poor, no one will want to make a deal with you” he explains.

4.4.3.2. States Control

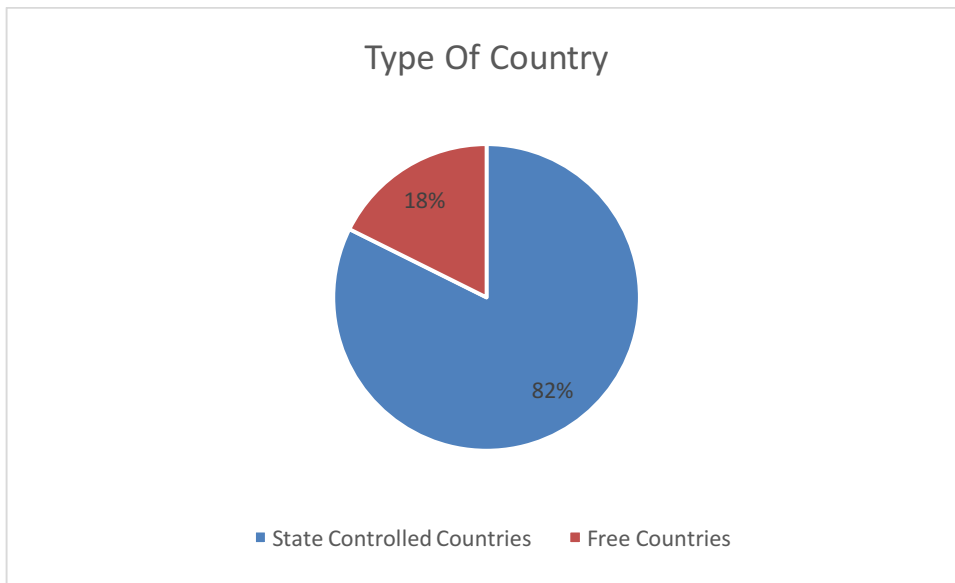
As said before, two kinds of cocoa treatments exist. It changes as function of how the country works. Either the Caisse system of former French colonies like in Ivory Coast or the marketing board system of former British colonies like in Ghana or Nigeria. The main characteristic of these systems is a governmental control from the farm through the port in the boarder of the African countries. This is accomplished by strict regulations or by the state controlling directly the operations (Abbott, 2002).

In order to fight against these risks, various methods are set up in function of the country. In Ivory Coast for example, the government created the “Conseil du Café Cacao” (CCC) in order to follow and be award of every exchange of cocoa or coffee which can occur in the country. Mr Assouline explains that there are two possibilities to act. The first one is to create an Ivorian entity to be able to deal directly with the CCC. Mr Assouline explains that Sucden created an entity named “Sucden CI”. The price is fixed at the beginning by the CCC so traders can hedge their position without stress. In addition, traders are dealing directly with the State so it is almost sure for them to get their cocoa beans. In this case, the cocoa trading company is covered against the price risk and the risk of default. It is the safer practice but also the least profitable.

The second is to buy Free on Board (FOB) to local suppliers. In this case, local suppliers like Sonemat get a sell confirmation (CV) from the CCC and are allowed to sell the cocoa sold by the CCC to another counterparty which can be a cocoa trading firm. This practice is riskier because your transaction is done directly with the African producer or supplier but the gain is higher. Trader do not have the security that the supplier will provide him/her the cocoa. However, the supplier is much more flexible than the State and it is easier to get better price dealing with them.

The free market chaos describes well the situation that exists now, especially regarding the liberalization in Cameroon and Nigeria. While the private sector manages the activities, there is no control at all. We can imagine that price to farmers would be highest under this system, but it is totally unstable. In addition, as there is no control, some of them can practice child labour, which is totally forbidden. Commodities trading companies are less confident with this kind of countries and prefer to deal with state controlling countries.

Cocoa traders are mostly agreeing on this point. Business works better and is more secure when the government takes part of it. In our questionnaire, 82% of the sample prefer to deal with States controlled countries as it seems to be less risky and more controlled as explained by Wood (2001). Bernard Assouline seems to agree with these participants. However, “It is good if you trust the government. Personally, I do not always trust Ivorian government, but I have no choice” he said.



Source: Result from the questionnaire – Graph 3

4.4.3.3. Letter of Credit

The letter of credit (LC) is a way for the buyer to protect the transaction between two counterparties. LC is mainly used in international trade if the two counterparties do not know each other, if there is a great distance, different languages, different laws or different customs from a country to the other.

It is a financial document issued by a bank at the request of the cocoa trading company (the buyer) in favour of the supplier (the seller). It is a commitment made by the buyer's bank to guarantee to the supplier the payment of the goods against the delivery of a freight transport ticket, if the holder fulfils its obligations: cocoa delivery. It assures to the supplier that the cocoa trading company will pay. But it represents also an important security for the buyer as he/she is certain to receive the cocoa stipulated in the LC.

The LC is requested by the cocoa trading company, that means that the bank in charge of the transaction is chosen by the buyer, not by the supplier. It is an important element of security for the cocoa trading company explains Mrs Defendini “By using a LC, we are able to choose

a bank we trust in. When it is the contrary and we endorse the supplier role, LC could be used but it is not the best way to deal with unknown suppliers.”. She gave examples of small Chinese companies using totally unknown banks. Small banks can go bankrupt at any moment, so it is much riskier to deal with them. In this case, cocoa trading companies will be more willing to use CAD, involving two banks in the transaction, as we will see in another section.

Letters of credit are used by 60 per cent of commodities trading transaction according to Youssef (1996).

4.4.3.4. Margin Call

A margin call is an amount to be paid by the trader to its broker in order to cover his risk in his short or long position on a future market. Future markets have rules that impose to participants to cover their potential risks by paying a deposit corresponding to a certain percentage of the value of the contracts. When cocoa price fluctuates significantly, it can happen that the original deposit is insufficient to meet the standards required by the market rules. The trader must then transfer cash to his broker to reset his deposit at the required percentage or cut some of its positions to reduce his risk and increase its available margin. This strategy permits to the broker to be sure that his trading counterparty has liquidity to cover a possible loss.

In physical trade, another kind of margin call can be used explains Brigitte Defendini. We can talk about “physical margin call” whose principle is identical to the classical margin call but do not happen on the futures market. It applies on a contractual basis between the trader and its supplier. The supplier needs to provide some cash to the trader in case of important price fluctuation. This practice is used especially when dealing with unknown or small suppliers because trading companies need to be sure that their suppliers have enough cash to ensure the cocoa production and delivery.

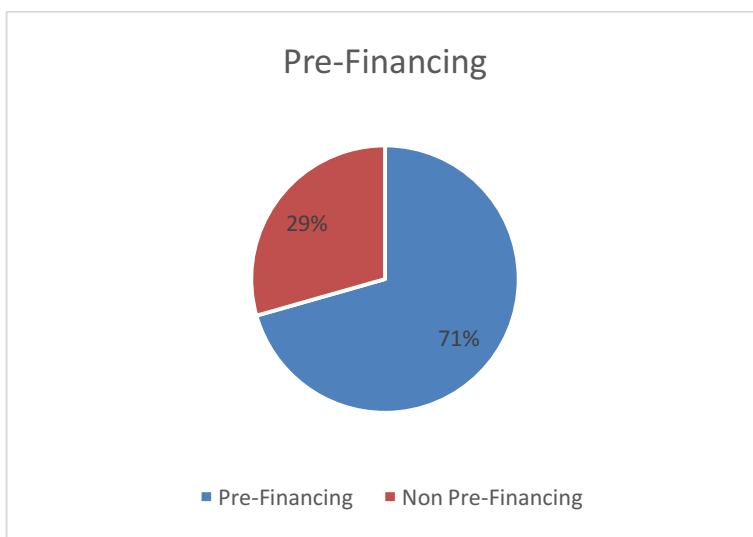
However, Mr. Assouline explains that most of the cocoa suppliers refuse or are simply not able to pay a deposit due to their lack of liquidity. Consequently, it is a rather a theoretical solution.

4.4.3.5. Research

In every cocoa trading company, we can find one or more analyst. They dedicate their time to study the weather conditions in the world and try to anticipate how is going to be the future harvest. Thanks to these analyses, traders may avoid to buy cocoa if the period is considered to be very risky. It is quite a good way to manage the climate risk even if these studies are only based on theoretical diagnosis. Analysts make indeed their report thanks to hypothesis based on previous events such as big dryness or climatic phenomenon such as el niño. This kind of medialisations are always questionable due to the uncertainty of meteorological conditions and cocoa beans evolution explains Bernard Assouline.

4.4.4. Pre-financing Risks

Another kind of risk linked with the supplier is the pre-financing. As already explained, suppliers need sometimes to be pre-financed by cocoa trading companies. Usually cocoa suppliers are small companies without a lot of resources and they need funds to set up the cocoa harvest, transformation, storage, transportation, etc. 71% of the sample pre-finance their suppliers. This is explained by the fact that cocoa producers are usually poor farmers without a lot of resources and need money to be able to create the cocoa (Dusoulier and Stéphant, 2015).



Source: Result from the questionnaire – Graph 4

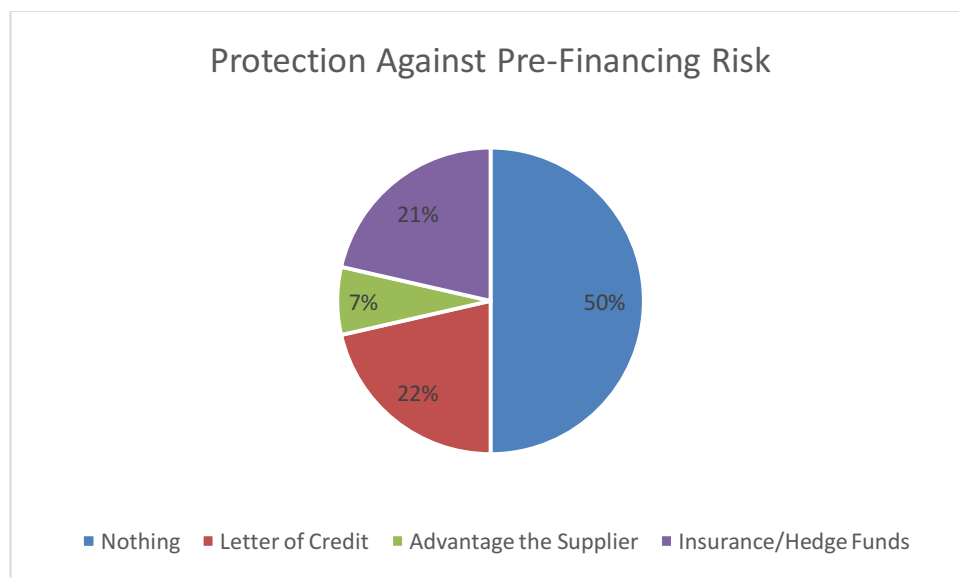
In order to engage in a pre-financing scheme, the traders need to perfectly know the company they are going to finance. Traders go on site, visit, and they try to collect as much information as possible about the producers they intend to pre-finance. They must be sure the supplier will be able to provide them the cocoa before making the decision to pre-finance them. Naturally, the pre-finance has a cost. The supplier needs to pay interest in order to get the money in

advance. Mr Assouline explained that this risk can be taken in function of the confidence they have with the supplier. “It is a question of feeling and trust” he said.

This practice may be viewed as a little adventurous as typically, the banks don’t accept the responsibility of directly pre-finance the supplier. Consequently, the risk is taken at 100% by the cocoa trading company. If the cocoa trading company has a lack of liquidity, the bank can provide full recourse financing to the trading company. But in this case, the contract is made between the trading firm and the bank. The bank does not have any direct relationship with the supplier. Consequently, the commodities firm bear the risk that the supplier does not repay the prepaid amount and does not provide the cocoa beans.

4.4.5. Solutions

Several solutions can be set up to mitigate these risks.



Source: Result from the questionnaire – Graph 5

4.4.5.1. Supplier Advantage

The first objective of a trader dealing with a supplier is to make sure the supplier sells as much as he can in term of price. During the period of price fixation, the trader can decide to fix the price immediately when the contract is created or to wait for the price to move. If the price increase, the producer’s margin will be higher. Consequently, traders give time to the producer to choose his price in function of the market movement, explains Mr Assouline. For traders nothing changes because as explained in the literature review, traders earn money thanks to the differential. The final price of the commodity has no effect on the trader’s margin as she/he hedge her/his position on the market. Consequently, the goal is to maximise

the purchase price to permit to the supplier to earn a maximum and be able to deliver the cocoa as promised and avoid a risk of default. Only 7% of the sample consider this practice as being a real protection against the pre-financing risk. In order to not take a too big risk, traders usually pre-finance 100k ton maximum.

4.4.5.2. Insurance and Hedge Funds

As we can see in our survey, 71% of the sample practice pre-financing. That means that these financing mechanisms have become quite common. Banks located in rich countries are indeed reluctant to finance directly their counterparties located in emerging countries. Pure financial debt is indeed less easily paid off than commercial debt. Consequently, large banks located in rich countries are more willing to finance the commercial transaction through their client, the commodities trading firm. This information is in accordance with Doise (2008). Consequently, the company take the entire responsibility and it is very risky.

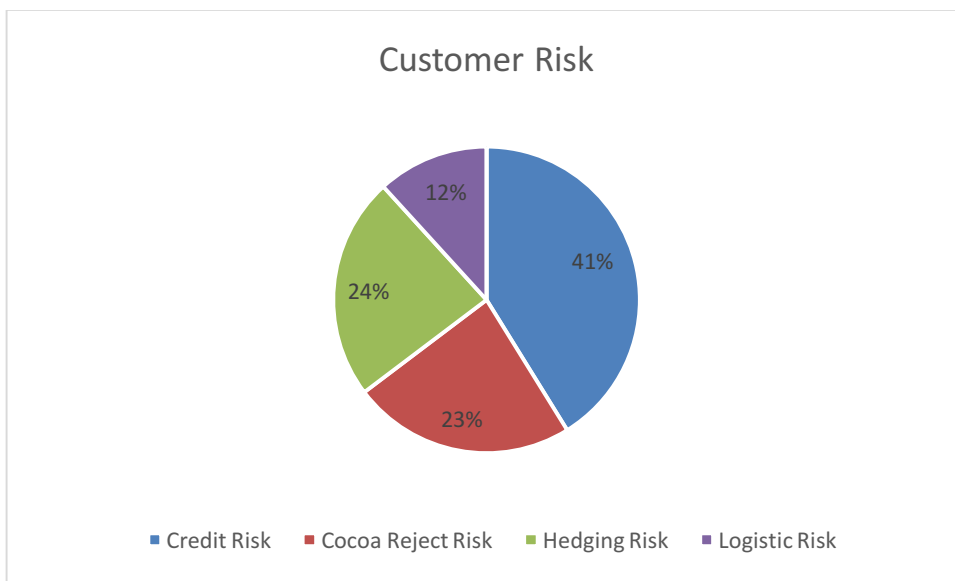
That is the reason why commodities trading companies need to call on hedge funds or insurances as mentioned by 21% of the sample. These companies are more willing to endorse this risk. Their engagement is indeed to cover the bank in case of the supplier do not provide the paid cocoa. According to the survey, different credit agencies exists like Credezo. They accept to cover the bank against the default risk in exchange of a huge fee. Some cocoa trading companies don't use this method because it is very expensive. However, it is the best security for pre-financing. 22% of our sample think that the letter of credit, which has been detailed in the previous section, can also be used to protect the pre-financing.

According to Mr Assouline, in many of the transactions, there is no cover for this kind of risk. In order to make a pre-financing arrangement to a supplier, the trader needs to be 100% sure that the supplier will give her/him the cocoa. 90% of traders who answered to the questionnaire agree with Mr Assouline. This is due to the position of the trader, always thinking about the "parole". It is indeed very easy to get a poor reputation in commodities trading. Consequently, if a supplier does not provide the cocoa; he/she will have very quickly a very bad reputation and it will become very hard to make business with others traders.

4.5. Customer Risk

The client risk is perceived as less risky to our sample. Only 12% consider the customer risk as the riskiest. This can be explained because usually cocoa trading companies' customers are

large entities such as Mondelez, Ferrero and Olam. “We know that this kind of clients have liquidity” explains Mrs Defendini. If they do not respect the contract terms, usually it is their own choice, it is not due to a lack of money or time. Customer risk gathers different type of risks. To the question “From your point of view, what is the riskier element from a customer?” We gathered different responses. As we can see on the graphic below, 41% of our sample think that the credit risk is the main risk from a customer. 23% of the sample think that it is the cocoa reject risk, 24% think that the main risk come from the hedging part and 12% of the sample think that it is the logistic part.

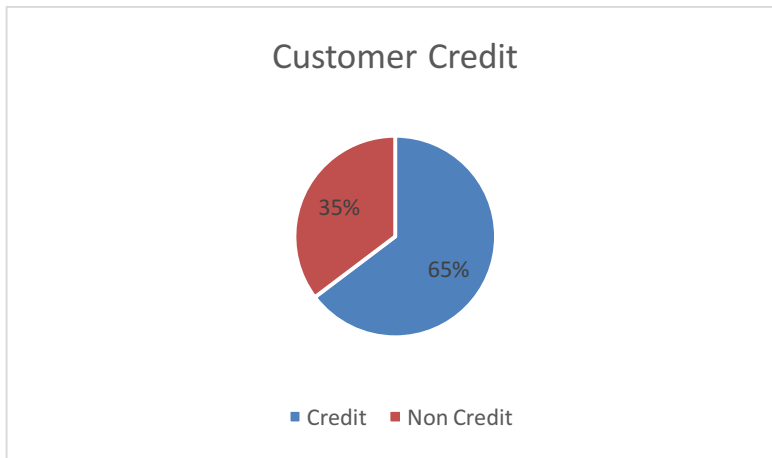


Source: Result from the questionnaire – Graph 6

4.5.1. Credit Risk

Recent consolidation among commodities consumers has created pressure on merchants to lengthen payment terms for many of their larger customers (Brown, 2015). In this case, there is a risk to be unpaid. Consequently, the result of this “credit” practice has been greater counterparty exposures, increased working capital financing needs for commodities traders, and pressure on commodity financiers to increase accounts receivable limits to certain customers. In the supply chain, one of the major roles of the merchant is to provide liquidity and credit in the market place which has been accentuated by the multinational players, which use trade vendors for funding (Birnbaum, 2015). As we can see in the graph, 41% of the sample consider the credit risk as the riskiest. “With large groups like Ferrero or Olam, it is less risky as we know they have the money to pay.” Explains Brigitte Defendini. However, if they failed, there is a real impact on the company as we usually trade big volume of cocoa with this kind of companies. For small counterparties, it is usual in exceptional situations that

the cocoa trading company make a credit. However, in every case, it is always important to implement a way to fight against this risk.



Source: Result from the questionnaire – Graph 7

4.5.2. Reject Risk

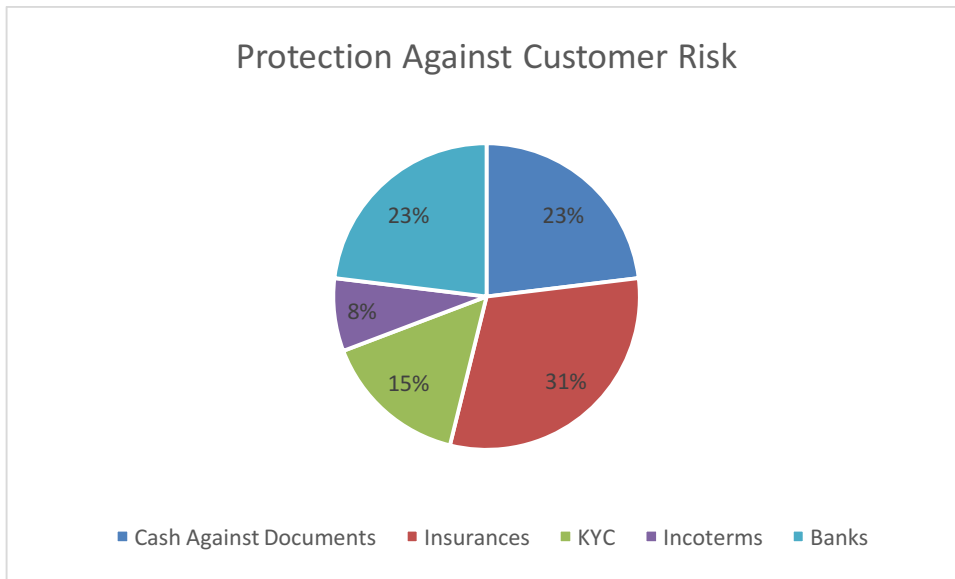
“The risk of reject represents the case of the customer not accepting the cocoa” explains Bernard Assouline. In this case, the cocoa trading company is not paid. Usually, the refusal is given in the country of the buyer. This is even more annoying for the company as the cocoa is located in the buyer’s country. Costs need to be incurred for the shipment until the buyer’s country and will be incurred to stock the cocoa or bring it back to another client or to the origin country. It is a real loss for the company. The buyer can refuse to take possession of the cocoa because of several reasons: bad quality or damaged cocoa are a possible reason for this refusal, and in this case it is understandable. However, it also can be due to the price changes. The customer may refuse to buy cocoa because she/he have a better opportunity with another supplier. Almost a quarter of our sample consider this risk as the most important in cocoa trading.

4.5.3. Price Risk

The price movement can also be a risk coming from the client. Same as for the supplier, if the price falls, it can be disadvantageous for the customer to buy at a price fixed in advance which is much higher than the current price. Consequently, even if contracts have been signed, the customer can choose to do not respect his engagement. In this case, the trader is in the same position as for the supplier default and is really exposed to the market variation explains Bernard Assouline.

4.5.4. Solutions

Different solutions can be used to mitigate customer risk.



Source: Result from the questionnaire – Graph 8

4.5.4.1. Incoterms

Incoterms are the international standard used in the sales transaction and shipping documentation. It can be used as a contract to protect the seller (and the buyer) in case of any problem during the transportation. As mentioned before, Youssef (1996) explained that incoterms define the seller's and buyer's responsibilities concerning the transport of the goods being traded. They also divide the costs and risks between the counterparties. Incoterms permit to inform the buyer and the seller about the transfer of risk. It defines at which place the risk of cargo loss and damage is transferred from the seller to the buyer during the operation of transport. It also defines the division of costs between the two counterparties (cost of dispatch, delivery, carriage, service, insurances etc.) and finally, it gives information about the documents by defining who will provide the needed documents (proof of delivery, certificate of inspection etc.). 26% of our sample explain that they consider the Incoterms as a good way to protect the company against the counterparty risk (See Graph 1). Only 8% define it as the best way to fight against credit risk. This is obvious as most of the commodities trading companies are dealing with foreign countries, so it is much easier for them to use this kind of contract.

4.5.4.2. Trade Credit Insurance

The first way to eliminate the credit risk is the use of insurance. In this case, the insurance takes the responsibility to refund the cocoa trading firm in case of none payment from the

client. Two types of insurance providers exist. The first one is the monoline insurance. This kind of insurance provides a single type of insurance coverage allowing to cancel the trade credit, also known as “whole turnover” or “ground up”, they represent roughly 80% of the global trade credit insurance market (Birnbbaum, 2015). The three main insurers are Euler Hermes, Coface, and Atradius. They set up credit limits for counterparties and undertake the risk for the commodities trading company usually at 90% explains Brigitte Defendini. For example, if Touton has a credit risk from Mondelez of 400 000 USD and that the limit of insurance fixed by Euler Hermes was 300 000 USD, the insurance company will only cover 90% of 300 000 USD. Consequently, it is important to respect the credit limit fixed by the insurance company to assure a full coverage.

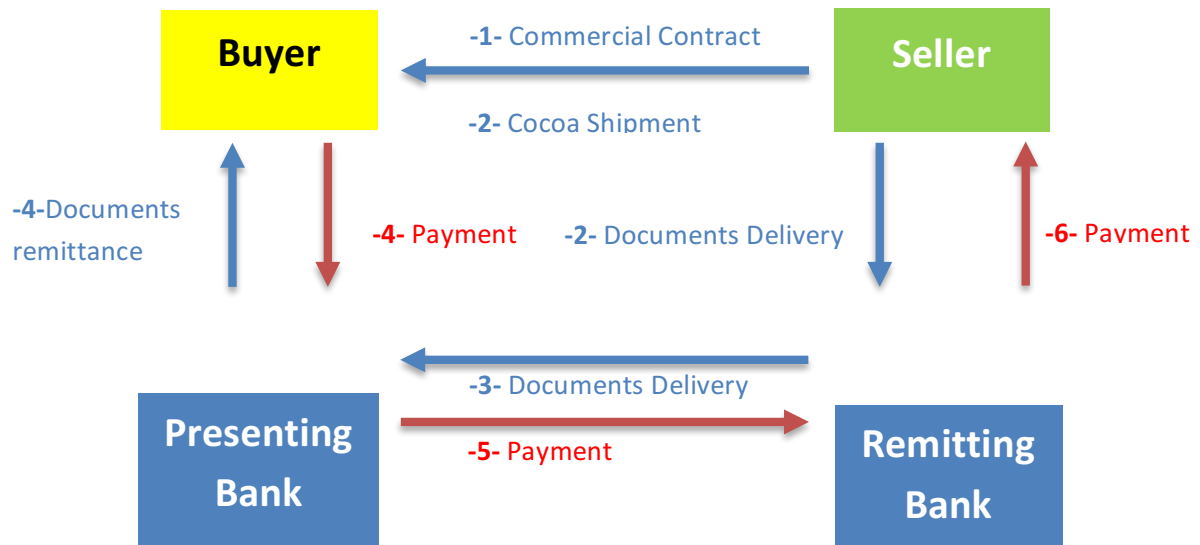
The second type of insurance is the property and casualty (P&C) insurance. This type of insurance gathered various insurance policies covering accident, and health, directors’ and officers’ liability insurance and professional liability, surety, property and casualty, and credit risk, which include trade risk for P&C insurers. This covers the majority of commercial and political risk in any trade transaction. This insurance is less specific to commodities trading but allows the company to be covered for many incidences that cannot manage on its own.

4.5.4.3. Cash Against Documents

The Cash Against Document (CAD) is a method used by commodities trading companies to be sure to receive a payment. It is indeed a payment tool for international transactions. Its purpose is for the seller to get the money due by a customer from a bank against the delivery of documents explains Mrs. Defendini. It is a way to protect the company against a possible “none payment” from the customer for a cocoa delivery. The documents represent the change of propriety, the owner of the documents is indeed the cocoa owner. Consequently, through this method, the documents are delivered to the customer only against payment. Once the client obtains the documents, he/she is allowed to take possession of the cocoa and to clear the shipment at customs. Contrary to the LC, each counterparty is allowed to choose its bank defined as “presenting bank” for the customer and “remitting bank” for the cocoa trading company. The two banks will deal together to arrange the payment.

After the conclusion of the contract between the cocoa trading company and the customer, the cocoa is shipped and the documents are forwarded to the remitting bank (the bank chosen by the cocoa trading company). Brigitte Defendini specifies that it is really important to choose a bank in which we can trust to be sure that the transaction will be done perfectly in order. After

that, the documents are sent from to the presenting bank (bank chosen by the customer) to the supplier's bank, who asked to return them to the client against payment. Consequently, the presenting bank delivers the documents to the client against payment and the customer is authorized to pick the cocoa. The last step is that the remitting bank transfers the payment to the supplier, taking a small commission. CAD can be considered as an insurance for the seller. The CAD scheme, following Tüfeckçi (2010), in summary:



- 1- Conclusion of the contract between the customer (Buyer) and the cocoa trading firm (Seller).
- 2- Shipment of cocoa and forwarding of documents to the remitting bank.
- 3- The remitting bank forwards the documents to the presenting bank asking to return them to the client in exchange of payment.
- 4- Delivery of documents to the client by the presenting bank in exchange of payment. The customer becomes the owner of the cocoa
- 5-6- Payment from the presenting bank to the remitting bank and to the cocoa trading firm

This technique is very advantageous for the cocoa trading company as it is very simple and easy to implement. Easy to use either by the buyer than by the seller, it allows the cocoa to be sent very quickly. The formalism is lower than for a documentary credit. Also, there is no use of a bank credit line. It is a common practice as the cost is very low. However, it gives only a relative safety of payment. The banks are not engaged as for a documentary credit so the company does not have bank guarantee in term of payment. Consequently, there is still the

risk that the buyer refuses to take possession of the cocoa as we explained before, this is the risk of “reject”.

4.5.4.4. Exchange

A positive element of the cocoa market is that there is a possibility to sell or buy cocoa on the exchange in case of default as we saw in the supplier part. For customers, it is the same thing but in the other way around. If the customer refuses to buy the cocoa, traders can decide to sell it on the exchange in order to avoid paying a warehouse and transportation fees. It can save a business but it can also be a loss for the trader as it usually happens when the market price is low. It is a way to minimise the loss in case of impossibility of storage.

4.5.4.5. Know Your Customer

The term KYC came back several times in the questionnaire. We decided to ask for more information about this practice to Bertrand Fay, specialised in the risk management and working for Touton. KYC is a process of a business verifying the identity of its clients and assessing their suitability. Created by the Reserve Bank of India, this practice is famous in the banking sector. However, KYC has been spread to other industry and is present in commodities trading since 2002 thanks to the USA Patriot Act explains Bertrand Fay. The first objective of this practice is to reduce the risk of dealing with illegal counterparties by being involved in terrorist actions. By verifying the identity of the customer using trustable documents, information or data, firms can be sure they are not dealing with companies using illegal practices. Many documents are needed, it takes a lot of time and it is quite expensive to practice KYC. A system of KYC automatization is currently set up in large banks. Bertrand Fay explains that it is not so interesting to set up this new technology in commodities trading companies as few firms use the KYC method. In our questionnaire, only 15% mentioned indeed the KYC as a method to manage customer risk.

4.6. Other Counterparties

As explained by Pirrong (2015), despite the purchase and the sale of cocoa, several operations have to be performed in order to trade the commodity. Each step is managed by people: warehouses or shippers, who are subject to many risks.

In order to avoid the risk to lose the cocoa, commodities trading firms need to check different points before choosing the warehouse keeper. Warehouses should have a non-flammable floors without cracks and crevices where insects can hide. In the best case, the floor level

should be higher than the surrounding land to prevent flooding and to allow the water to flow away.

Same as for the suppliers, risks linked to these counterparties are very numerous.

Commodities trading company can take marine insurance that can be arranged through a broker . However, the exporter can also arrange it directly with an insurance company. These insurances depend of the sales contract. As seen in the empirical research, incoterms define if the buyer or the seller must bear an insurance for the transport of cocoa. FOB and CFR sellers, for example, do not need to provide a marine insurance to the buyer. The seller undertakes the risk until the cocoa is in the hold. The CIF contract requires that the seller provides an insurance cover evidenced by an insurance certificate present with the other shipping documents.

5. Conclusion

This dissertation examines which solutions can be used to manage the counterparty risks in a cocoa trading company. We can now realise that counterparty risks are mainly due to the same reason: price variation. Consequently, despite the hedging, that reduces the price variation risk on the market, it is important to take care about the risks related with the counterparties. Through the interviews and questionnaire, we managed, we targeted the risks coming from the two major counterparties: the suppliers and the customers.

First of all, it appears that the three main risks coming from the suppliers are: the pre-financing risk, the market risk, and last but not least, the risk of default, due to various factors (price variation, politics or climate issues, and lack of skills or honesty from a supplier).

Regarding the customers, we can also highlight three kind of risks: the credit risk, the reject risk and the price risk.

In order to remain profitable and being able to pursue new business opportunities, the importance of managing counterparty risks is indeed essential for a cocoa trading company. However, some factors make it harder to manage these risks comfortably. Hopefully, cocoa trading companies can use a variety of methods to manage the risks arising from the transaction with diverse counterparties.

The three hypothesis made at the beginning of the dissertation have been analysed.

The first hypothesis proposing that nothing could be done to protect a cocoa trading company against counterparty risks is not verified. As explained in the dissertation, many different ways exist to manage these risks: financial instruments, incoterms, or dealing with states control and market exchange for example. We also saw that many deals are based on trust and that nothing can be done to protect the company against potential risks. In this case, the hypothesis is not totally wrong.

Cocoa trading companies can indeed ask for insurance companies to protect themselves against the customer's and supplier's risk, as mentioned in the second hypothesis. However, it is a very expensive practice. Consequently, only the large cocoa trading companies can have the possibility to contract an insurance company, as for the KYC practice.

Finally, the third hypothesis suggesting that margin call is a good way to manage counterparty risk is not totally verified neither. Margin call can indeed be used to manage the risk, but many of the African companies cannot do it due to their lack of liquidity.

Buy and sell cocoa directly on the exchange remains a safer practice even if the possibility to lose money is important as we explained before. Dealing with a controlled state and give the advantage to the suppliers also reduce the risk.

We can conclude that counterparty risks can be reduced but not totally erased.

During the writing time of this thesis, we faced difficulties because of the lack of transparency from many cocoa trading companies. Unfortunately, many of them did not accept to answer to our questionnaire or to give us an interview. Consequently, we probably missed many information. One more limitation was the lack of information available about the small cocoa producers despite of my investigations. Finally, the uncertainties linked to the risk management in commodities area was a limiting factor even if it probably contributes to the interest of my thesis.

Following this dissertation, it could be very interesting and appropriate to develop other aspects of risk management. Beyond the counterparties risks, we could examine these risks from an insurance company or hedge fund's point of view in order to know how they calculate the risk and which factors are considered by them to cover a commodities trading company. Also, we could expand the perimeter of this thesis through the analysis of the risk management based on another commodity which is not agricultural (metal, oil, gas for example), where the climate change should, at first sight, less impact market prices.

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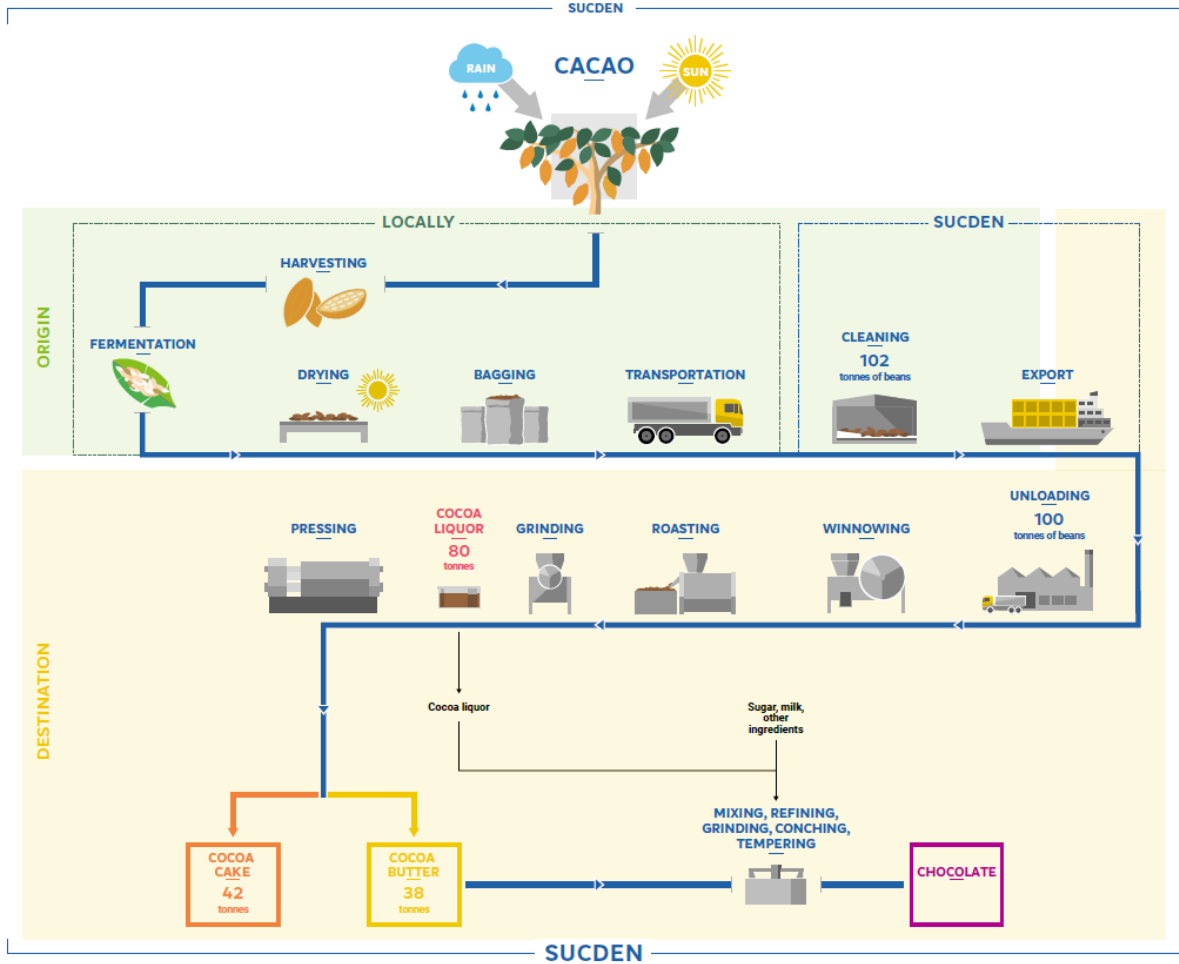
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8. Appendixes

7.1. Appendix I –Cocoa Process Flowchart

SUCDEN

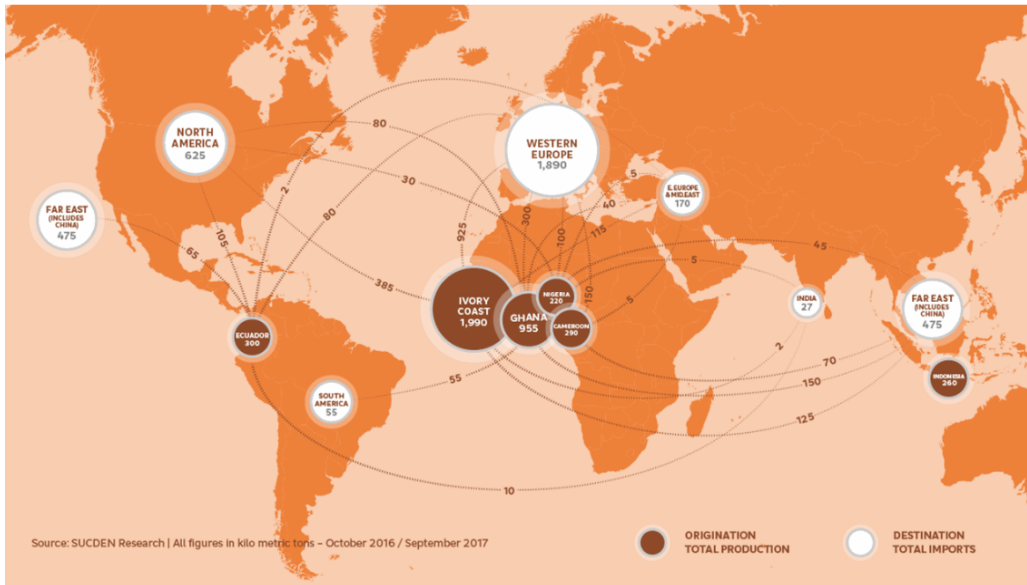
COCOA PROCESS FLOWCHART



Source: Sucden website [Online] <https://www.sucden.com/en/products-and-services/cocoa/process-flowchart/>

7.2. Appendix II – Main Global Trade Flows, Cocoa 2016 – 2017

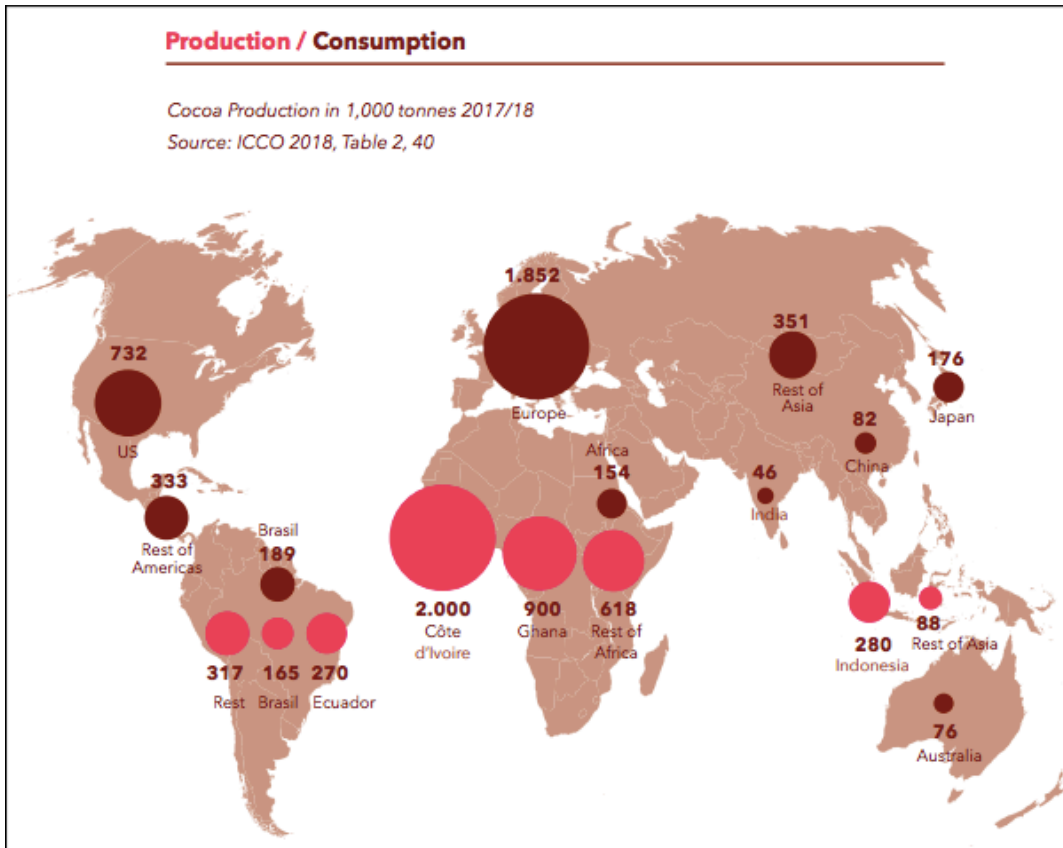
MAIN GLOBAL TRADE FLOWS, COCOA 2016-2017



Note: Country and region figures are estimates for total production / exports. However some minor trade flows (indicated by arrows) are not shown so in some cases there are small discrepancies between the total and trade flow figures shown.

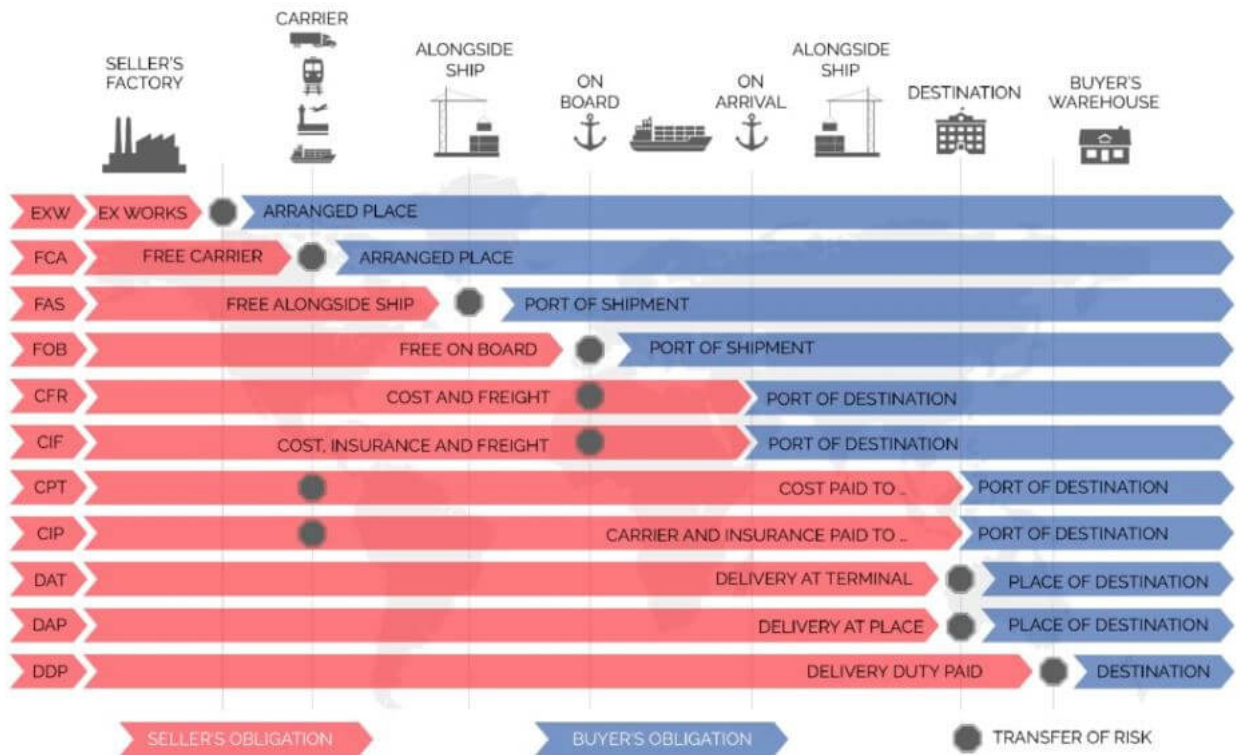
Source: Sucden Research [Online] <https://www.sucden.com/en/products-and-services/cocoa/global-trade-flows/>

7.3. Appendix III - Cocoa Production and Consumption in 2017/2018



Source: New Food Economy [Online] <https://newfoodeconomy.org/chocolate-farmers-ivory-coast-ghana/>

7.4. Appendix IV - Incoterms



Source : QeOPS [Online] <https://qeops.eu/2017/11/15/incoterms-international-commercial-terms/?lang=en>

7.5. Appendix V – Questionnaire



Cocoa Trading Companies | Counterparty Risks

Counterparty risk is the likelihood or probability that one of those involved in a transaction might default on its contractual obligation. Counterparty risk can exist in credit, investment, and trading transactions.

Yes, I'll help press ENTER

1 → What are you doing in your company?

A Physical Trading

B Market Trading

C Risk Management

D Finance

E Other

2 → Which type of insurance do you use to protect your company against counterparty risks?

Type your answer here...

SHIFT + ENTER to make a line break

4 → As a cocoa trader, do you prefer to deal with a state controlled country or a free country?

A State Controlled Country

B Free Country

5 → What is the main reason for default from a supplier?

Type or select an option



6 → Do you pre-finance your suppliers?

Y Yes

N No

7 → If yes, which kind of risks do you face and how do you protect your company?

Type your answer here...

SHIFT + ENTER to make a line break

8 → From your point of view, what is the riskier from a customer?

Type or select an option ▼

9 → Do you make credit to your customers?

Yes

No

10 → If yes, which kind of risks do you face and how do you protect your company?

Type your answer here...

SHIFT + ENTER to make a line break

press ENTER