Czech University of Life Sciences Prague

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Diploma Thesis

REGULATING THE TRADE OF DERIVATIVE CONTRACTS AS A WAY OF STABILIZING THE FINANCIAL SYSTEM

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Declaration

I declare that I have worked on my diploma thesis titled "Regulating the trade of derivative contracts as a way of stabilizing the financial system." by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any other person.

In Prague on 31st of March, 2022 _____

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Thank you!

Regulating the trading of derivative contracts as a way of stabilizing the financial system.

Abstract

This thesis aims to present the progress of the derivatives market reforms declared on the Pittsburgh Summit in 2009, so as to determine whether this market has become more secure, transparent and resilient over the last decade. This is not just for the sake of market participants, but in the context of the security of the financial system in general. During the period of the financial crisis of 2007-2008, the derivatives market was considered as the cause or at least an aggravation of the crisis. The authorities also shared this view as this market was declared as a focus of G20 reforms in function of the stability of the financial system. After a decade since the reform plan of the Pittsburgh Summit for this market, it is necessary to analyse the progress of these reforms and to understand if the regulation of the derivatives market has brought the intended results.

This work is realized using a qualitative methodology. The timeline chosen for this analysis is 2009-2018, not including the Coronavirus pandemic years as its impacts on the financial environment require another deep analysis. Although, I have tackled a bit the current situation to give an overall picture.

As a start, the existing literature on derivative contracts, the market past, and the risks it has brought to the financial system, were reviewed. After this, the reports of the relevant institutions on the reforms undertaken, the level of success in their implementation and their effect on reducing the system's risks were then analysed.

Certainly, this reform plan has been a long and difficult process. The reforms have not been completed yet, but at the current level of implementation in which they are, we can definitely say that they are fulfilling their goals. An ongoing supervision of market regulation, the effects and problems of reforms will ensure that the derivatives market is no longer a source of instability for the financial system.

Keywords: derivatives, contracts, FSB, reforms, financial system, implementation, risks, trade, market, regulation.

Regulace obchodování s derivátovými smlouvami jako způsob stabilizace finančního systému.

Abstraktní

Tato práce si klade za cíl představit postup reforem trhu s deriváty vyhlášených na summitu v Pittsburghu v roce 2009, aby bylo možné zjistit, zda se tento trh za poslední desetiletí stal bezpečnější, transparentnější a odolnější. A to nejen v zájmu účastníků trhu, ale v kontextu bezpečnosti finančního systému obecně. V období finanční krize 2007-2008 byl derivátový trh považován za příčinu nebo alespoň prohloubení krize. Úřady také sdílely tento názor, protože tento trh byl prohlášen za ohnisko reforem G20 ve funkci stability finančního systému. Po deseti letech od reformního plánu Pittsburghského summitu pro tento trh je nutné analyzovat průběh těchto reforem a pochopit, zda regulace trhu s deriváty přinesla zamýšlené výsledky.

Tato práce je realizována pomocí kvalitativní metodologie. Časová osa zvolená pro tuto analýzu je 2009–2018, bez zahrnutí let pandemie koronaviru, protože její dopady na finanční prostředí vyžadují další hlubokou analýzu. I když jsem trochu řešil současnou situaci, abych si udělal celkový obrázek.

Nejprve byla přezkoumána existující literatura o derivátových smlouvách, minulosti trhu a rizicích, která to přineslo finančnímu systému. Poté byly analyzovány zprávy příslušných institucí o provedených reformách, míře úspěšnosti jejich implementace a jejich vlivu na snižování rizik systému.

Tento reformní plán byl jistě dlouhý a obtížný proces. Reformy ještě nejsou dokončeny, ale při současné úrovni implementace, ve které se nacházejí, lze rozhodně říci, že své cíle naplňují. Pokračující dohled nad regulací trhu, účinky a problémy reforem zajistí, že trh s deriváty již nebude zdrojem nestability finančního systému.

Klíčová slova: deriváty, smlouvy, FSB, reformy, finanční systém, implementace, rizika, obchod, trh, regulace.

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List of abbreviations

OTC – Over The Counter

CCP – Counterparty Clearing

TR – Trade Repository

NCCD – Non Centrally Cleared Derivative

CDS – Credit Default Swap

FX – Foreign Exchange

FSB – Financial Stability board

BIS - Bank for International Settlements

EMIR - European Market Infrastructure Regulation

CFMA - Commodity Futures Modernization Act

CFTC - Commodity Futures Trading Commission

CEA - Commodity Exchange Act

SEA – Securities Exchange Act

SEC - U.S. Securities and Exchange Commission

CBOT - Chicago Board of Trade

ESMA - European Securities and Markets Authority

IOSCO - International Organization of Securities Commissions

CPMI - Committee on Payments and Market Infrastructures

UPI – Unique Product Identifier

UTI – Unique Transaction Identifier

LEI - Legal Entity Identifier

MiFIR - Markets in Financial Instruments

MiFID - Markets in Financial Instruments Directive

CHAPTER I: INTRODUCTION

The regulation of derivative contracts has long been a contentious issue and challenging. On the one hand, derivatives allow risk sharing between parties making it more affordable. Forward, future, swap and options contracts mitigate the risks regularly faced by investors, transferring risk from those who do not want it to those who are willing to bear it. If properly regulated, derivatives can help improve system stability and bring economic benefits to users. On the other hand, the trading of derivatives (especially OTC ones) creates concentrated risk groups in financial institutions and, as the crisis has shown, the combination of financial leverage and volatility can quickly become very dangerous, threatening not only individual institutions but the whole financial system. And, when the crisis hit, the derivatives were at the centre of the storm. Past credit events exposed many weaknesses in the organization and regulation of this market.

As a result of the dire financial situation created, G20 leaders met in Pittsburgh in 2009 with *two main goals*: stabilizing the global economy and starting work to prevent future crises. Knowing that improving derivatives trading regulations was essential to meeting these goals, a reform plan was drawn up focused on key aspects of the derivatives markets that could bring the required stability to the market. This plan influenced a series of post-crisis laws aimed at promoting transparency and market stability and consequently the financial system.

Despite the political will, implementing new harmonized rules is not something easy. Among the problems that make regulating this market challenging are the lack of transparency, the increasing sophistication and complexity of products, and the need for coordinated action worldwide. ***But beyond these challenges, it has already been a decade of international efforts and ambitious reform work, so it is important to determine***

whether the derivative market has become more transparent and whether the financial system is now more secure than before.

1.1 Aim of the study

Analysis of the regulatory steps taken in the derivatives market to determine whether the elimination of the main risks of derivative contracts has been achieved in order to increase the security and stability of the financial system.

The research questions of this study are:

- Have the reforms in the derivative contracts market been successfully implemented?
- Has the derivatives market become safer after the crisis?
- How has the reform of this market affected the financial stability of the system?

In this study, I will analyse and conclude whether the regulation of derivatives trade after the financial crisis in 2007 - 2008 has stabilized the financial system and has reduced the issues that caused the crisis in the first place.

1.2 Methodology

The realization of this thesis is done through a qualitative methodology. The selection of the methodology was done in accordance with the research questions and the purpose of this thesis. The timeline chosen for this analysis is a period of 10 years (2009-2018), not including the Coronavirus pandemic years as its impacts on the financial environment require another deep analysis. Although, I have tackled a bit the situation in the couple last years to give an overall picture.

This literature mainly includes articles from various scientific journals as well as reports and studies of regulatory institutions and working groups designated by them.

As a start, the existing literature will be reviewed to understand the basics of derivatives as a financial instrument and the forms of their timely trading. Publications and scientific articles by several authors will be analysed to understand the risks that these instruments carry and how these risks have negatively affected the health of the financial system. I have also tackled a bit the situation of this market in Albania in the literature review, as it is my home country. The review of periodic reports of international institutions will be used as a form to determine the level of implementation of reforms and to understand the problems that different countries have encountered during their implementation.

1.3 Structure of the thesis

The thesis is divided into seven chapters which are briefly described below:

The first chapter deals with the introduction, which provides an introduction to the topic, defines the purpose of the study, aims and research questions. Also, it is defined the methodology of studying the data used for this analysis. *The second chapter* provides essential information about derivative contracts, their history and the risks involved. *The third chapter* defines the problems of the derivatives market and the impact of these problems on the financial crisis of 2007-2008. *The fourth chapter* explains the legal basis of the reforms in the US and the EU as well as the reforms that have been implemented so far. *The fifth chapter* studies the impact that market regulation has had, while *the sixth chapter* lists the problems encountered during implementation or as a result of implementation. *Chapter seven* presents the conclusions regarding the progress of the reforms, their impact on the overall security of the financial system and as well as a few recommendations from my side.

CHAPTER II: LITERATURE REVIEW – BASICS OF DERIVATIVES

As a concept, a derivative is something whose value does not come from itself but from another source. Consequently, a derivative has no value independent of the base object. In financial terms, Law No. 9879 on Securities 2008, Article 3 defines derivative financial instruments as rights owned by a person, the price of which, directly or indirectly, depends on the price of securities, the exchange rate, stock indexes or interest rates. Derivatives provide protection against risk and improve pricing efficiency. They also have lower transaction costs than other assets, enable rapid innovation and can be modified according to the specific needs of users (Deutsche Börse Group, 2009).

2.1 Evolution of derivatives

It is difficult to pinpoint the origin of the first derivatives, as it is not clear where and when the first market was created. But through the literature of Poitras (2000), Swan (2000), Whaley (2006) and Weber (2008) a chronological picture of the development of derivatives spanning centuries and continents can be created.

From antiquity to the present day with modern electronic commerce, derivative instruments have had a place in human financial history, in one form or another. Although derivatives were not widely and easily traded until the computer age of the 1970s, they have an interesting history. Let's see it from the beginning.

Cradle of Derivatives – Mesopotamia

In Mesopotamia, in the 1700s BC, trade and the provision of goods were governed by the King's rules. During this period, the rules that determined the functioning of the social and commercial life of the country, were summarized in the famous Code of Hammurabi. To

encourage trade and secure supply of goods, both in time and geographical distance, the code required that purchases, sales, and trade agreements be in writing. In this way both parties were more protected by law.

Evidence of these contracts is found written in cuneiform on clay tablets. Some of these contracts regulated the future delivery of the grain and specified before planting that the seller would deliver a certain amount of grain for a price paid at the time the contract was signed. So, they functioned as futures contracts.

Ancient Greece

Thales was a philosopher and mathematician who lived from 625 to 550 BC in the great city of Miletus. During the winter, he predicted an incredibly abundant olive harvest and negotiated with the owners of the olive-pressing machines over the right to use all the machines in the region next fall. To secure the right, he made a cash deposit. His prediction turned out to be correct and the demand for machinery increased. Thales managed to rent them with a significant premium and secured huge profits.

Medieval Italy

One of the earliest examples of derivatives was *commanda*, which was used by Italian traders from the 10th century onwards. They were trade partnership contracts for maritime or land enterprises. One partner secured the financing while the other traveled to the venture to secure the specified goods. Many of these contracts can be considered as forward contracts of goods.

Another example are *monti* shares. These shares were issued by Italian trading cities in the 13th century as a promise to repay debts and secure financing. Over time, people began to use monti shares as a form of payment for goods and services instead of money. But, as

their value varied depending on the wealth of the city that issued them, the monts were not stable enough as a payment instrument.

An early form of markets in the Middle Ages were periodic fairs. Italian trading cities also had well-organized local markets. In the Republic of Venice there were specialized markets for the special needs of various trade groups. Derivatives were traded, according to current terminology, over the counter[1] (OTC) but the markets brought little organization to the 'counter'.

Low Lands / The Netherlands

In the 1500s, Antwerp became the center of local and international trade. A stock exchange was opened there, where for the first time there would be a transition from the trading of goods to the trading of rights over goods. This was done through bills of exchange, which were structured in the form of options and linked to delivery dates and product quality. In this way traders eliminated the risk of transporting and storing products.

The regulatory structure, established by Charles V around 1537-1539, recognized the transferability of exchange securities to third parties before the maturity of the base product and the negotiability of these securities. Charlie V allowed the development of a futures market that was a source of speculation. But the 'difference contracts', which stipulated that the losing party would compensate the winning party over the difference between the market price and that spot at the time the contract was signed, were banned in 1541 because they were highly speculative.

[1] Trading securities in a broker-dealer network as opposed to on a centralized Exchange.

In 1585, international trade moved to Amsterdam. One of the major developments that took place there was the birth of stock derivatives. Forward stock contracts were margin contracts, which were often used to speculate and led to the bankruptcy of many traders.

Japan

As financial instruments continued to develop in the West, the Osaka market was established in the East, where the country's most valuable commodity was traded: rice.

The sale was made through auctions and the seller issued a certificate of ownership called 'rice paper'. These papers, which represented the right to receive a certain amount of rice in the future at the current price, would today be considered forward contracts. By the mid-seventeenth century, rice sellers began trading 'blank papers' on still unripe rice. When the trade volume of these papers increased greatly, Shogun (the country's military leader) stopped their trade, considering them as a form of gambling that brought about an increase in the price of rice. The government imposed this rule when the price of rice was high and control was eased when the price was considered too low.

In 1697, the rice market was established in Dojima and the Dojima Rice Exchange was established. The stock exchange was officially recognized by the government in 1730. Traders had to register and pay an annual fee to trade and trading was overseen by the government. The trading rules were similar to the forward and futures exchange rules of modern times. Contracts were standardized and trading was mediated by clearing houses[2] which had the credit lines of each stock exchange member and were liable in the event of the trader's bankruptcy (Moss & Kingten, 2010).

[2] Fnancial institutions in between two parties that ensure that the parties meet the obligations of their contracts.

Consequently, what is considered to be the first centralized market for futures contracts was created.

Trading in futures contracts increased so much that in the mid-1700s, 110,000 bunches of rice were traded on the Dojima Stock Exchange, when in the meantime there were only 30,000 in Japan. Often the government was forced to intervene in the market.

England

During the 18th century, three important events in the history of derivatives took place in England. First, London became an important center of commerce, including the derivatives trade. Second, about 200 years after Charles V, England recognized by law the transferability and negotiability of barter. Third, and perhaps most important, was the South Sea bubble.

South Sea was a company with the exclusive right to trade with the Spanish colonies in South America, which sold stock options and at the moment the bubble burst, started offering 50% dividends and at the same time selling short[3] (short sale) own shares to repurchase them cheaper. The legal consequence of the bubble was the approval of the Sir John Barnard Act, which banned stock options and their short sale.

First U.S. Derivatives Exchange

[3] The sale of a borrowed assset expecting a fall in prices in the economy. The seller is obliged to return the same amount of the asset in the future.

In 1848, the Chicago Board of Trade (CBOT) was established, the oldest still functioning organized futures market. CBOT was established as a centralized market for cereals, but trading of forward contracts soon began. In the beginning, the contracts carried a lot of risk because the prices of cereals were very volatile, the parties were often withdrawn and the contracts were not standardized. For this reason, in 1858, the CBOT began classifying grains into grades according to their quality, with one of the grades being considered the standard. This increased the confidence of traders and became the foundation of market development.

Contracts were standardized in terms of quality, quantity and time and place of delivery. This was followed by the introduction of clearing houses which reduced the risk and the creation of a marginal system. Until the beginning of the twentieth century, the market was regulated through state legislation, self-regulation and court decisions. The CBOT was constantly amending its rules of procedure in court cases in order to make derivatives trading acceptable to lawmakers and to ensure the performance of the contracts traded on it. CBOT merged with the Chicago Mercantile Exchange in 2007 to form the CME Group, which continues to this day.

Modern OTC derivatives

Since the 1970s, the US has been the cradle of derivative innovation. The development of computers and the increase of their use in finance, but also the softened regulatory framework were the key to this innovation.

In 1972, CME introduced for the first time, futures contracts based on financial instruments. In 1975, the CBOT launched the first futures interest rate contracts. Innovation in stock exchanges was followed by innovation in OTC derivatives.

In 1991, the face value of OTC derivatives exceeded that of stock derivatives.

Trading became electronic in 1992 and this enabled the international expansion of the derivatives trade. These developments paved the way for the creation of more modern derivatives such as credit default swaps and mortgage derivatives that about a decade later led to the crisis of subprimes. This has undoubtedly left traces in the history of both derivatives and finance.

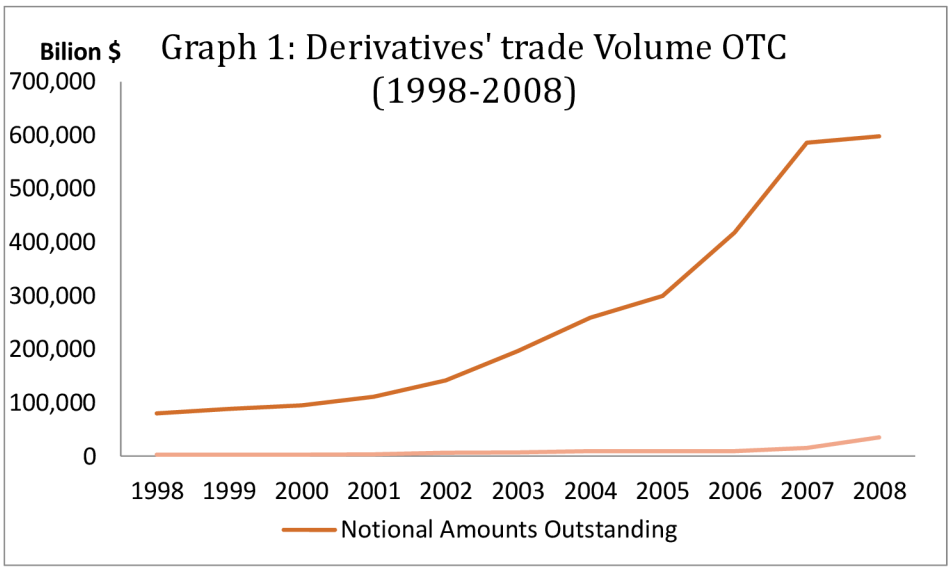
So, a review of the history of derivatives shows that abuse in this market has early traces. Governments have consistently intervened to protect consumers and investors and reduce risk. We can also easily see that throughout the history of derivatives, forms of trading regulation have varied from year to year and country to country, but appropriate regulation has always been important to this market.

Albania

Due to the limited development of the financial market in Albania, the market for derivative contracts remains underdeveloped. But analyzing the definition of these contracts, makes it possible to identify them, although the parties may not give the derivative name. Examples of derivative contracts in Albania belong to the sectors of agriculture, construction and electricity. They are in the form of preliminary contracts or promise / undertaking contracts and have spread during the transition years. Typical are pre-contracts for the sale of apartments, as well as preliminary contracts for the production of agricultural products and the production of electricity. Their irregular trade leads to a lack of information on their trading volumes.

2.2 The performance of derivatives' trade volume

An important element of the evolution of derivatives is the quantitative performance of their market. A graphical analysis of OTC and stock exchanges trade volumes, makes it possible to illustrate market growth as well as compare between the two forms of trade. The data up to the period of financial crisis will be considered, because the volume of trade after the start of the implementation of reforms will be analyzed in the following chapters.

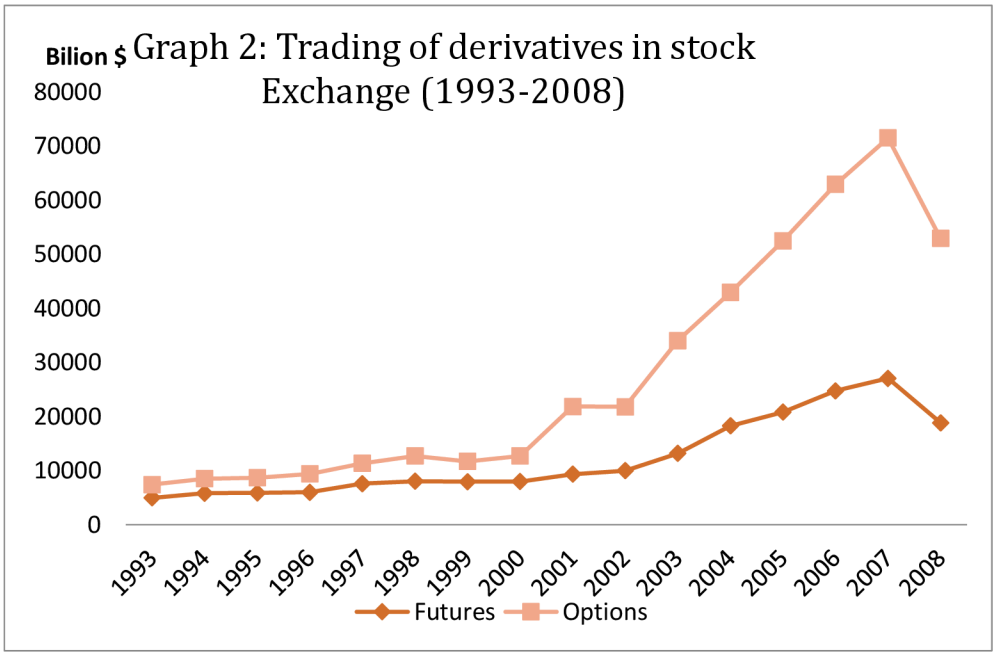


Source: BIS OTC derivative statistics (Table D5.1)

Data on OTC derivatives trade volume start from 1998 and are reported in two main forms: Notional amounts outstanding and gross market value. Nominal/notional value refers to the value of the asset on which the derivative contract is still outstanding and used to calculate payments. Gross market value refers to the market value of the derivatives themselves.

The graph illustrates the rapid growth of the derivatives trade volume from 1998 to the years of the financial crisis. We see that the early 2000s were followed by increased trade in these instruments. This also has to do with changes in legislation. Especially from 2005

to 2007 there is a very rapid growth, while during the crisis period 2007-2008 there is a small increase in trade.



Source: BIS OTC derivative statistics (Tables D3 and D4)

Historical data of stock exchange derivatives trading show almost the same as OTC trading data. The value of open (outstanding) contracts has been increasing until the end of 2007. While during 2008 we see a decline in trade, due to the crisis and the fluctuation of public opinion on derivatives.

We can also conclude that there is a significant difference between the size of the OTC market and that of the stock market, where the former is dominant.

2.3 Types of derivative instruments

There are currently a variety of derivative instruments, but they can be divided into several main categories as follows:

Futures

According to Amadeo (2021), a future is a sales contract taking place in the future, which imposes on one party to the contract the obligation to deliver the specified security, while the other party has the obligation to pay the previously agreed price, at a specified date in the future. They are standardized contracts traded on the stock exchange. The Exchange institution plays the role of mediator and reduces the risk of bankruptcy of the parties during the contract period. For this reason, futures contracts require the deposit of an initial margin. This margin is defined as a percentage of the value of the contract and should vary in proportion to it.

To reduce the risk, the contract goes through a daily valuation process that ends with the coverage of the difference between the fixed contract price and the current market price. The stock will pass this difference from the other party's loser margin account. This whole process is known as '*marking to market'*. If the margin account balance falls below a certain level, then it becomes a *margin call*[4].

Forward Contracts

A Forward contract is a non-standard contract between two parties for the purchase or sale of an asset at a specified time in the future, at a specified price in the contract (Terzo, 2022).

Forward contracts are very similar to Futures because both specify the exchange of assets at a certain price at a future date. But, unlike them, they are traded OTC and consequently do not require interim payments during the contract period.

Options

An option is a contract for the future sale of securities, which gives the buyer the right, but not the obligation, to buy or sell the specified security, at a predetermined price, throughout the agreed period (Upcounsel, 2020). The other party is obliged to complete the transaction, if the buyer exercises the option. We divide the options into two categories depending on the right that benefits from the contract. Consequently, options can be *call* when they give the owner the right to buy at a certain price, or *put* when they give the owner the right to sell something at a certain price. These types of contracts may or may not be standardized and traded on both stock exchanges and OTC.

Warrants

[4] Request for deposit of additional funds in the margin account.

Warrants are the long-term version of options. The options have a maximum maturity of one year, while the warrants are not so limited in time**.** They are usually traded OTC.

Swaps

A swap is a contract through which the two parties exchange the cash flows of one party's financial instrument with that of the other. Cash flows are calculated on a par value of principal. Unlike the derivatives mentioned above, this nominal value is not exchanged but only the flows generated. The contract specifies the dates when the flows will be paid and how they are calculated. Swap contracts became public in 1981 when IBM and the World Bank made the first swap agreement (Ross, Jordan, & Westerfield, 2010). Despite this late creation date, swap contracts today are among the most traded financial contracts in the world. The main types of swaps are: interest rate swap, foreign exchange swap, credit swap, asset swap and equity swap.

Interest Rate Swap - These are the most common type of swap contracts. Through them the exchange of interest-related flows in a certain currency takes place. For some companies fixed interest rate loans are more convenient, while others prefer variable rates. Swap contracts enable the exchange of fixed interest rate loans with variable interest rate loans. The two parties then make periodic payments to each other according to the respective interest calculated on the face value.

Currency swap - this type of swap involves the exchange of principal payments along with interest on equivalent loans but in different currencies. The cash flows of each pair are in two different currencies.

Swap Credit - This derivative aims to share and transfer credit risk to a third party that is neither the lender nor the borrower and is divided into two categories: Swap credit without financing and with financing.

Unsecured credit swap is a bilateral contract that does not require the defense to deposit any down payment and make no payment during the term of the contract, unless the borrower goes bankrupt. The main instrument of this category is the *Credit Default Swap* (CDS). The CDS specifies that the seller will compensate the buyer in the event of a loan default. The buyer makes a series of payments to the seller and in return receives a

payment (the face value of the loan) if his borrower fails to repay the loan received. The buyer of the CDS is the lender who seeks to secure the payment of the loan he has given, but even individuals who do not own the loan can purchase the CDS from a bank or hedge fund.

The funded swap requires the defense to deposit an initial amount which will be used in the event of the event specified in the contract. The main instrument of this type is the Synthetic collateralized debt obligation (CDO). A CDO is a group of debt instruments divided into subcategories according to their risk assessment. The investor in CDO benefits from the cash flows that are generated when borrowers pay their lenders. A CDO itself is not a derivative, but becomes one when attached to a CDS. This is considered synthetic CDO, a complex derivative instrument similar to a bet on the performance of group debt instruments. The value and payment flows of a synthetic CDO do not depend on the flows generated by the instruments, but on the premiums paid for the CDS as insurance against the possibility of bankruptcy / failure of the instruments included in the CDO.

Equity Swap - This contract sets out the exchange of future cash flows between the two parties, at periodic intervals up to a specified date in the future. The two cash flows specified in the contract are considered swap 'feet', where one 'foot' is fixed to a variable interest rate such as LIBOR, while the other is based on the performance of a stock or stock market index.

Swap Commodities - This type of swap contract trades a variable price of a basic good with a fixed price for a specified period of time. Most contracts are based on oil. For example, airlines or railroads could enter into a swap deal to secure lower long-term costs for purchasing oil. This swap does not trade the good itself, but fixes the price. The producer of a good one may prefer fixed income and makes a swap deal with a financial institution.

This institution makes fixed payments for the benefit and the producer pays the market price to the institution.

2.4 Hedging vs. Speculating

There are two forms of derivative use: hedging and speculation and they are theoretically distinguished from each other by the purpose of investing in derivatives.

A *hedger* seeks to hedge against a risk to which they are exposed by investing in a particular asset (Kolb & Overdahl, 2003). They do this by taking a position opposite to the current one, in order to balance the volatility of the asset prices in question. For example, if an investor buys a quantity of product at the spot price of the moment and the price falls before he resells the product, he is exposed to a capital loss. They would hedge their position against the risk of price change by selling at the same time, a sufficient number of futures contracts. When the hedger resells their inventory, they will also liquidate their position in futures contracts by purchasing the same number of contracts (of the same futures) as before. If the net difference of the spot price change is equal to the net difference in the price of futures contracts (price movements are parallel), the profit they receive from one market will offset the losses in the other market. Otherwise, it would result in capital gain or loss (Johnson, 1960).

Speculation is defined as the purchase of a good, property or financial instrument for the sole purpose of reselling at a later date (Emery, 1969). Speculators use derivatives to take advantage of differences in market prices based on forecasts made from market movement observations (McCafferty & Wasendorf, 1993). The focus is on achieving profit with the sole source of price fluctuations and not the value of the instrument or the interest and dividends it pays. Risk is a key element of speculation. Expectations on value fluctuation are the key to realizing profit. Speculation is based on the individual's opinion on the future

direction of the market. If the speculator believes that a stock is overvalued, he can briefly sell the stock and wait for its price to fall, to repurchase it and secure a profit. Speculators are affected by the downward and upward movements of the market and this makes speculation very dangerous.

Technically, anyone who buys or sells derivatives in anticipation of a favorable price change is speculative. For example, suppose a speculator believes that Company X's stock price will rise to $140 within two months. Currently the stock price is $129. The speculator does not want to block their capital on the shares of a single company by buying 1000 shares of Company X. So they buy 10 buy options with an exercise price of $130 and a maturity of two months. Consequently, if the stock price exceeds the exercise price of $130, the speculator can exercise his right to buy 1000 shares at $130 / share. If we assume that the speculator was right, and within two months the share price of Company X becomes $140, then the speculator would buy them for $130 and immediately sell them for $140 thus gaining $10,000 [($140 -130$) * 1000].

What is the difference between hedging and speculation? Hedging is about risk avoidance, while speculation is about risk taking (Syed, 2015). The motive for hedging is to protect an existing underlying investment. Hedging is simply one of the risk minimization techniques, like portfolio diversification. While, speculators predict the direction of market movement, in order to secure profit. They do not plan to buy or sell the product or financial instruments themselves, except to benefit from the price change (Chapra, 1988).

It is important to achieve a differentiation between the use of derivatives for hedging or speculation. This is because it is the derivatives used for speculative purposes that have often caused problems in the financial markets. But in fact, this differentiation is not easy. The derivatives market has in itself an element of speculation, because the well-being of the market depends on the interaction between speculators and hedgers (Johnson, 1960).

If any exposure to financial risks were covered by hedging with derivatives, then we could say that it is not speculating. If the company has a rule to protect 50% of exposure by hedging, does that mean it is speculating with 50% unprotected? Some might consider it speculation, some not.

It should be borne in mind that there are few products and strategies that are completely hedging and companies prefer mixed hedging and speculative products to reduce costs or provide more favorable prices. Also, sometimes hedgers use hedging strategies for speculative purposes, betting on the unfavorable scenario (Cultraro, 2017). So the strategies themselves can be reinterpreted according to the investor objective.

Lynn A. Stout (2008) mentions that from a legal viewpoint, there has been a way to differentiate derivatives for hedging and speculation. The 'rule against difference contracts' stipulated that, for a derivative contract to be legally binding, one of the parties of the contract had to be using the contract as protection against an economic risk. So the court recognized as a hedge, any derivative contract where one party owned the financial instruments or products specified in the contract. More specifically, a CDS contract was considered a hedge only if one party owned the securities on which the CDS is based. For an interest rate swap to be hedging at least one of the parties had to own the security whose interest is being exchanged.

Empirically, ideally, speculation should be identified using an optimal hedge model. Deviations from the optimal hedge ratio can be seen as a sign that companies are speculating in the derivatives market. Beber and Fabbri (2011) constructed a speculation representative based on a regression of derivative instruments used by the company with variables they considered as key reasons for hedging. The authors consider companies with more volatile deviations as more likely to speculate. Unfortunately there is no consensus on the optimal model for hedging estimation. Moreover, the reasons for hedging should

also correlate with the reasons for speculation, which makes it even more difficult to identify the firms that speculate.

While Rossi (2011), through the analysis of companies' balance sheets, identifies two types of speculators in the exchange derivatives market, which can be generalized to the entire derivatives market. A firm is considered speculative if within a year it has had a net position in the derivatives market that is opposite to the position needed to hedge its exchange rate exposure. Also companies that are not exposed to this risk, which have positions in the derivatives market, are considered speculators. The second type of speculators includes companies that hold a position in direct proportion to exchange rate exposure over the course of a year, but greatly increase their exposure to the fuel market the following year without a proportional increase in exchange rate exposure.

One way to understand the level of speculation in the derivatives market is to analyze the volume of trade in the derivatives market and the underlying instruments market. According to Bacha (1999), the trading volume of futures contracts signaled the presence of speculative behavior. A comparison of the total trading volume of these contracts has shown that they often exceed the trading volume of the underlying instrument where they derive their value.

By the end of 2008, the nominal market value of CDS had reached $67 trillion according to the BIS. At the same time the market value of all securities of American companies used as a basis for derivatives was $15 trillion. This large difference is proof that most of the trade has been speculative, not defensive.

2.5 Risks of derivative transactions

The risk borne by derivative contracts depends on their trading: OTC and on the stock exchange (Hollanders, 2012). It is important to make this differentiation because in this way it is clarified how the regulation of the market affects the risk to be taken individually and how this risk is delegated to the parties who can better cope.

OTC Derivatives

The parties to transactions with OTC derivatives face the same risks as the parties to other financial transactions, but the losses from these risks can be so severe as to increase the systemic risk of the financial system.

Lending risk

Lending risk is the possibility that the borrower will not adhere to the terms of the contract, usually due to insolvency. This type of risk is divided into two categories: 1) *Replacement cost risk* - loss from replacement of the contract with the insolvent party, and 2) *Settlement agreement risk* - loss of payments from the other party.

Replacement cost risk

If one party to the OTC derivatives contract is unable to pay before an agreement is reached, then the other party would attempt to close all contracts with it and replace them with contracts with the same conditions with another party. Replacement cost risk represents the possibility that replacement of contracts will result in a loss. This can happen if at the time of failure, the OTC derivative contract has positive market value for the party seeking to replace it.

Settlement risk

OTC derivatives face this risk only in the case of physical settlement contracts such as forward contracts. The potential loss from this risk is the full value of the principal.

Liquidity risk

This risk refers to the inability of one party to secure the required funds on time. In some cases, OTC derivatives increase liquidity pressure. Since many OTC transactions are collateralized, this often translates into a source of liquidity requirements. A significant decrease in the value of an OTC derivative portfolio could result in collateral requirements and consequently strong liquidity pressures.

Market risk

Market risk represents the risk of losing out on unwanted movements in the asset market price level. The analysis of this risk makes sense if done on a portfolio basis, taking into account the balancing positions on different risk factors and the correlations between these factors.

Legal risk

This risk relates to the possibility of loss as a result of the sudden implementation of a piece of legislation or because the contract is not legally binding. This can happen in cases where the documentation does not meet local legal standards.

Operational risk

Operational risk is the risk that problems with information systems or internal controls may result in unexpected losses. This risk is especially significant for OTC derivatives because accurate and timely information is the key to credit and market risk management. But data collection on these derivatives is often done manually and this leads to errors and delays.

Custodial risk

This risk represents the possibility of losing securities held by the custodial party, due to insolvency, negligence, or fraud. This risk is mainly present in collateralized OTC derivatives, where the collateral is held by the party being protected or by a third-party custodian.

Systemic risk

Systemic risk poses the fear that the inability of one party to meet its obligations on time will cause a domino effect on other parties that will not be able to meet their obligations on time as well. This could result in serious liquidity and credit problems that would undermine the liquidity of the financial markets. Since OTC derivatives are an important source of credit exposures between major international institutions, the financial difficulties of one of these institutions would hit the entire financial system.

Derivatives traded on the Exchange

Derivatives traded on the Exchange are settled through Central Counterparty Clearing[5] (CCP) - a CCP plays the role of intermediary between sellers and buyers and consequently assumes certain categories of risks depending on the contract. Many of these risks also apply to OTC derivatives, but there are some important changes to consider. Market, legal and operational risk will not be mentioned again as it is the same as for OTC derivatives.

Lending risk

If one of the participants fails, a CCP will normally close all of its contracts. This would be accomplished by entering the market to buy or sell contracts identical to those of the

[5] Clearing accounts by a third party.

failing party. The magnitude of the loss (or gain) depends on the volatility of contract prices, the time interval between the trading date and the failure, and the magnitude of the positions being replaced. But the required margin (collateral to cover the exposure) and contributions to the failure fund generally limit CCP losses.

Liquidity risk

CCPs make a variety of payments depending on the terms of the contract. Since these payments must be made on time, the failure of one or more participants to make payments leads to exposure to liquidity risk. CCPs have many resources that they can use to repay payments ranging from assets left as collateral of the failing parties, to equity and possibly the assets of other solvent participants. But often these resources are non-liquid assets and the liquidation process can be difficult or costly to complete in time.

Custodial Risk

As CCPs require participants to deposit an exposure coverage margin, this is a source of custodial risk. Furthermore, if a CCP invests in securities held by a custodian, there is a risk that the custodian will be negligent, fraudulent, or insolvent. This leads to loss of collateral.

Settlement bank risk

In addition to the risk that a participant may fail, a CCP also carries the risk that the bank holding cash accounts for settlement agreements with its members may fail. This would increase the CCP's exposure to lending and liquidity risk, depending on the size of the

funds in that bank, the moment of failure, and the terms of the contract between the CCP and the settlement bank.

Investment risk

A CCP has resources and reserves which are invested to generate revenue. Also, the money deposited by the participants as the required margin can be invested. It is usually invested in bank deposits or short-term securities. Consequently, the CCP faces the credit and liquidity risk associated with banks or issuers of securities.

This analysis clearly shows that it is OTC trading that has the most risks, while stock exchanges reduce the level of risk, managing it in an institutionalized way. *So, OTC derivatives represent the market segment that needs to be adjusted in order to avoid future crises.*

CHAPTER III: THE ROLE OF DERIVATIVES IN THE FINANCIAL CRISIS AND REGULATORY PROBLEMS

3.1 Derivatives as crisis incentives

Financial derivatives have been associated with a large number of credit events, much-talked about. In the early 1990s, Procter & Gamble lost over $100 million in capital swap transactions. On December 6, 1994, Orange County filed for bankruptcy following losses of approximately $ 1.6 billion from a false interest rate bet. In 1995, Barings went bankrupt when one of its traders lost $1.4 billion (more than double the available capital) by trading capital index derivatives.

During the 2000s, the amounts associated with companies' problems with derivatives were steadily increasing. In 2001, the Enron corporation went bankrupt and in 2008 the almost sensational AIG bankruptcy occurred. These two events had one thing in common - their involvement in the derivatives trade.

When Enron filed for bankruptcy in December 2001, it was a very surprising moment for the financial market because Enron was estimated to have a share capital of $70 billion. Enron's business base was trading derivative contracts related to the prices of oil, gas, electricity and other variables in the OTC market. Transactions in these markets were largely unregulated and without reporting requirements. There was little information about the profitability of these activities. Some felt that speculative losses on derivatives, perhaps masked by “creative” accounting, were one of the main contributing factors to the company’s decline.

In 2008, the US government introduced a $150 billion financial package to prevent AIG, then the world's largest market value insurer, from going bankrupt. As an AAA rated

company, AIG was exempt from depositing collateral in most derivative contracts it had traded. In addition, AIG was unique compared to other CDS market participants because it behaved almost exclusively as a credit protection vendor.

Since AIG suffered heavy losses in 2007, its rating fell in May 2008. This decline from the AAA level led to AIG being required to deposit several billion dollars in additional collateral. When the financial crisis reached its peak, AIG's CDS portfolios suffered significant mark-to-market losses. In September 2008, AIG suffered further declines in the rating level. Consequently, the company was asked to deposit $ 40 billion in collateral, which it could not secure.

These events raised some important questions regarding the regulation of derivatives trade in view of financial stability.

The focus was on improving the risk management of the parties and promoting trading of these contracts in public exchanges. Lack of information on the financial health of investors raises fears about their solvency. This makes OTC contracts particularly exposed to collateral and capitalization risks.

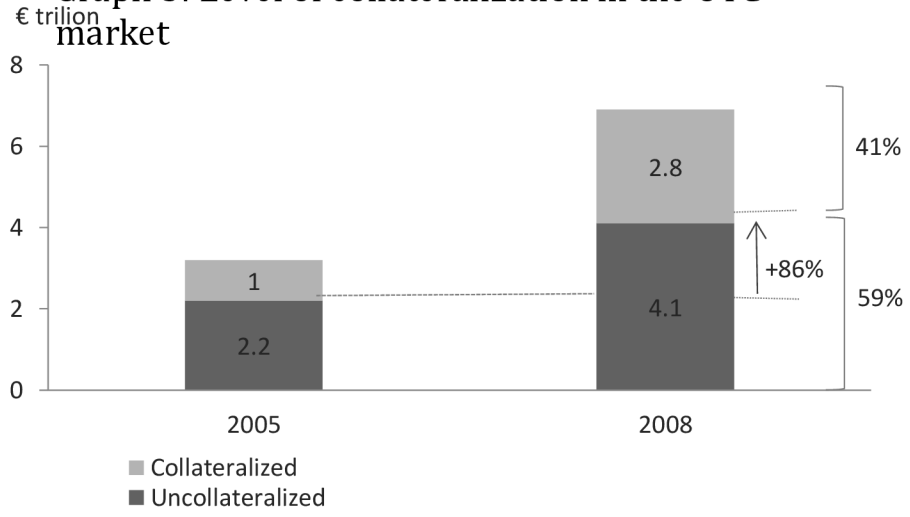
3.2 Market problems

The financial crisis shed light on some derivatives market problems - especially in segments that lacked standardization and CCP. Strong market growth coupled with deficiencies in regulation and supervision led to a significant increase in systemic risk in the OTC market. Deutsche Börse Group (2009) identified five market problems that affected the financial crisis, which are addressed below.

1) Excessive accumulation of bilateral exposure

The growth of the derivatives market was accompanied by the increase of bilateral exposures. As a result institutional investors, corporations and other market participants had much to lose. The total exposure from derivatives trading OTC was over €31 trillion in December 2008 (Deutsche Börse Group, 2009). Considering the effects of canceling the counterclaims of two or more parties, an exposure of € 6.9 trillion remained. Of this amount, only 2.8 trillion euros (41%) were collateralized. Thus, uncollateralized exposures reached 4.1 trillion (59%) in December 2008; an increase of 86% compared to 2005. As a result, OTC market participants had unprotected risks equivalent to 36% of EU GDP.

Graph 3: Level of collateralization in the OTC market



Source: Deutsche Börse Group (2009)

2) Risk assessment and insufficient management skills

OTC derivatives markets also have a fundamental weakness: they do not have sufficient skills for comprehensive risk assessment and management. For complex derivatives, the problem is twofold. First, many market participants do not have the skills to adequately value and evaluate derivatives and, in some cases, do not have independent valuations

available from a third party. Second, after being exposed to risks, many of them do not have sufficient skills to monitor and reduce these risks effectively.

Because OTC derivatives are sometimes complex and not openly traded, they are difficult to value. In most cases, there is information asymmetry between broker-dealers who issue and trade derivatives and end users. In the case of derivatives traded on the stock exchange, risk management is institutionalized (via CCP), but this does not apply to the OTC market. The crisis has shown that many market participants do not have the opportunities to monitor and control risks. The American Insurance Group (AIG) is an example of how derivative risks can accumulate over time if oversight and internal control fail.

3) Interconnection and complexity

When the market is organized on the basis of bilateral relations of the parties, the failure of a single participant can pose a systemic risk to the market as a whole by destabilizing all partners directly and indirectly. A significant part of the OTC market does not have mechanisms that can absorb this domino effect. OTC derivatives market participants are highly correlated with other market participants. At the time of the bankruptcy, Lehman Brothers' main European subsidiary held open derivative positions with almost 22,000 shares. If one of the major market participants fails, a large number of participants will be affected, and a chain reaction will begin. If AIG was not saved, some of the world's largest banks could lose up to 30% of their capital.

4) Lack of transparency

The derivatives market is often described as unclear. This is especially true for bilateral derivative contracts without CCP, which lack transparency in their pricing as well as in risk positions. This has a destabilizing effect on the market because doubts about the solvency of individual parties can create a crisis of confidence. Lack of transparency also makes it difficult for regulators and supervisors to assess aggregate risks and respond accordingly. For example, supervisors did not notice the level of risk exposure to the AIG CDS portfolio. Market complexity and insufficient reporting promote a lack of transparency. Without CCP it is almost impossible to create a realistic view of risk positions. In addition, large OTC market areas had no reporting requirements - and thus no

post-trade transparency. There were no market mechanisms ensuring timely and independent market monitoring.

5) Operational inefficiency and legal uncertainty

Two other aspects have contributed to the risk of OTC derivatives: operational inefficiency and legal uncertainty. The first is driven mainly by the lack of standardization and automation in existing products and work processes. The second is mainly due to the unregulated nature and bilateral relations of OTC derivative contracts.

Often, OTC derivatives are handled manually, which can lead to delays and errors. Market participants risk not having an accurate picture of their risk positions.

Independent bilateral contracts are inevitably accompanied by legal uncertainty. The main risk has to do with the inability to legally defend their claims. During the crisis and until now, there has been much disagreement over the interpretation of clauses, such as the validity of collateral agreements.

3.3 Regulatory Issues

At the heart of the derivative regulatory issue is the Commodity Futures Modernization Act (CFMA). Topham (2010) and Stout (2009) argue that it was changes in legislation that enabled the crisis, which would not have happened if the traditional legal approach to traditional derivatives had not been changed. But as a start, what was the historic approach to derivatives?

The use of derivatives was regulated through a bizarre but effective rule which protected and enforced only the derivative contracts used for hedging. So for a derivative contract to be legally binding, one of the parties to the contract had to be using the contract as protection against an economic risk. This rule was known as the 'rule against difference contracts'.

The rule against difference contracts did not prohibit the use of derivatives for speculation, but obliged speculators to ensure for themselves that the other party would fulfill the contract. This encouraged speculators to set up and monitor their own private exchanges, such as CMEs, with membership terms and other rules ensuring that speculative traders

would abide by contracts. Off-exchange the old rule served as the primary control in the OTC market of derivatives.

The dissolution of this rule began when the UK passed the Financial Services Act of 1986, which made all financial derivatives contracts, regardless of the purpose of their use, legally binding.

American lawmakers, not wanting to lose a very lucrative market, followed the example of the British in the 1990s by creating regulatory exemptions for certain types of derivatives such as currency forward contracts and interest rate swaps. The US Congress supported the full legalization of OTC derivatives in 2000 with the approval of the CFMA. This act transformed the regulatory framework covering derivatives through the amendment of the Securities Act of 1933, the Securities Exchange Act of 1934, Commodity Exchange Act (*CEA*), and other federal regulations. The CFMA softened regulatory standards and allowed increasingly sophisticated derivatives to be hidden from regulators, rendering market participants unable to understand the underlying asset structure and their risks.

To understand the context of the CFMA, one must look at the economic and political climate of that period, when thirty years of deregulatory incentives convinced policymakers and market participants that modern financial instruments had eliminated the risks of the past. From an economic point of view, the situation at that time was such that it was thought that all market mysteries were solved, markets were efficient, market agents were rational and prices reflected all available information.

In this optimistic economic climate with strong impulses for deregulation, the two-year lobbying of Wall Street banks for the rejection of Glass-Steagall began. In 1999 this would be accomplished through the Gramm-Leach-Bliley Act. Removing the hermetic seal between commercial banks, investment banks and insurance companies would help create 'too big to fail' financial institutions, which would exacerbate the situation during the subsequent crisis. Just a year later, under an Easter mentality of maintaining competitiveness against less regulated states, the CFMA was approved.

The CFMA made two important changes in regulating derivatives markets: 1) the exclusion of some OTC derivatives from the jurisdiction of the CFTC and the CEA, and 2) the permitting of trading of futures contracts based on a single stock or index.

An exception to the CEA jurisdiction of transactions involving 'excluded goods' such as metals and electricity and any contracts based on them allowed the goods to be traded with very little regulation in the OTC market. This famous exception was renamed the "Enron Gap" after the bankruptcy of the Enron company.

Prior to the CFMA, derivative regulation was split between the SEC and the CFTC, with the SEC controlling options, while the CFTC regulating futures contracts and CDSs.

The CFMA virtually excluded most derivatives from overseeing and regulating both and declared them legally binding.

In this way, the legal barriers to speculation with OTC derivatives that had functioned for centuries were eliminated.

PRACTICAL PART:

CHAPTER IV: IDENTIFYING DERIVATIVES MARKET REFORMS

The 2008 financial crisis exposed significant weaknesses in the OTC derivatives market, including: the accumulation of large exposures among market participants whose risk was not well managed; limited transparency regarding the level of market activity and the overall size of credit exposures; and operational weaknesses that demonstrated the need for further standardization and automation.

G20 executives saw derivatives as a significant contributor to the global crisis and were therefore committed to reforming the global derivatives market. Given that stock trading is meanwhile regulated, by market reform we mean the OTC market of derivatives.

In 2009, G20 executives agreed on reforms in the OTC derivatives market to achieve *central clearing*[6] and, where appropriate, the exchange or electronic trading of OTC derivatives; reporting of all *trade repository*[7] *(TR)*; higher capital as well as higher margins for CCP-free transactions (FSB, 2009). Thus, the G20 began perhaps the most ambitious program of international regulatory reform of modern times. It also created a new institution - the Financial Stability Board (FSB) - to bring together G20 members and international standard-setting bodies and mobilize them for a joint reform agenda (Cunliffe, 2014).

Reforms are being implemented globally through legislative and regulatory measures. Reforms in the US are being carried out under the 'Dodd-Frank Wall Street Reform and Consumer Protection Act' and regulatory decisions by US agencies such as the CFTC and SEC. While in Europe they are carried out under the 'European Markets Infrastructure Regulation' (EMIR).

The success of the reforms depends mainly on the US and the EU, which together have the vast majority of the world derivatives market. Thankfully, both the US and the EU have made significant and often times coordinated progress over the years.

[6] Lending risk management between two parties to a transaction through a regulated institution.
[7] Platform that collects and maintains data related to OTC derivatives.

4.1 Regulations by EMIR

"European Market Infrastructure Regulation" (EMIR) is a European legislation for derivative contracts OTC, CCPs and TRs. EMIR was introduced by the European Union as an implementation of the G20 commitment to reduce risk and increase transparency in OTC derivatives markets. It came into force on March 15, 2013.

EMIR sets out general rules for CCPs, which are set between the parties to a contract becoming the focal point of each transaction; and trade warehouses, which collect and hold all information on derivatives trading. EMIR requires the reporting of all derivatives in a TR, regardless of whether they are traded on stock exchanges or OTC. It also outlines three obligations related to “clearing”, reporting and risk reduction (Moloney, 2014).

Any entity that is qualified to implement EMIR should not only report any derivative contracts in which they participate, but also implement new risk management standards that include operational processes and margins. EMIR also covers the trading of NCCDs. The parties to the contract must report all derivative transactions to the European Economic Area or another country.

Reporting

EMIR requires each entity entering into a derivative contract to report to the corresponding TR, outlining each OTC trade. This rule applies to all classes of OTC derivatives including exchange rate derivatives, interest rates, loans, securities and assets. EMIR is more in-depth than Dodd-Frank in terms of two-way reporting: requires reporting of the individual market for derivatives traded on the stock exchange (ETD) and the end-of-day position of ETDs; and requires both parties to the contract to report trade, not just one (FIS, 2016). For each transaction should be reported about 85 data fields, which are divided into two groups: the first group contains information on the parties involved, which usually remains static during the life cycle of a contract; the second group provides details on the characteristics of the contract, such as: parties to the contract, type of contract, maturity, face value, price and settlement date (ECB, 2016). In the case of financial institutions or institutions with a slightly higher exposure than a certain level, additional data such as mark-to-market value and collateral value must be reported. Since there are many TRs in the EU, transactions are often reported in two different TRs. Therefore, any data collection requires reconciliation of information on both sides of a transaction within and across TRs.

Of all the provisions laid down, the new trade reporting requirements are among the strictest and most challenging for the derivatives market. Failure to report commercial activity results in financial penalties for the parties involved.

In addition to mandatory reporting of transaction data, EMIR also requires TRs to publish the aggregated figures. On their websites, TRs publish the number of transactions, their face value and market value and other indicators.

Clearing

The European Securities and Markets Authority (ESMA) sets out unavoidable *clearing* obligations for specific OTC derivative contracts if a contract has been assigned to a CCP by EMIR. These obligations require that trade in OTC derivatives go through CCP. Pension funds have been temporarily exempt from these rules until August 2017.

All parties involved in the trade must submit timely notices regarding the approximation and exceeding of the clearing threshold. This regulation applies to financial parties such as banks, insurance companies, asset managers, and non-financial parties.

Risk reduction

One of the main goals of EMIR is to manage and avoid systemic risk. EMIR aims to reduce systemic risk through the addition of trade regulations and clearing. The risk reduction regime applies to contracts involving EU countries and entities from third world countries. The risk mitigation standards set out in EMIR Article 11 impose these rules on bilateral derivative contracts that are not eligible for CCP standards.

EMIR advises against the application of tariffs only to sellers, as this practice usually increases systemic risk. Other risk mitigation techniques include the timely submission of reports and confirmations of compliance by all parties. Also included is a new dispute resolution process, daily market reports and public collateral exchange between the parties.

4.2 Regulations by The Dodd-Frank Act

The Dodd-Frank Act entered into force in July 2010. It is Title VII of this act, called ‘‘The Wall Street Transparency and Accountability Act‘‘, which deals with the regulation of

OTC markets, of swap contracts. This section includes CDS and credit derivatives, which were one of the reasons for the bankruptcy of some banks during the crisis. This act had three main purposes related to the trading of derivatives:

- Minimizing the impact of derivatives trading on the systemic risk of the financial system,
- Creating a transparent market for derivatives,
- Providing a level of protection for derivatives traders.

To meet these goals, the Act requires that many derivatives that have traditionally been traded OTC (which the Act considers as 'swap') be standardized enough to go through a CCP and be traded on a stock exchange. For non-standard derivatives that are difficult to shift on stock exchanges, the Act requires the establishment of higher margins and equity requirements. Some derivatives, such as currency swaps (FX swaps), are exempt from these rules.

From a supervisory point of view, the Dodd-Frank Act defines several regulatory authorities with partially overlapping jurisdictions and withdraws regulatory exemptions for securities-based swap contracts established by the Gramm – Leach – Bliley Act. The CFTC's largest regulatory liability for derivatives created as securities-based swaps (a category that includes interest swaps, interest options, and broad index-based CDSs). As for derivatives created as securities based swaps, the responsibility generally lies with the SEC. These two authorities often offer each other opinions on problematic regulatory issues. Furthermore, bank regulators also have the right to supervise certain aspects of derivative banking activity, including required capital reserves and reporting obligations. Regulators are required to consult with each other before implementing rules or making decisions related to several different types of swap contracts. The CTFC and the SEC, in cooperation with the Federal Reserve, have the task of further defining the derivative terms used in the Commodity Exchange Act and the Securities Exchange Act of 1934.

Other important aspects of this Act include the Lincoln Amendment. and the "Volcker Rule." According to the Lincoln Amendment, banks and other institutions holding secured deposits are prohibited from participating in most derivative trading activities (Roosevelt

Institute, 2014). This rule aims to persuade depository institutions to switch to derivatives trading in subsidiaries with separate capital from deposits.

While the Volcker Rule, which took its name from former Federal Reserve Chairman Paul Volcker, refers to section 619 of the Dodd-Frank Act. This rule prohibits banking institutions from participating in 'private trading[8] (proprietary trading*)* of securities and derivatives, and imposes restrictions on the types of investments in private investment institutions they can make (such as hedge funds). Market-creating activities are exempt from this regulatory barrier. So in other words, the Volcker Rule is intended to discourage banks from taking excessive risk by not allowing them to use their funds to make such investments to increase profits. This rule is based on the assumption that these speculative trading activities do not bring benefits to bank customers.

Clearing and trading on the stock exchange

Under the Title VII, all derivative contracts that can be standardized must pass a CCP and be traded on the stock exchange in accordance with the G20 commitment. Like the G20 commitment, Title VII specified that clearing would be implemented no later than the end of 2012. This deadline was not met by US regulators (and all other global regulators) but is now being implemented. above. Under this mandate, a large portion of the derivative contracts market now needs to be executed on listed exchanges and cleared of clearing.

But, so that the reforms do not result in difficulties for commercial enterprises (as opposed to financial ones), Congress added an exception to the clearing requirements for commercial enterprises that use derivatives to hedge against risks (D'Ambrosio, 2011). This exemption is known as the "commercial end-user exemption".

Data Reporting Requirements

One of the main goals of the Dodd-Frank Act was to increase transparency in what many believe has historically been a dark market. Reporting derivative transactions is the most widely applicable rule of all Title VII rules. Derivative contracts signed by commercial end users, which are exempt from clearing and trading obligations, are also subject to data reporting rules (Practical Law Finance and Practical Law Corporate & Securities).

[8] Trading stocks, bonds, derivatives and other financial instruments with the institution's own money to secure profits. The bank invests in direct market profits, rather than trading commissions with customers.

Other rules

Collateral margins are also subject to Title VII, as a result of the need to reduce the systemic risk arising from the failure of a significant market participant holding a significant position in derivative contracts.

Also, since 2013, the bank lending limit has been modified to include exposure to derivatives.

The CFTC, under the Dodd-Frank Act, has adopted rules for market manipulation in relation to the trading of non-securities-based derivatives. These rules prohibit fraud, including intentional and reckless conduct that deceives market participants, and outlaw the direct or indirect manipulation of the price of derivatives.

4.3 Progress of reforms at a global level

Ongoing oversight and monitoring of the reform implementation process is the responsibility of the Financial Stability Board (FSB). The FSB is an international organization that monitors and makes recommendations on the global financial system. It promotes international financial stability through the coordination of state financial authorities and international standard-setting organizations which work to develop strong regulatory and supervisory policies. The FSB encourages the coherent implementation of policies across sectors and jurisdictions.

The FSB has identified the OTC derivatives market as a priority in monitoring the implementation of reforms. Routine monitoring and detailed reporting is done by the OTC Derivatives Working Group (ODWG). This is crucial to understanding whether reforms have been implemented sufficiently to improve transparency, reduce systemic risk and protect against abuse in this market.

The G20 program has identified five areas that are subject to derivatives market reform:

- Trade reporting of derivatives in the so-called trade repositories, which collect all the information about these contracts.

- Central clearing or “clearing contracts” through the role of CCPs which reduce the risk of lending by entering between the parties to the contract.

- Higher margins required for CCP-free derivatives (NCCDs)
- Highest capital required for NCCDs.
- Trading on stock exchanges and electronic platforms in all possible cases.

The implementation of these reforms has resulted in an unprecedented wave of new standards and regulations and has required extensive adaptation of the financial industry, both globally and in individual jurisdictions.

4.3.1 Analysis of the Trade Repositories reform

At the 2009 Pittsburgh G20 Summit, in response to the lack of adequate information available during the 2008 financial crisis, G20 leaders agreed that OTC derivatives contracts should be reported to trading repositories (TRs) in the hope that centralizing the collection, storage, and dissemination of data on OTC derivatives would improve transparency in the derivatives markets, mitigate systemic risk, and protect against market abuse.

TRs are entities that maintain a centralized electronic register or an OTC derivative database. Centralizing data collection, storage, and dissemination makes TRs play an important role in providing information that helps reduce risk, operational efficiency, and cost reduction for both individual entities and the market as a whole (FSB, 2015). Reporting data to a TR allows authorities to have information about the OTC derivatives contract immediately after its creation, as well as information about any changes to the contract during its existence. TR data is used by the authorities for various reasons, such as: systemic risk assessment; regulation and supervision of markets, infrastructure and financial market participants; analyzing products and market structure, conducting case studies, and preparing new policies or reviewing policies. Reporting to TR allows regulators to have a global view of OTC fuel markets, through full and timely access to the data needed to carry out their respective mandates.

For these reasons, the data stored in the TR must be comprehensive, uniform and reliable and, if coming from more than one source, be kept in a form that facilitates global summary.

Some countries (such as Brazil) had reporting regimes that preceded G20 commitments. But the creation of TRs did not start until 2009 in most countries. Prior to the establishment of the official rules governing TRs, some TRs were established on a voluntary basis (FSB, 2015).

For this voluntary reporting, there was initially an industry effort to consolidate reporting into a small number of TRs. But competitive pressures and regulatory requirements have resulted in a proliferation of TRs and fragmentation of data in different TRs. Currently, FSB reports show that data collection by TRs varies greatly from country to country. For example, in Hong Kong, India, Saudi Arabia and Singapore, a single TR is present locally and data do not come from foreign TRs. In Japan, the Japan Financial Services Agency (JFSA) collects data reported to the JFSA with data reported to a locally licensed TR. Authorities in Australia and Russia are collecting data from two TRs. In Canada, data collection from three TRs is done at the provincial level, but not at the national level. In the US, the CFTC collects and uses transaction data reported under CFTC rules in four TRs. In the EU, ESMA's TRACE system gives members full and centralized access to the data collected by the eight registered TRs. Therefore, data collection from multiple TRs is necessary to create a complete picture of OTC fuel markets.

In 2014, the FSB published a study on data collection approaches for OTC derivatives. One of the conclusions of the study was that "it is critical for any collection method to complete the work of standardizing and harmonizing important data elements, especially through the global introduction of the Legal Entity Identifier (LEI) and the creation of a UTI and UPI. ".

LEI offers the ability to uniquely identify legal entities that are participants in OTC fuel transactions. LEI, has become a demand in many countries. Since mid-July 2018, over 1.2 million entities from 200 countries have provided LEI (FSB, 2018).

On the other hand, the Unique Product Identifier (UPI) is the unique identification of asset classes and subclasses. Whereas, the purpose of the unique trade identifier (UTI) is to uniquely identify a trade across different jurisdictions throughout the commercial life cycle. However, problems arise such as:

- different asset classes and subclasses may fall under different regulatory oversight, for example, CFTC swap contracts and securities-based swaps under the SEC;

- The definition of reportable products may vary by jurisdiction;
- Reporting exceptions may vary by jurisdiction.

As a result, both parties to a contract may not be required to report all transactions or trade components in the same jurisdictions. This creates difficulties in determining whether a UTI is required and which party should establish it. Consequently there will be problems in collecting and analyzing transaction data globally.

The FSB has recommended that: "As global identifiers (such as LEI, UPI, UTI) and harmonized data standards are expected to improve the quality of data in TRs, States should support the development and adoption of such identifiers and standards, and they should seek international guidance in this area. "

To find a unified solution, the FSB has asked the Payments and Market Infrastructure Commission (CPMI) and the International Organization of Securities Commissions (IOSCO) to develop global guidelines for the harmonization of data elements reported in TR.

The guidelines relate to the definition, format and use of OTC fuel data reported to the TR and are relevant to the authorities. This includes the Unique Transaction Identifier (UTI) and the Unique Product Identifier (UPI). The group has completed most of its work and is expected to complete its tasks in 2019. In December 2017, the FSB recommended the implementation of the UTI in all FSB member countries by the end of 2020.

Status of Reporting reform

Twenty-one of the twenty-four FSB member states already have full commercial reporting requirements in place (FSB, 2018). Moreover, the breadth of trade reporting and the availability of TRs continues to increase. Authorities are using TR data for a wide range of tasks and are incorporating it into their work.

Coverage of trade reporting requirements continues to be more comprehensive for interest rate derivatives and foreign exchange (FX) derivatives. This is partly related to the relative size of these markets and the wide availability of TRs in these asset classes. As of

September 2018, 34 TRs operate in FSB member states, 9 of which are authorized to operate in many jurisdictions[9].

Implementation of trade reporting requirements for OTC derivatives has come a long way in all FSB member countries. Even countries that do not have full reporting requirements in place, such as Argentina, South Africa and Turkey, have made progress in reporting.

The scope of reporting obligations by asset classes also continues to expand. Specifically, on October 1, 2018, Singapore started reporting requirements for capital and commodity derivatives (FSB, 2018).

Table 1: Status of implementation of the trade reporting regulation.

	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	H1 2019	H2 2019
AR	3	3	3	3	3	3	Blue	Blue
AU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
BR	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CA	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CN	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
EU	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
HK	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
IN	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
ID	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
JP	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
KR	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
MX	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
RU	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
SA	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
SG	Blu	Blue	Blue	Blue	Blue	Blue	Blue	Blue
ZA	3	3	3	3	3	3	3	Blue
CH	3	Blue	Blue	Blue	Blue	Blue	Blue	Blue
TR	2	2	2	2	2	2	Blue	Blue
US	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

Blue phase: country has in place the legislative framework for the reform.

Phase 2: country has proposed standards or requirements for the reform

Phase 3: country has in force legislative framework, and standards have been adopted for at least a part of transactions.

Source: FSB (2018)

[9] The EU is considered a single jurisdiction member of the FSB.

Table 1 shows that most member countries are in the blue phase. This means that in these countries the legislative framework is in place and over 90% of transactions already have standards or functional requirements. We also see that the FSB claimed that in 2019 all member countries would be at this stage. Argentina and South Africa at the end of 2018 have been in phase 3, which means that they have in force legislative framework and for at least part of the transactions, public standards or requirements have been adopted. Even Turkey, which is in phase 2 meaning that it has proposed standards or requirements for trade reporting, was expected to fill its legislative gaps in 2019.

4.3.2 Analysis of the Central Counterparty Clearing (CCP) reform

One of the reforms outlined by the G20 to make OTC derivatives markets more secure, transparent, and reduce systemic risk is the clearing of derivative contracts through CCPs.

A CCP is placed between the two parties to a derivative contract, playing the role of buyer to seller and vice versa, and consequently ensures the performance of the contracts (CPSS-IOSCO, 2012). Through this process, CPPs reduce credit and liquidity risk and replace bilateral exposures with a centralized network of exposures between institution members and the CCP. Although the CCP removes the risk of members lending to each other, members are exposed to the CCP through interest payment / margin payments and reserve fund contributions in the event of failure, which the CCP may use as part of its resources if other members fail.

Modern CCP arrangements usually involve replacing the parties through innovation[10] or an equivalent legal mechanism. This brings many advantages, such as simplifying and increasing the transparency of loan chains, providing a basis for centralized risk management (such as multilateral networking, collateralization and loss distribution), and data processing operations (such as trade registration and reporting). (Steigerwald, 2013).

Japan and the US were the first to enforce the clearing obligation for certain categories of OTC derivative contracts. The clearing obligation was first introduced in Japan, in

[10] Through innovation, the original contract between buyer and seller is closed and replaced with two new contracts, one between CCP and buyer and the other between CCP and seller.

November 2012, for interest rate swap indices and CDS in yen. In the US, liability began in March 2013 for a wider range of contracts and in more currencies (Rahman, 2015).

In the EU, the clearing obligation began in June 2016, covering an even wider range of contracts and currencies than in the US and Japan. ESMA has the responsibility to propose which contracts should be subject to clearing obligation through Technical Regulatory Standards (RTS). The start date of implementation of this obligation depends on the type of parties to the contract. Launched on 21 June 2016 for CCP members and on 21 December 2016 for financial parties and alternative investment funds that are not members but are above a certain threshold value of derivative contracts. For financial parties and alternative investment funds below this threshold and for nonfinancial parties, the obligation will begin on June 21, 2017 and December 21, 2018, respectively (ECB, 2016).

CCP reform status

Member States continue to make progress in implementing changes to the regulatory framework to promote clearing of standardized OTC derivative transactions. Overall, the implementation of this reform is relatively advanced in all FSB member countries.

According to the 2018 FSB progress report on the implementation of reforms, eighteen FSB member states have in place comprehensive standards to determine when standardized OTC derivatives should undergo the clearing process. Requirements for clearing specific derivative products were recently approved in two FSB member countries during 2018. In South Africa, in February 2018, regulations were finalized, setting out the criteria that authorities should consider when determining who has the clearing obligation. In Canada, a mandatory clearing rule has been in place since April 2017. While in Hong Kong, it was expected that before the end of 2019 legal changes would be made to improve the regulatory regime of OTC derivatives, which includes the expansion of clearing obligation to interest swap contracts. In terms of clearing requirements for certain specific types of OTC derivative products, at the end of September 2018, 16 countries had such requirements in force. By the end of 2018, Singapore and Switzerland were also expected to have such requirements in place.

Moreover, the availability and use of CCPs has continued to expand. There have been new authorizations of existing CCPs (extension of jurisdiction) in Canada, Mexico, and Switzerland, and continuous expansion of asset classes covering existing CCPs. A number

of countries (Indonesia, Saudi Arabia and Turkey) are setting up local CCPs before implementing mandatory clearing. The data suggest that a significant portion of new transactions are undergoing clearing, especially transactions with interest rate derivatives or loans.

Ongoing work is being done to improve problems related to the resilience and recovery of CCPs, as well as to study the incentives pushing derivatives market participants to accept clearing.

Table 2 illustrates the fact that although the reform has progressed, it is not in the same status as the trade reporting reform. Most member states already were in or were expected to be in the blue phase by the end of 2019, so they have in force legislative framework and have product definition criteria that must implement clearing for over 90% of transactions. Argentina, India, Indonesia and Russia are currently in phase 3, so they have adopted criteria for defining products that have a clearing obligation, for at least part of the transactions. Saudi Arabia is behind other countries in this regard because it is still in phase 1, meaning it has in force or proposed the legislative framework, but has not adopted any criteria.

Table 2: Status of implementation of the CCP regulation.

	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	H1 2019	H2 2019
AR	3	3	3	3	3	3	3	3
AU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
BR	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CA	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CN	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
EU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
HK	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
IN	3	3	3	3	3	3	3	3
ID	3	3	3	3	3	3	3	3
JP	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
KR	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
MX	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
RU	3	3	3	3	3	3	3	Blue
SA	1	1	1	1	1	1	1	1
SG	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
ZA	3	3	Blue	Blue	Blue	Blue	Blue	Blue
CH	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

TR	1	1	1	1	1	3	Blue	Blue
US	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

Blue phase: country has in place the legislative framework for the reform.

Phase 1: country has in force or proposed the legislative framework, but has not adopted any criteria.

Phase 3: country has adopted criteria for defining products that have a clearing obligation, for at least part of the transactions

Source: FSB (2018)

An important element to look at is the change in the clearing rate after the implementation of the reform to the current level. Data from the BIS show that there has been a significant increase in the outstanding nominal amount of OTC derivatives in the CCP since the crisis.

The estimated clearing levels for interest rate derivatives and credit derivatives in 2009 were about 24% and 5%, respectively. By June 2018 these levels have increased to around 62% and 37% (BIS, 2018). In contrast to these derivative classes, the clearing rates of FX and equity OTC derivatives remain relatively low.

4.3.3 Analysis of the margin requirements for CCP-free derivatives (NNCDs) reform

Margin requirements, especially initial margin requirements, are key factors in stimulating clearing. The BCBS (Basel Committee on Banking Supervision) and IOSCO (International Organization of Securities Commissions) set standards for initial and variable margins for NCCDs in 2015 (BIS, 2015). The BCBS-IOSCO framework requires market participants to use an internal model or standard method to calculate margin requirements for their NNCDs. Standard methods are developed by industry, while for domestic models, the variable margin is based only on past price performance and is therefore objective, while the initial margin is an estimate of potential future losses based on two parameters: the number of days that are needed to replace or re-hedge positions, known as MPORs and underlying asset volatility during MPORs (ECB, 2016).

The implementation of this reform is expected to be gradual, starting from September 2016 with the largest derivatives portfolios. According to international recommendations, variable margin requirements should be fully implemented by March 1, 2017. Whereas, the initial margin requirements should be developed in phases, starting from September 1, 2016, with new phases each year, and phases final should start on September 1, 2020.

At the end of September 2018, 16 jurisdictions have such requirements in force, two additional jurisdictions from 2017, because Brazil and Korea completed implementation. China, India, Mexico and Russia have made progress in implementing the reform by moving to another implementation status (FSB, 2018). FSB member countries have reported a number of additional actions towards gradual implementation or refinement of margin requirements in countries that have completed reforms.

In Table 3 we can see that 3 countries (Argentina, China and Indonesia) are still in the first phase of the reform so they have a legislative framework in force or proposed, but no criteria or requirements have been proposed. Two countries (Turkey and Mexico) were expected to move to phase 3 by the end of 2019. So by 2019, not only did they have the legislative framework in place but they also have approved requirements for at least part of the transactions. India was expected to move to Phase 2. Meaning that, India wants this legislative framework in place and has proposed margin requirements. Thirteen countries were expected to be in the blue phase by the end of 2019. This means that they have in force the legislative framework and are in function the requirements for over 90% of derivative transactions, in accordance with the respective predicted phase of implementation of the reform.

Table 3: Status of implementation of margin requirements for NNCDs

	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	H1 2019	H2 2019
AR	1	1	1	1	1	1	1	1
AU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
BR	2	2	2	Blue	Blue	Blue	Blue	Blue
CA	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CN	Red	Red	1	1	1	1	1	1
EU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
HK	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
IN	2	2	2	2	2	2	2	2
ID	1	1	1	1	1	1	1	1
JP	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
KR	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
MX	1	1	1	1	2	2	3	3
RU	2	2	3	3	3	3	3	Blue
SA	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
SG	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
ZA	2	2	2	2	2	2	3	Blue
CH	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

TR	1	1	1	1	1	1	2	3
US	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

Blue phase: country has in place the legislative framework for the reform.

Phase 1: country has in force or proposed the legislative framework, but has not adopted any criteria.

Phase 2: country has proposed standards or requirements for the reform

Phase 3: country has adopted criteria for the reform, for at least part of the transactions

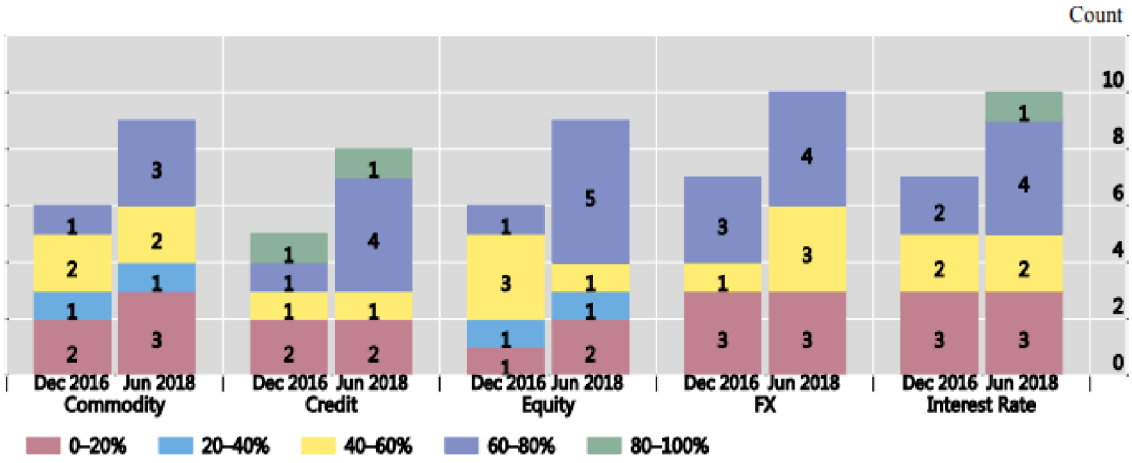
Red phase:: country lacks legal authority to implement reform.

Source: FSB (2018)

Collateralization rates

Compared to the end of 2016, estimates on collateralization rates for OTC derivatives are more available and generally higher. Chart 4 shows the number of countries that have reported estimates of collateralization rates for asset classes and reported collateralization levels. It can be seen that a maximum of 10 countries have reported their ratings and that it is interest rate derivatives that have achieved the highest levels of collateralization.

Graph 4: Estimation of collateralization rates at the end of 2016 and 2018



1-10: Number of countries to have reported collateralization rates

Source: FSB (2018)

4.3.4 Analysis of the higher capital requirements for NCCDs reform

Banks should assess whether the level of capital held against exposure to a CCP adequately addresses transaction risks. A bank must hold capital that exceeds the minimum requirements if, for example: (i) its relationship with a CCP results in more risky exposures

or (ii) in the relevant context, it is unclear whether the CCP is qualified (is licensed and has the right to operate in relation to the products offered).

Targets for higher capital requirements for NCCDs have been developed by BCBS as provisional and final standards. The Interim Standard on Banks' Exposures to CCPs was published in July 2012 and was due to be implemented by 1 January 2013. While the final standards (which include the standardized SA-CCR credit risk approach and the final standards on bank exposures to CCPs) were to be implemented on 1 January 2017 (BIS, 2014).

Provisional standards for higher capital requirements for NCCDs are in force in 23 of the 24 FSB member countries (FSB, 2018). The only country that has not completed implementation is the US. In Table 4 we see that all countries, except the US are in the blue phase, so they have in force requirements for over 90% of transactions with derivatives. The US is in phase 3, which reflects the presence of claims for only a portion of the transactions. Local agencies are in the process of developing a regulation implementing SA-CCR.

Table 4: Status of implementation of the interim requirement for higher capital.

	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	H1 2019	H2 2019
AR	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
AU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
BR	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CA	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CN	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
EU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
HK	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
IN	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
ID	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
JP	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
KR	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
MX	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
RU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
SA	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
SG	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
ZA	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
CH	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
TR	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
US	3	3	3	3	3	3	3	3

Source: FSB (2018)

But the number of countries that have implemented the final BCBS requirements is much lower. By the end of March 2018, only a few FSB member countries had final rules in place (BIS, 2018). Considering that the estimated implementation deadline was January 1, 2017, we must say that there were delays in implementation.

The delays are related to information technology challenges and other operational problems arising from the complexity of the requirements as well as global inconsistencies and uncertainties at the time of SA-CCR implementation.

4.3.5 Analysis of 'trading on trading platforms' reform

Part of the G20 program reforms is the trading of standardized OTC derivatives on public exchanges or electronic trading platforms. This reform, like that of clearing was scheduled to be completed in 2012, but in fact is still far from being completed. The rules for trading on platforms in the US are part of Dodd-Frank, but in Europe are not set by EMIR. In Europe this responsibility has been delegated to MiFIR (Markets in Financial Instruments Regulation) and MiFID II (Markets in Financial Instruments Directive) (ECB, 2016). This directive and related regulation requires that derivative contracts, which are cleared through clearing and considered sufficiently liquid, be traded in 'trading venues'. Before being considered for trading platform obligation, each class (or subclass) of derivatives must pass three tests (ESMA, 2017):

- Clearing test - be subject to clearing obligation under EMIR,
- Trading place test - to trade in at least one trading place,
- Liquidity test - to be considered sufficiently liquid to be traded only 'in trading places'.

Not everything that is subject to the clearing obligation will necessarily pass the spot trading and liquidity tests. consequently there are contracts that despite being required to do clearing, are not required to be traded on platforms.

Status of platform trading reform

According to the FSB report, thirteen countries have in place comprehensive standards or evaluation criteria for determining the products to be traded on platforms. In these countries, an appropriate authority regularly evaluates transactions against these criteria. The progress of FSB member countries has been slow, backward and mixed. In June 2018,

Hong Kong decided to formally approve a process of identifying products that are eligible to be subject to the platform trading obligation and to determine the factors to be considered. In India, on October 5, 2018, the final guidelines regarding an Electronic Trading Platform Authorization Framework were adopted. No other country has seen positive changes in the status of reform implementation during 2018. In fact, South Africa has regressed compared to 2017.

In many countries, local authorities continue to monitor market conditions and consider further steps regarding requirements as inappropriate in this period. Following the entry into force of the regulatory package of MiFID 2 in January 2018, the number of countries that have set specifications for products to be traded on platforms has increased to 12. Trade obligation under Article 28 of the MiFIR entered into force in the EU on 3 January 2018 and has defined different implementation periods according to the categories of parties. Some classes of interest rate derivatives in EUR, GBP and USD, as well as some classes of credit derivatives in EUR, are required to be traded in regulated markets, multilateral trading facilities (MTFs) or regulated trading facilities (OTFs). The availability of trading platforms varies greatly from country to country. Some countries have multiple trading platforms for executing transactions of a wide range of OTC derivative products, but most countries have more limited availability.

Table 5 shows that this is the most backward program reform. We see that a large number of countries are in the initial stages of implementing the reform, ie still left to determine the legislative framework and criteria to be considered.

Table 5: Status of implementation of trade regulation on platforms.

	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	H1 2019	H2 2019
AR	3	3	3	3	3	3	3	3
AU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
BR	1	1	1	1	1	1	2	3
CA	2	2	2	2	2	2	2	2
CN	3	3	3	3	3	3	3	3
EU	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
HK	1	2	2	2	Blue	Blue	Blue	Blue
IN	1	1	2	2	3	Blue	Blue	Blue
ID	3	3	3	3	3	3	3	3
JP	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
KR	1	1	1	1	1	1	1	1
MX	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

RU	2	2	2	2	2	2	2	2
SA	1	1	1	1	1	1	1	1
SG	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
ZA	1	1	1	1	1	1	1	2
CH	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue
TR	1	1	1	1	1	2	3	Blue
US	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue

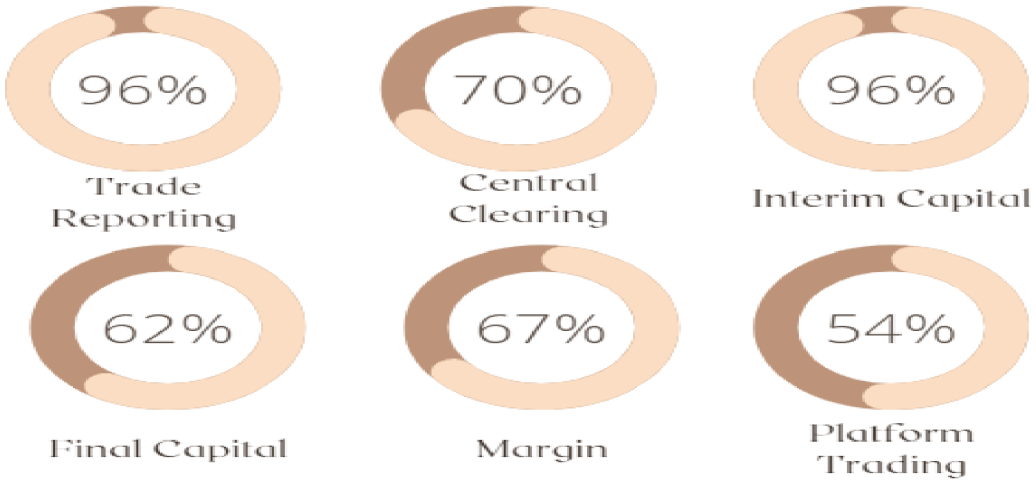
Source: FSB (2018)

4.4. Analysis on number of jurisdictions in the final stages of implementation by 2020.

As per Chart 5 below:

- 62% of FSB member states have higher capital requirements for non-centrally cleared derivatives (NCCDs). In 2022, it is projected that more countries will implement these rules.
- NCCD margin requirements: The percentage of jurisdictions with margin requirements has remained steady at 67%. Some countries are expected to implement these requirements by the end of 2022.
- Trade reporting: The amount of FSB jurisdictions that mandate trade reporting has been constant at 96%.
- 70% of FSB member states have central clearing requirements in place, which have not altered since the 2019 report.
- The amount of jurisdictions that have platform trading requirements has not changed and is still at 54%.

Chart 5: Percentage of FSB jurisdictions in the final stages of implementation.



Source: Own analysis – worked on canva.com. Data from FSB (2021).

CHAPTER V: THE IMPACTS OF REFORM IMPLEMENTATION

5.1 Improving transparency

The lack of data available during the crisis hindered the effective activity of the authorities and the accurate assessment of the risks from the accumulation of exposures, which ultimately led to the collapse of several large financial institutions. Increasing transparency through trade reporting can improve the stability of these markets by increasing the ability of authorities to monitor and detect risks. Some forms of public dissemination of TR data can promote stakeholder understanding of the functioning of OTC fuel markets. Reporting on TR can also facilitate the improvement of internal transparency of market participants regarding their positions / transactions.

Although the transparency of OTC fuel transactions varies between countries, there has been significant progress in making OTC fuel markets more transparent. The MiFID II regime, which entered into force in early 2018, imposes pre- and post-trade transparency obligations in the EU, subject to certain exceptions and limits.

Information published by TRs, trading platforms, CCPs or authorities in FSB member jurisdictions on OTC fuel transactions is at different country levels. In 2018, the FSB reported that seven member countries publish information in almost real time after each trade. Thirteen countries report aggregate information on a daily basis. Regarding price or spread information, 10 countries reported that no information should be reported, while in 10 other countries this information is required to be published by TRs, trading platforms, CCPs or authorities.

5.2 Reduction of systemic risk

Derivative exposures between large financial institutions can be a source of systemic risk. It is therefore important that the authorities have a complete picture of the participants' exposures in the OTC derivatives markets. During a crisis, the lack of proper understanding of these exposures can impair the ability of regulators to close down an institution's positions. In general, authorities with mandates to assess systemic risk require access to TR transaction data to monitor changes in the size, concentration, interconnection and structure of OTC derivatives markets (FSB, 2015).

5.3 Protection against market abuse

Market abuse can arise when some market participants are directly or indirectly disadvantaged by others who, for example:

- have used inside information,
- have distorted the pricing mechanism of instruments financial,
- have disseminated false or misleading information.

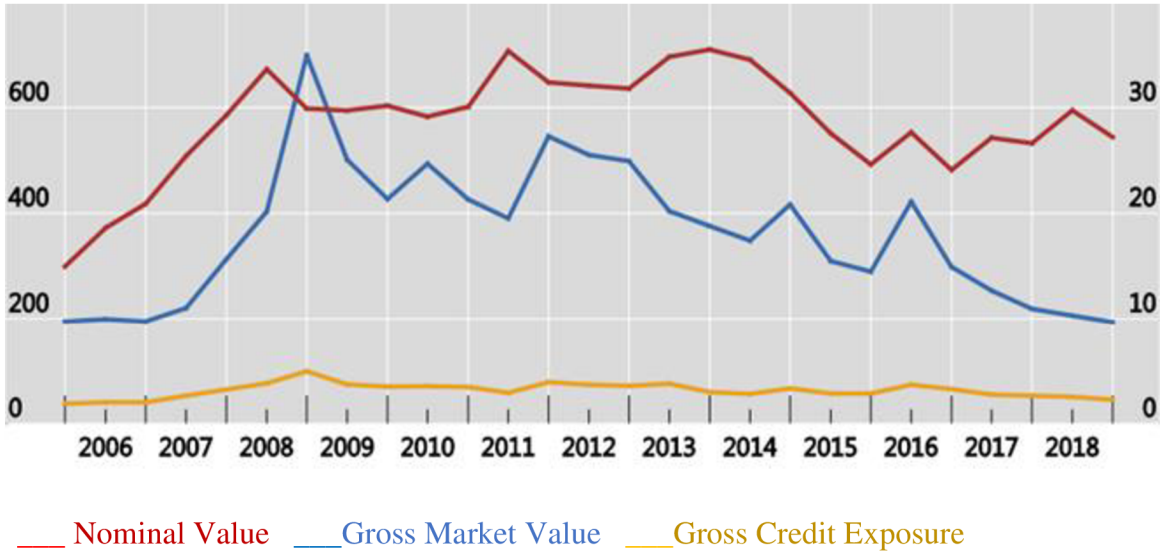
Market integrity analysis depends on the ability of regulators to have accurate and coherent information on the activities and positions of market participants. The ability to aggregate, compare and link positions in different markets, through the use of information held in the TR, is useful to identify and prevent market abuse.

5.4 Impact on derivatives market value

At the end of 2018, the nominal value of OTC derivatives (which determines contractual payments) was $ 544 trillion (BIS, 2019). Most of the value of OTC derivatives belongs to interest rate derivatives (80% at the end of December 2018). Since the basic instruments of these derivatives have a high value, the nominal value of the derivatives is also high, giving a high nominal value to the whole market. This is not very important because this is not really the amount to be exchanged between the parties. Nominal value is a reflection of the total potential exposure of one party to another.

Better indicators would be gross market value and gross credit exposures / net market value. Gross market value is a more meaningful measure of the amounts at risk because it reflects the current exposure to credit risk. If the credit risk decreases, the market value of the contract also falls. Gross credit exposures regulate gross market values for legally binding bilateral networking agreements, which further reduces market value. The gross market value of derivative contracts has continued the downward trend observed since the time of the financial crisis. Market value fell to $ 9.7 trillion at the end of December 2018, from a peak of $ 35 trillion at the end of December 2008. Gross credit exposures fell to $ 2.3 trillion at the end of December 2018 (BIS, 2019). This is the lowest point since the crisis.

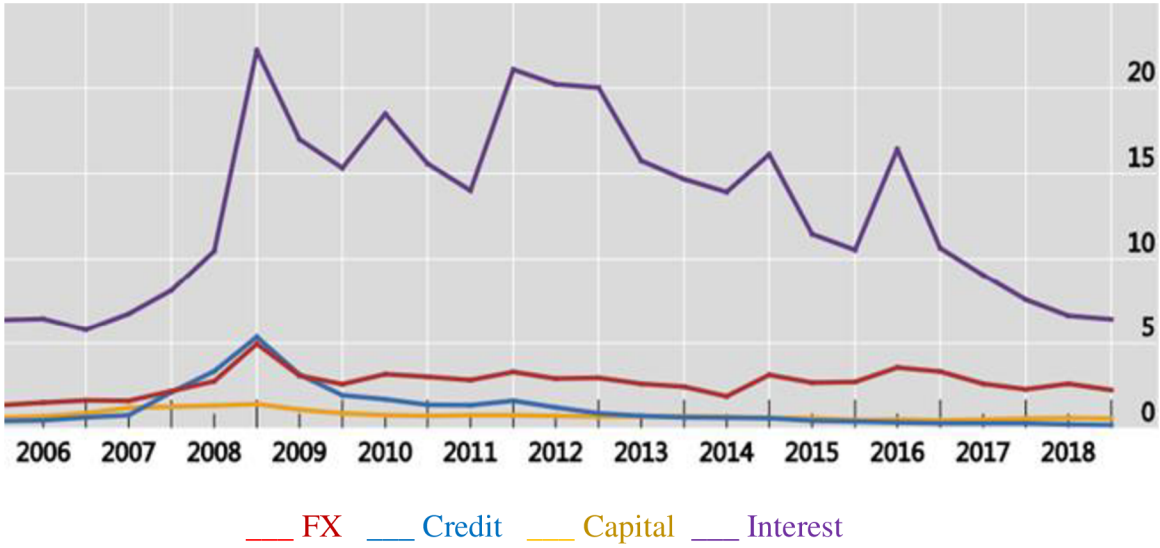
Graph 6 : Residual value of OTC derivatives (in trillion USD)



Source: BIS (2019)

Interest derivatives are those that have had the largest decline in market value since the crisis. This may be due to the fact that this class of deviants is the most regulated of all. In the reforms discussed in Chapter IV this class turned out to be more advanced in both reporting, clearing and platform trading. On the other hand, FX derivative contracts have been relatively stable over the last ten years, especially compared to the significant decline in interest-bearing derivatives ¾ in value during the crisis. Capital and credit derivatives have also declined significantly since the crisis period, where especially the latter have experienced a continuous and significant decline these ten years. After an almost tenfold increase in the pre-financial crisis period, the global CDS market has shrunk almost non-stop. Their residual face value has been steadily declining as it peaked at around $ 61.2 trillion at the end of 2007. Within ten years this value had dropped to $ 9.4 trillion (Aldasoro & Ehlers, 2018). The gross market value had the same trend.

Graph 7: Gross market value of OTC derivative types (in trillion USD)



Source: BIS (2019)

The continuing decline in gross market values is a reflection of the ongoing structural changes in the OTC derivatives markets. These changes include clearing and greater opportunities for trade compression (elimination of economically unnecessary positions in derivatives). In addition, recently, a growing number of banks have begun to record the variance margin of clearing-cleared derivatives as repayment payments rather than as collateral transfers. This allows the parties to become owners of the collateral they receive. Consequently, daily variation margin payments are recorded as settlement of derivative transactions and this results in lower market values for a given derivative.

5.5. Stimulating clearing

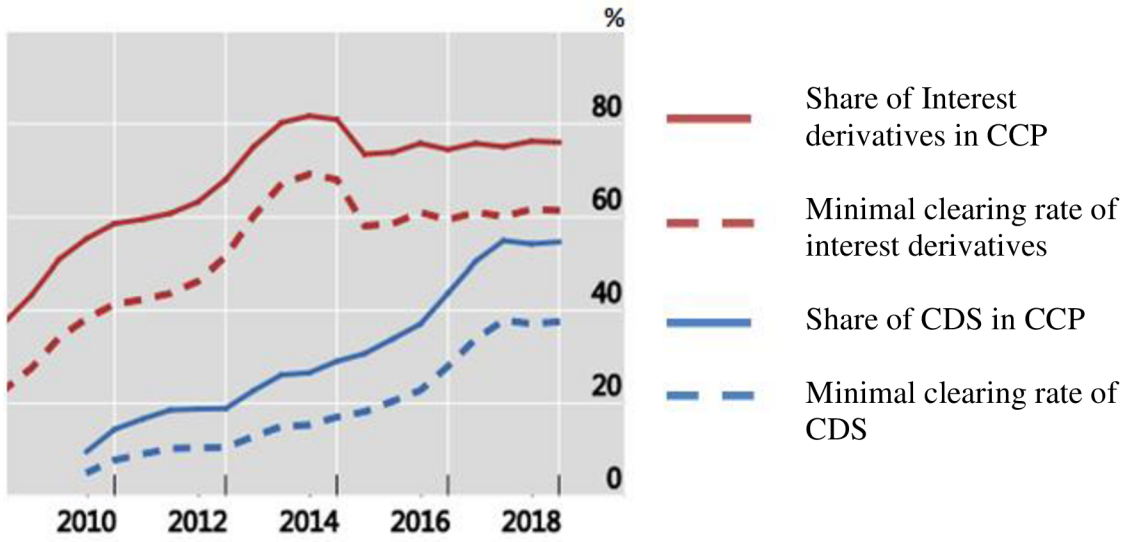
As clearing is essential to increase security and reduce market risk, it is important to have incentives to drive market participants to comply with clearing obligations. In November 2018, the Derivatives Assessment Team (DAT) reviewed the existence of appropriate market incentives (FSB, 2018).

It was concluded that the reforms are managing to promote clearing, especially for the more systemic market participants who are at the core of the CCP derivatives network. This is in line with the goal of reducing complexity and improving transparency and standardization in OTC derivatives markets. But incentives are weaker for some categories of participants such as smaller firms with lower levels of derivative activity.

CCPs have already for years been gradually advancing in the OTC derivatives market. From the BIS report (2019) since the end of June 2015, 75% of the nominal value of OTC interest derivatives have gone through the CCP. The estimated minimum clearing rate of interest derivatives stood at around 60%. For CDS contracts, 55% of their face value is cleared by clearing, while the minimum clearing rate is slightly below 40%.

On the other hand, only 3% of FX OTC contracts were with a CCP, and the share of equity derivatives was negligible. CDS contracts have 49% of their net worth in CCP and this percentage increases to 60% when we consider CDS index contracts, as they consist of standardized index products. This is shown by the graph, which includes only interest derivatives and CDS, as the two classes with the most significant clearing rates.

Graph 8: Clearing of OTC derivatives



Source: BIS (2019)

CHAPTER VI: IDENTIFYING THE PROBLEMS OF REFORMS

Although the reforms have progressed quite well, responding to the risks that were the aim of the reform, there are still some problems. Part of it is implementation problems, for example, the question of what rules should be applied to a derivative contract between parties from different countries. The rest has to do with the impact of the reforms themselves.

6.1. Problems in reporting implementation

Although implementation has made a lot of progress in recent years, there are still challenges to the effectiveness of commercial reporting. These challenges are related to the lack of harmonization of data format and data quality problems, as well as the impact of various legal barriers on reporting and the authorities' access to data (FSB, 2015). Work is being done nationally and internationally to address these issues which make data aggregation difficult at the international level in order to increase transparency and reduce risks.

Cross-border legal barriers to trade reporting

A concern of many authorities is the existence of legal barriers to reporting complete transaction information. In some cases, legal barriers prohibit the reporting of identifying information of the parties, while in other cases prohibiting the reporting of any information on a transaction. This limits the usefulness of TR data for the purpose of monitoring and analyzing systemic risk and trading activity.

Barriers are quite prevalent in reporting to TR according to foreign reporting requirements. In many cases, such obstacles can be overcome through the confirmation / authorization of the relevant parties.

In some cases, reporting according to foreign requirements faces legal barriers. For example:

- cross-border transactions where one party is required to report to a TR and the other party is from a country with privacy and data protection laws that are applicable to TR reporting;
- when a market participant is subject to foreign and domestic reporting requirements.

Legal barriers vary depending on the characteristics of the situation, such as whether a local or foreign TR is being reported, whether is being reported by a local or foreign entity, or reporting has to do with a domestic or foreign party.

In a considerable number of countries, the authorization of the relevant party is required before the legal barriers to reporting according to foreign requirements are removed. This authorization can be transaction-based or a 'standing authorization' which means that an authorization is given that covers a range of transactions.

Authorities' access to data collected by TRs

Cross-border access is important for the full use of TR data. It enables the authorities to reduce the regulatory burden on market participants. Authorities that can rely, at least in part, on foreign TRs can minimize the need for market participants to connect to multiple TRs or report the same transaction on multiple TRs.

Direct access of foreign authorities to TR data is generally quite limited. Only a small number of countries have effective regulations in place to facilitate direct access.

The direct access of foreign authorities to this data is quite limited, because:

- The legal framework in most countries that allows such direct access is lacking;
- When such a framework exists, the conditions for direct access can be difficult to meet.

Significant investments may be needed to overcome the challenges of data fragmentation and to transform TR data into useful information.

Some authorities report operational and technical challenges in collecting and managing data obtained from TR. One reason for this is the large number of TRs operating in some countries. Since the TRs themselves determine the required data format and other

documentation that is needed, increasing the number of TRs greatly increases the work that the authorities have to undertake. Insufficient data harmonization means that authorities need to be able to understand and work with different definitions of data.

The detailed and voluminous data generated by the TRs are new to many authorities, who are in the process of developing the skills and tools needed to process and understand the data.

Data quality

Data quality is one of the biggest challenges remaining in improving market transparency. Work is still needed to transform the data collected into useful information.

Shortcomings in data standards, both nationally and internationally, have hampered the implementation of quality controls and reduced the quality of data reported in the TR.

As different countries have implemented different requirements for trade reporting, they have had different approaches to the standardization requirements of the required information fields. Data standards are extremely important because they ensure that the data reported in the TR are provided similarly by all reporting entities. This provides a better analysis of transaction data. Due to the lack of data standards, there are a number of problems with data quality that include:

- Incomplete, inaccurate or empty data fields
- Unstable data formatting,
- Inability to verify information.

Currently, the lack of consistent and harmonized trade identification of products, the unequal international use of LEI, as well as access restrictions, make it difficult for many authorities to collect and analyze data accurately, especially at the cross-border level.

Lack of standards for identifiers can result in multiple transaction counts. Multiple counting can be caused by:

- inability to reconcile the reports of the parties to the contract when bilateral reporting is mandatory;
- uncertainty about who's reporting obligation (CCP, trader, broker, etc.)

- requirements to report to more than one jurisdiction.

6.2. Problems with CCP

Clearing of OTC derivative contracts is arguably the most important and influential reform of the G20 program. The risk of failure of derivative contract parties that was once distributed is now collected and managed in regulated CCPs. However, the significant increase in transactions cleared through CCPs has brought challenges such as:

- *Ensuring sustainability in extreme (but possible) conditions* - further analysis is needed regarding ensuring the liquidity of funded resources, understanding the associated failures and network effects, as well as liquidation costs (Giancarlo & Tuckman, 2018).
- *Recovery plans* - there has been considerable progress in addressing how a CCP, in an extreme situation, would distribute losses, zero market risk and replenish its financial resources, but problems such as transparency and predictability of plans remain. recovery and the role of unfunded resources (Giancarlo & Tuckman, 2018).
- *Turning CCPs into new institutions 'too big to fail'* - The demand for clearing derivatives in CCPs aims to reduce systemic risk, but fears have arisen that the opposite could be achieved. Concentrating all systemic risk on some CCPs can lead to increased systemic risk.

Are CCPs turning into 'too big to fail'?

Thanks to numerous post-crisis adjustments, banks are considered safer institutions. But, ironically, perhaps now the role of 'too big to fail' has shifted to CCPs who currently play a much larger role in financial markets than they had before the crisis. Industry participants in Europe have expressed concerns about the possibility that some CCP members may suffer heavy losses due to marginalization failures. This can deplete the liquid assets and reserves of a CCP, which will affect the remaining members of the CCP. Moreover, CCP collateral requirements may increase in times of crisis, adversely affecting banks and other participants in the financial system.

Interdependencies between CCPs and their members were also highlighted in a joint report by the FSB, CPMI, IOSCO and BCBS (2018). This report provided some important

conclusions on the interdependencies created between CCPs and other entities in this network:

- *Pre-financed financial resources are concentrated in a small number of CCPs.* The two largest CCPs (measured by pre-financed financial resources) have almost 40% of the total pre-financed resources of all CCPs, compared to 32% reported in July 2017.
- *Exposures to CCPs are concentrated among a small number of subjects.* The 11 largest members out of 306 CCP members are affiliated with 16 to 25 CCPs. Seen from the point of view of CCPs, this shows that the failure of a member can result in the failures of the same entity or its affiliates in up to 24 other CCPs.
- *The network of relationships is characterized by a center of CCPs and tightly interconnected entities and a periphery of CCPs and less interconnected entities.* However, even less connected CCPs are often associated with at least one highly interconnected entity that also connects other CCPs indirectly to the central part of the network.
- *A small number of entities dominate the provision of critical services required by CCPs.* This relationship between CCPs and other entities suggests that a failure in one of the central network elements of a CCP is likely to have significant consequences for the rest of the network.

The effect of this monopolization is particularly felt in the swap interest (IRS) and FX contract markets, where SwapClear LCH dominates, as well as in the area of credit derivatives, which is dominated by the Intercontinental Exchange (ICE).

The largest CCPs in each product class have strengthened their positions. LCH SwapClear in London owned 87% of the $ 19.8 trillion market share of the swap contract market (CME had the rest) and 99% of the IRS market of 12.7 trillion euros in the second quarter of 2018.

In terms of US CDS, ICE Clear Credit continues to lead with a 98% share of the $ 2 trillion volume. ICE Clear Credit also plays a key role in Europe with 60% of the € 1.6 trillion CDS market, followed by ICE Clear Europe with 30% and LCH CDSClear with 10%.

To increase the resilience and security of CCPs, in May 2018, the European Commission proposed a new recovery and resolution framework that would require CCPs to include situations based on a member's failure, as well as other situations. problematic, such as scams or cyber attacks. This requires greater international cooperation, better European coordination, a stronger analytical basis for solution planning, and greater central bank oversight.

The proposals received mixed reviews. CCP members argued that trading venues should put more at risk than their own capital rather than CCP members. The view was also expressed that a higher level of supervision by central banks would complicate the decision-making of CCPs. If CCPs need to obtain the approvals of four different oversight bodies, they may not be able to make the required changes in response to market and risk developments.

Regulators and stakeholders are still facing the imposition of safeguards in place and there is still much work to be done. The market has been strengthened through clearing, but as a result we have shifted the risks from one group of participants to another and it would be scary if a CCP failed.

6.3. High costs for small financial participants

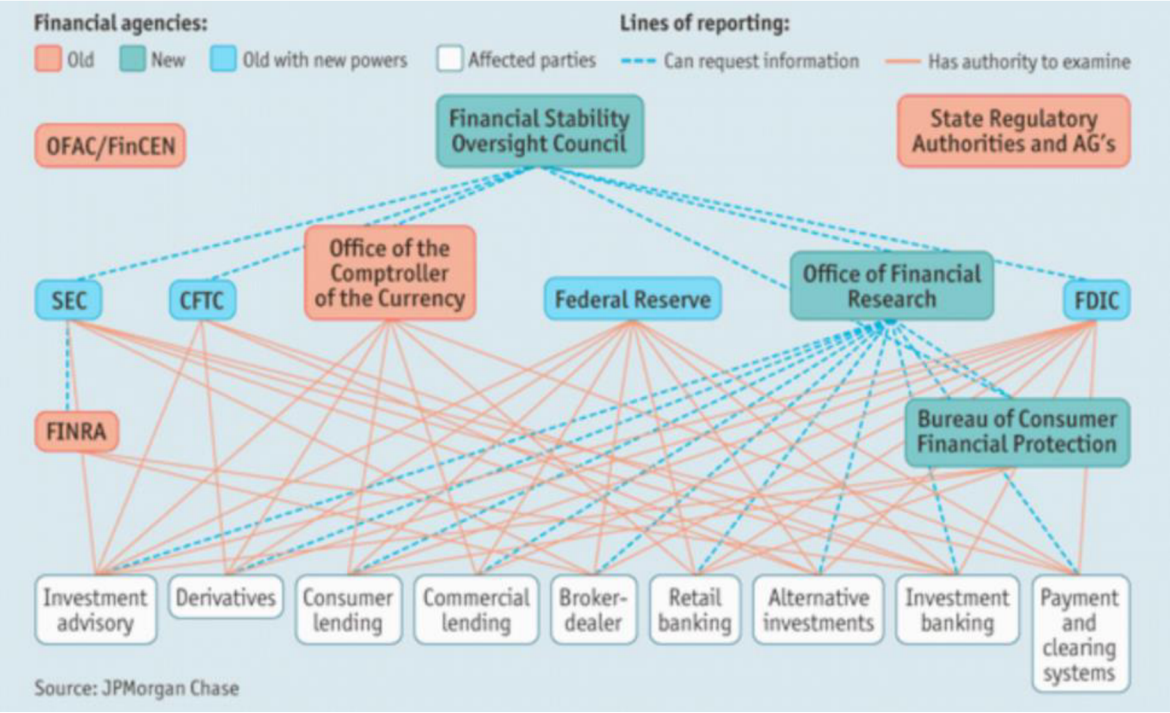
The CFTC leader has recommended that even small financial end users should be exempted from clearing and high margin requirements for NCCDs (Giancarlo & Tuckman, 2018). This can be done through a derivative exposure threshold. Such market participants (similar to commercial end users who are excluded) are not sources of systemic risk. For such participants, implementation is particularly costly. On the other hand, larger financial end-users may be sources of systemic risk and, therefore, should remain subject to clearing and margin requirements for NCCDs.

6.4. Complex system of reporting to authorities

The overall structure of the financial markets regulation includes a considerable amount of financial agencies, where each of them have authority to examine and request information to the affected parties, such as: Derivatives, Retail Banking, Consumer Lending, Commercial lending etc. (see chart 9 below).

This complexity and bureaucracy can lead to confusion, delay in transactions and processes. Back in 2017, Trump the former president of the USA, had promised to dismantle Dodd-Frank, referring to it as a 'disaster'. He mentioned that with the Dodd-Frank Act it is very difficult for bankers to loan money for people and businesses to create jobs. He said it is too hard to for banks to function properly, so this has to stop (Lubomir, 2017).

Chart 9: Financial markets regulation in USA



Source: JPMorgan Chase cited in The Economist (2017)

For this reason, on February 2017, former president Trump signed an executive order for the Treasury Secretary to review and restructure the Dodd Frank financial regulations.

CHAPTER VII: RECOMMENDATIONS AND CONCLUSION

7.1 Recommendations

Significant progress has been achieved in making OTC derivatives markets more transparent and resilient since the Pittsburgh Summit. In comparison to Japan and the US, the EU took longer to enact the reporting and clearing responsibilities, as well as the other aspects of the Pittsburgh reforms, but now almost all legal frameworks are in place.
However, below are a few modest recommendations from my side, in order to keep improving the efficiency of the OTC derivatives market:

- Enhancing derivatives market stability, notably by a deeper examination of how various regulatory requirements interact and influence central clearing incentives;

- Increasing the transparency of OTC derivatives markets, in particular by increasing data quality and developing efficient European and worldwide data aggregation systems, which are presently lacking but for which the continuing data harmonisation effort is a necessary precondition;

- Enhancing the resilience and ease of recovery and resolution of CCPs, in particular through the complete and timely implementation of the global CCP work plan.

- Simplifying the lines of reporting between authorities and affected supervised parties, so as to avoid unnecessary bureaucracy. This can be done by reviewing and re-structuring periodically the financial regulation system.

7.2. Conclusion

The FSB, in close cooperation with the standard-making bodies, has established a comprehensive set of regulatory reforms that address the problems of the derivatives market. The purpose of reforming this market is to create a financial system that is less prone to crises and more resilient in the event of a crisis. Progress in this regard has not been without obstacles. Although some international standards have been agreed upon,

implementation in the US and the EU has differed in several key respects. This lack of harmonization has often affected the whole reform process.

Given the fact that standards need to be agreed between a large number of countries with very different financial institutions, perfection is unlikely to be achieved. But if good international standards can be achieved, implemented in a sustainable and enforceable way, we will have a much safer system.

In fact, the implementation of reforms has progressed quite well, although it is still unfinished and has lasted longer than expected due to the scale and complexity of the reforms. Implementation has advanced a lot in the larger derivatives markets, but more effort is required to bring it to an end.

Significant efforts have been made to mitigate systemic risk. Clearing (which has greatly increased for derivatives of interest and to some extent even for CDSs) is simplifying the obscure and intricate network of derivative exposures and CCPs have become more adaptable. In addition, there is already more collateral to reduce credit risks within the system.

Progress has also been made in improving market transparency. Now part of the authorities of different jurisdictions can use data from TRs to better monitor the risk. Platform trading has also improved transparency to market participants, in line with the measure currently being implemented.

However, there are still insurmountable obstacles and it is important to complete the work as soon as possible to improve the quality and ability to aggregate TR data by removing legal barriers to full reporting and dissemination of this data.

It is worth mentioning that these reforms implemented due to the financial crisis in 2008, have been very useful and have made it much easier to handle the economic recession due to the coronavirus pandemic. In reaction to COVID-19, most governments have withdrawn or not extended measures that were previously implemented to reduce the operational burden for OTC derivatives market players. Other safeguards, on the other hand, are still in place. Most jurisdictions' regulatory frameworks have included modifications to market and counterparty credit risk regimes, as well as margin policies, to restrict and reduce excessive procyclicality.

To conclude, many achievements have been made towards a secure derivatives market and consequently a secure global financial system. However, more needs to be done.

Reforms can only be successful if consistent implementation is achieved across countries. The authorities should therefore evaluate both the effectiveness and the effects of the reforms and be prepared to adapt and adjust them when necessary. If we look at the past, but also if we look ahead, we realize that we should not choose between easy or strong regulation, many or few, but intelligent regulation should be aimed at. We need a kind of regulation that brings sustainability with efficiency, increased stability and security with innovation. This will provide us with a derivative market and financial system that is systematically sound and serves the needs of the economy and society.

REFERENCES

Aldasoro, I., & Ehlers, T. (2018). The credit default swap market: what a difference a decade makes. *BIS Quarterly Review*, 2-3.

Bacha, O. I. (1999). Derivative Instruments and Islamic Finance: Some Thoughts for a Reconsideration. *International Journal of Islamic Financial Services, 1*.

Beber, A., & Fabbri, D. (2012). Who times the Foreign Exchange Market? Corporate Speculation and CEO Characteristics. *Journal of Corporate Finance, 18*(5), 1065-1087.

BIS. (2014, April). *Capital requirements for bank exposures to central counterparties.* [Online] Available at: https://www.bis.org/publ/bcbs282.pdf [accessed 1st March 2022]

BIS. (2015). *Margin requirements for non-centrally cleared derivatives.* [Online] Available at: https://www.bis.org/bcbs/publ/d317.htm [accessed 1st March 2022]

BIS. (2018). *Fifteenth progress report on adoption of the Basel regulatory framework.* [Online] Available at: https://www.bis.org/bcbs/publ/d452.pdf [accessed 2nd March 2022]

BIS. (2018). *Statistical release: OTC derivatives statistics at end June 2018.* [Online] Available at: https://www.bis.org/publ/otc_hy1810.pdf [accessed 3rd March 2022]

BIS. (2019). *Statistical release: OTC derivatives statistics at end-December 2018.* [Online] Available at: https://www.bis.org/publ/otc_hy1905.pdf [accessed 10th March 2022]

Chapra, M. U. (1988). Towards an Islamic Financial System. *International Journal of Economics, Management and Accounting, 1*(2), 1-30.

CPSS-IOSCO. (2012). *Principles for financial market infrastructures.* [Online] Available at: https://www.bis.org/cpmi/publ/d101a.pdf [accessed 1st March 2022]

Cultraro, A. (2017). Hedging and Speculation Two Different Faces of Derivatives. Madrid.

Cunliffe, J. (2014). *Is the world financial system safer now?* [Online] Available at: https://www.bis.org/review/r140507f.pdf [accessed 9th March 2022]

D'Ambrosio, T. V. (2011). *The Commercial End-User Exemption.* [Online] Available at: https://www.morganlewis.com/pubs/the-commercial-end-user-exemption [accessed 21st February 2022]

Deutsche Börse Group. (2009). *The Global Derivatives Market - A Blueprint for Market Safety and Integrity.* Frankfurt: Deutsche Börse AG.

ECB. (2016). *Looking back at OTC derivative reforms – objectives, progress and gaps.* [Online] Available at: https://www.ecb.europa.eu/pub/pdf/other/eb201608_article02.en.pdf [accessed 22nd February 2022]

Emery, H. C. (1969). Speculation on the Stock and Produce Exchange of the United States. *USA: Greenwood Press*.

ESMA. (2017). *The trading obligation for derivatives under MiFIR.* [Online] Available at: https://www.esma.europa.eu/document/consultation-paper-trading-obligation-derivatives-under-mifir [accessed 10th March 2022]

FIS. (2016). *Derivatives Trade Reporting in Practice – Managing the Operational Impact of EMIR.* [Online] Available at: https://www.fisglobal.com/solutions/institutional-and-wholesale/broker-dealer/-/media/fisglobal/files/whitepaper/emir-trade-reporting.pdf [accessed 19th February 2022]

FSB. (2009). *G20 Leaders' Declaration Pittsburgh 2009.* [Online] Available at: https://www.fsb.org/wp-content/uploads/g20_leaders_declaration_pittsburgh_2009.pdf [accessed 20th February 2022]

FSB. (2014). *Feasibility study on approaches to aggregate OTC derivatives data.* [Online] Available at: https://www.fsb.org/wp-content/uploads/r_140919.pdf [accessed 22nd February 2022]

FSB. (2015). *Thematic Review on OTC Derivatives Trade Reporting.* [Online] Available at: https://www.fsb.org/wp-content/uploads/Peer-review-on-trade-reporting.pdf [accessed 22nd February 2022]

FSB. (2018). *Implementation and Effects of the G20 Financial Regulatory Reforms: Fourth Annual Report.* [Online] Available at: https://www.fsb.org/wp-content/uploads/P281118-1.pdf [accessed 9th February 2022]

FSB. (2018). *Incentives to centrally clear over-the-counter (OTC) derivatives.* [Online] Available at: https://www.fsb.org/2018/11/incentives-to-centrally-clear-over-the-counter-otc-derivatives-2/ [accessed 30th January 2022]

FSB. (2018). *OTC Derivatives Market Reforms Thirteenth: Progress Report on Implementation.* [Online] Available at: https://www.fsb.org/wp-content/uploads/P191118-5.pdf [accessed 15th February 2022]

FSB, CPMI, IOSCO, & BCBS. (2018). *Analysis of Central Clearing Interdependencies.* [Online] Available at: https://www.fsb.org/2018/08/analysis-of-central-clearing-interdependencies-2/ [accessed 16th February 2022]

FSB (2021). *OTC Derivatives Market Reforms: Implementation progress in 2021*. [Online] Available at: https://www.fsb.org/wp-content/uploads/P031221.pdf [accessed 29th March 2022]

Giancarlo, J. C., & Tuckman, B. (2018). *Swaps Regulation Version 2.0: An Assessment of the Current Implementation of Reform and Proposals for Next Steps.* [Online] Available at: https://www.cftc.gov/sites/default/files/2018-04/oce_chairman_swapregversion2whitepaper_042618.pdf [accessed 5th March 2022]

Hollanders, M. (2012). The role of oversight in collecting derivatives data. *IFC Bulletin No 35*, pp. 71-74.

Johnson, L. L. (1960). The Theory of Hedging and Speculation in Commodity Futures. *The Review of Economic Studies, 27*(3), 139–151.

The Economist (2017). The right way to redo Dodd – Frank [Online] Available at: https://www.economist.com/leaders/2017/02/11/the-right-way-to-redo-dodd-frank [accessed 30th March 2022]

Kolb, R. W., & Overdahl, J. A. (2003). *Financial Derivatives* (Vol. 194). John Wiley & Sons.

Kummer, S. (2012). The History of Derivatives: A Few Milestones. *EFTA Seminar on Regulation of Derivatives Markets.* Zurich: SECO.

McCafferty, T. A., & Wasendorf, R. R. (1993). *All About Options.* Kuala Lumpur: Golden Books Center.

Moloney, N. (2014). *EU Securities and Financial Markets Regulation.* Oxford: Oxford University Press.

Moss, D., & Kingten, E. (2010). *The Dojima Rice Market and the Origins of Futures Trading* . Boston: Harvard BusinessSchool.

Poitras, G. (2000). The Early History of Financial Economics, 1478-1776. Cheltenham: Edward Elgar Publishing Ltd.

Practical Law Finance and Practical Law Corporate & Securities. (n.d.). *Summary of the Dodd-Frank Act: Swaps and Derivatives.* [Online] Available at: https://content.next.westlaw.com/Document/Ibb0a1103ef0511e28578f7ccc38dcbee/View/FullText.html?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1 [accessed 16th February 2022]

Rahman, A. (2015). Over-the-counter (OTC) derivatives and central clearing. *Quarterly Bulletin 2015 Q3*, 288. [Online] Available at: https://www.bankofengland.co.uk/quarterly-bulletin/2015/q3/over-the-counter-derivatives-central-clearing-and-financial-stability [accessed 2nd February 2022]

Roosevelt Institute. (2014). *The Bipartisan Policy Center Gets It Wrong: The Lincoln Amendment is Critical to Financial Reform.* [Online] Available at: https://rooseveltinstitute.org/bipartisan-policy-center-gets-it-wrong-lincoln-amendment-critical-financial-reform/ [accessed 30th January 2022]

Ross, S., Jordan, B. D., & Westerfield, R. W. (2010). *Fundamentals of Corporate Finance* (9th ed.). McGraw Hill.

Rossi, J. L. (2011). Hedge or Speculation? Evidence of the use of derivatives by Brazilian firms during the financial crisis. *Insper Working Paper.*

Steigerwald, R. S. (2013). *Understanding Derivatives: Markets and Infrastructure.* [Online] Available at: https://www.chicagofed.org/~/media/publications/understanding-derivatives/understanding-derivatives-chapter-2-central-counterparty-clearing-pdf.pdf?la=en [accessed 28th January 2022]

Stout, L. A. (2009). Regulate OTC Derivatives by Deregulating Them. *Regulation, 32*(3), 30-41.

Swan, E. J. (2000). *Building the Global Market: A 4000 Year History of Derivatives.* London: Kluwer Law International Ltd.

Terzo G. (2022) What are Forward Contracts? [Online] Available at: https://www.wise-geek.com/what-are-forward-contracts.htm [accessed 23rd March 2022]

Upcounsel (2020). Option Contracts: Everything You Need to Know [Online] Available at: https://www.upcounsel.com/option-contracts [accessed 23rd March 2022]

Weber, E. J. (2008). A Short History of Derivatives Security Markets, University of Western Australia.

Whaley, R. E. (2006). *Derivatives: Markets, Valuation, and Risk Management.* Hoboken, New Jersey: John Wiley & Sons.