TRADING OF DERIVATIVES – LEGAL ASPECTS

Masterproef van de opleiding
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Ingediend door

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FOREWORD

The topic of this thesis perfectly matches its goal. When I started my law degree just under five years ago, the financial system was still trembling from the aftershocks of the crisis. While the tremors have diminished over time, the financial crisis we suddenly found ourselves in eventually lapsed into the protracted downturn we experience daily.

Beginning one’s university education at a time of financial tragedy can steer your legal curiosities in a certain way. As a first year student, I vividly remember poring over a De Tijd financial dictionary. While I was unable to grasp much of the content of the page on collateralized-debt obligations, the feeling of curiosity in the face of complexity is the same that motivates me to tackle the subject today.

I would therefore like to thank my promoter prof. Michel Tison for agreeing to breach this subject.
INTRODUCTION

This thesis examines the regulation of over-the-counter financial derivative markets, where it stands at the moment and where it is moving towards, as to conclude where and how these changes will have an impact on these markets and finance as a whole.

Financial derivatives shot to the forefront of public scrutiny after the financial crisis. Nobody would have deemed it plausible for the American Insurance Group (AIG) to be notionally liable for $527 billion in credit default swap expose before the housing bubble burst.1 Afterwards, we all knew and wondered why we had not seen it coming.

Every financial crisis results in a period of collective wound licking; the public stocks up on anger, the perpetrators are designated and the regulators are prodded into action.2 The last financial crisis, which originated in a housing bubble but grew exponentially after the collapse of Lehman Brothers, followed the same pattern. The perpetrators, this time, were cleanly divided among subjects and objects.

The subjects were the retails banks who sold mortgages, the insurers who reinsured these and the investments banks who packaged these mortgages and sold them off as assets. The tarred and feathered names – “New Century Financial”, “Fannie Mae” or “Merril Lynch” – will never regain their former dazzle. The objects were the financial instruments that the subjects created and distributed. These acronyms – “mortgage-backed securities (MBSs)”, “collateralized debt obligations (CDOs)” and “credit-default swaps (CDSs)” – peeled off the pages of obscure financial literature and took on a life of their own as the villains in a financial drama.

Among these objects were many financial derivatives. A financial derivative is a financial product, which has no intrinsic value, but derives it from another asset. As mortgages were fed onto the financial chopping board, the end result were financial derivatives who merely harnessed certain aspects of the processed mortgages such as their cash flow. Financial derivatives, if used properly, can transfer risk and contribute to the functional of financial markets and the economy. If they are used improperly, however, they are able to spread risk by magnifying existing losses.3 When the housing bubble popped, this is exactly what happened.

Financial derivatives have existed for centuries, but the speed and creativity in which new ones were created was astounding throughout the preceding decennia. Much of this financial innovation was not meant for retail investors, but took place between the institutional investors themselves. These large investors had little need for a multilateral market and therefore created and traded them on a bilateral basis. These markets are the over-the-counter financial derivative markets. It is the regulation these markets face, which I will be discussing in this thesis. The financial derivatives themselves will therefore only be examined shortly, as a certain introduction is needed to comprehend their risks the regulation intends to address.

Financial derivatives can and are also traded on regulated exchanges. Regulated exchanges inherently need a certain minimum of standardization and therefore only certain types of well-established and transparent derivatives are traded on these markets. These mainly fall into three categories: options, futures and swaps. I have chosen not to discuss derivatives traded on regulated markets in this thesis for three reasons. Firstly, the total notional amount of derivatives traded multilaterally pales before their bilateral brother. Secondly, the regulators have currently set their eye on over-the-counter derivatives, making a study of the over-the-counter derivative markets especially timely and rewarding. Thirdly, the market infrastructure of multilaterally traded financial derivatives is very similar to that of multilaterally traded equity and debt.

After the housing bubble turned into a financial crisis, the regulators were spurred into action to tackle the abovementioned subjects and objects. The subjects were prescribed limitations on certain activities, restrictions on remunerations and stricter capital requirements. The vilified objects, mainly over-the-counter traded financial derivatives, were set to become more transparent and stabile through regulation. The Group of Twenty (G20) concluded their September 2009 meeting with the following statement:

“All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements.”

For this thesis, I have decided to analyze the regulation of over-the-counter financial derivative markets in three legal systems: the European Union (EU) and the United States of America (USA). All together, these two jurisdictions account for the bear share of over-the-counter financial derivative trading.

The changes over-the-counter derivative markets are undergoing (the main focus of this thesis) can only be understood with suitable background knowledge. In Chapter I, I will therefore start out with a background on financial derivatives and the over-the-counter markets for these. In Chapter II, I then move onto the pre-crisis regulatory framework and subsequently discuss the pre-crisis regulatory framework during the crisis in Chapter III. Chapter IV will discuss the pillars of the post-crisis regulatory framework and Chapter V will end with evaluating the changes.

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I. FINANCIAL DERIVATIVES AND OVER-THE-COUNTER MARKETS

This thesis is centered on, and limited by, two key concepts: financial derivatives and over-the-counter markets. Before analyzing the pre- and post-crisis regulation of these over-the-counter financial derivative markets, it is crucial to sufficiently introduce both concepts.

A. Financial derivatives: an introduction

1. A history

Forward delivery contracts have existed since medieval times.\footnote{E. Weber, “A short history of derivative security markets”, Discussion Paper 08.10, Crawley, University of Western Australia, 2008, 11-16.} These were widely used in international trade and finance, but lacked the interchangeability that allows easy transferring of the contract. Four elements were needed to enact this interchangeability, and thereby to create the first financial derivatives as we know them today: the possibility to settle a contract through the payment of the difference\footnote{Ibid., 11.}; the ability to transfer the title to a good at low cost; the standardization of contracts; and an institutional structure to easily trade and enforce these contracts.\footnote{R. Krozer, “Can the financial markets privately regulate risk? The development of derivatives clearing houses and recent over-the-counter innovations”, Journal of Money, Credit and Banking 1999, 4.}

Firstly, it was essential to have the possibility of settling a forward contract at its expiry date through difference. Forward contracts could be settled by delivering the underlying good, but merchants discovered it was often sufficient for the losing party to compensate the winning party for the difference between the delivery price in the contract and the market price at expiry. This realization was the first leap towards the futures we know today.\footnote{E. Weber, “A short history of derivative security markets”, Discussion Paper 08.10, Crawley, University of Western Australia, 2008, 11-12.}

The second element, the ability to transfer a title to a good at low cost, arose through the East India Company in eighteenth century England. The Company retained large warehouses and issued warehouse receipts (or “warrants”) for the goods it was importing. As the good were centrally located in the warehouses, ownership of the underlying goods could be transferred through hand-to-hand exchange of the warrant – without any need to transfer the actual goods, as they could remain in the warehouses.\footnote{R. Krozer, “Can the financial markets privately regulate risk? The development of derivatives clearing houses and recent over-the-counter innovations”, Journal of Money, Credit and Banking 1999, 5.}

The third element, a standardization of contracts, was achieved through implementing a grading system for goods. The grading meant a certain type of good was divided into categories on the basis of their differing qualities. The contracts on these goods
would no longer refer to the good as a whole, but to a certain category. For instance, wheat would be divided into summer, spring and winter wheat.  

Finally, the most important element was an institutional structure to trade and enforce these contracts. This element, however, was the last one to evolve as such an institutional structure can only function with sufficient transferability of goods and standardization. The absolute pioneer in this was the Chicago Board of Trade (CBOT). Founded in 1848 to offer merchants a place to efficiently negotiate and trade forward contract on agricultural goods, to this day it remains one of the largest futures exchanges in the world.

2. Definition

Financial derivatives differ greatly in build and use, but there is little dispute on what groups them. N.M. Feder defines financial derivatives as,

“(…) financial products whose structures and values refer to financially meaningful external items.”

J. Hull similarly defines a financial derivative as,

“(…) a financial instruments whose value depends on (or derives from) the value of other, more basic underlying variables.”

Financial derivatives are thus products that derive value by referring to underlying variables (“underlying”). Etymologically, derivative evolved from derive. This underlying can be anything that is traded on markets, which mostly falls into three categories: cash instruments, such as equity and debt; tangibles, which are mainly commodities; or intangibles, such as stock indices or interest rates. T. Krizek even holds that the underlying is not limited to (market) assets, but is any objectively quantifiable measure.

11 Ibid, 4-11.
The above definitions capture the concept of a financial derivative, but do not dwell upon their structure or usage—both essential towards delineating what is, and what is not a financial derivative.18

a) Financial derivatives as contracts

In essence, financial derivatives are structured as contracts. Depending on future events, one of the contracting parties will be obligated towards its contractual counterparty.19 The obligation it owes its counterparty differs however. On the one hand, the contract can call on one of the parties to actually buy or sell the underlying asset.20 This is a contract with physical settlement. On the other hand, the contract can call on a party to buy or sell the economic equivalent of the underlying asset, which comes down to the payment of a sum of cash. Such a contract is often called a contract for difference.21

b) Financial derivatives uses

Any financial derivative is a wager on “something” happening in the future; depending on the occurring of a future event, one party will owe its counterparty in the contract.22 Financial derivatives can therefore be used by end-users in three distinct ways.

Firstly, if one is exposed to an uncertain risk in the future, one can use a financial derivative to hedge this risk. Such exposure to risk can result from several variables, of which market and credit risks are the most important ones.23 An entity is exposed to market risk if it is affected by the possibility of market movements in the future.24 A classic reason to hedge is when an asset owner wants to counter the risk that the market price of his asset might decline.25 An entity is similarly exposed to credit risk if it is affected by the possibility of contractual counterparties defaulting on their obligations.26 The actual offsetting of risk occurs through entering a financial

18 “The commonly used definitions, although not necessarily inaccurate, are incomplete, ambiguous, over inclusive and typically fail to capture the nature and scope of derivative transactions.” He defines financial derivatives using the following elements: a contract between two counterparties, a contract which is aleatory, where the counterparties take opposite sides and which provides a zero-sum payoff.” (see T.M. LYNCH, “Derivatives: a twenty-first century understanding”, SSRN, March 2011, http://ssrn.com/abstract=1785634, 11.)
21 Ibid, 682.
derivative contract that generates positive gains when the risk occurs and creates negative losses.\textsuperscript{27}

Secondly, one can use a financial derivative to take on risk by wagering a certain event will occur in the future.\textsuperscript{28} The market player will try to earn a profit from predicting future events better than others can.\textsuperscript{29} This risk-activating function is called \textit{speculation}. A speculator does not seek to neutralize risk he is already exposed to, such as a hedger, but he actively seeks risk in order to profit from it.\textsuperscript{30}

Finally, arbitrageurs complete the ranks of financial derivative usage. \textit{Arbitrage}, as a strategy, seeks to exploit mispricing of assets across markets due to market inefficiencies.\textsuperscript{31} Arbitrageurs seek gain from this mispricing by betting on an eventual price convergence of those assets.\textsuperscript{32} Most often, such mispricing is tiny, thereby requiring high leverage and large volume to create a return; financial derivatives such as options are often inherently leveraged and thus ideal tools to exploit a mispricing of the underlying.\textsuperscript{33}

\section*{3. Types of financial derivatives}

Financial derivatives exist in a dazzling variety of shades of grey, but attempts have been made to categorize the less exotic ones.

a) Rights versus obligations

The broadest and most theoretic categorization is black and white: derivatives can be grouped in forward commitments or contingent claims. In a \textit{forward commitment} the buyer agrees with the seller to acquire the underlying asset at a determined future date and at a prior agreed upon price.\textsuperscript{34} \textit{Contingent claims}, however, bestow the acquirer the right to buy or sell under certain conditions within a time period.\textsuperscript{35} A forward commitment thus involves an obligation, while a contingent claim is merely a right.\textsuperscript{36}

\begin{thebibliography}{9}
\bibitem{28} C.M. Baker, “Regulating the invisible: the case of over-the-counter derivatives”, \textit{Notre Dame L. Rev.} 2010, 111.
\bibitem{31} \textit{Ibid}, 720-721.
\bibitem{35} \textit{Ibid}, 7.
\end{thebibliography}
b) Based on practical categories

When practical differences in market infrastructure are added to the above binary equation, we are left with four practical categories: options, futures, forwards and swaps. Forward commitments and contingent claims can be traded on both regulated exchanges and over-the-counter markets. Contingent claims, traded on regulated exchanges or over-the-counter, are both called options. However, when forward commitments are traded on regulated exchanges, they are called futures; when they are traded over-the-counter, they are called forwards or swaps. The distinction between forwards and swaps is functional, with financial derivatives containing a set of consecutive maturities being termed swaps. Such consecutive maturities create consecutive cash payments and thus an exchange of cash flows between the contracting parties. Forwards, on the other hand, have a sole maturity and thus do not create a cash flow exchange.

<table>
<thead>
<tr>
<th>Contingent claims</th>
<th>Forward commitments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exchanges</strong></td>
<td><strong>Over-the-counter</strong></td>
</tr>
<tr>
<td>Options</td>
<td>Futures</td>
</tr>
<tr>
<td></td>
<td>Forwards</td>
</tr>
<tr>
<td></td>
<td>Swaps</td>
</tr>
</tbody>
</table>

Table 1

Such categorization is useful to highlight similarities and group differences, but the current reality of financial derivatives is often too complex to fit in predetermined categories. Especially in over-the-counter markets, a wide array of “exotic” financial derivatives has been created – often structured as a combination of several of these types together with several underlying. The financial institutions building the financial derivatives can thereby answer the specific needs and desires of the end-users.

c) Based on underlying

Financial derivatives can also be categorized on the basis of their underlying. As previously mentioned, the underlying can be just about anything quantifiably measurable; it is unnecessary for it to be an asset or other external element with intrinsic value. Listing all types would be impossible, as many are proprietarily...
created by financial institutions and subject to continuous innovation. Only the widely used practical “classes” of over-the-counter financial derivatives are mentioned here. Foreign exchange contracts derive from the foreign exchange rates; interest rate contracts from interest rates; equity-linked contracts from stocks; commodity contracts from commodities; and credit contracts (mainly composed of credit-default swaps) from bonds. The graph below clearly shows interest rate contracts account for the lion share of the outstanding notional amount of over-the-counter financial derivatives, with foreign exchange contracts and credit default swaps ending a distant second and third.

Figure 1 (Source: BIS)

B. Over-the-counter markets: an introduction

1. A recent history

Financial derivatives were first traded “over-the-counter” in medieval times, centuries before the advance of regulated exchanges (i.e. CBOT) in the late 1800s. The 1980s, however, heralded a new phase in their development. The popularity of financial derivatives and their market volume rose exponentially and entirely new types of contracts saw light. The start of this new phase is often set in 1981 with an interest rate swap between IBM and the World Bank.

This growth was both in exchange-traded and over-the-counter traded financial derivatives, but it was especially large in the latter. The last available statistics for over-the-counter traded financial derivatives indicate a total notional amount of $639

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45 The outstanding notional amount is the value of the underlying financial asset on which the financial derivative contract is based; it differs from the gross market value, which is the cost of replacing all outstanding contracts through the market. (see L.A. STOUT, “Derivatives and the legal origin of the 2008 credit crisis”, Harv. Bus. L. Rev. 2011, 22-23.)
trillion outstanding at the end of July 2012. The same statistics for exchange-traded financial derivatives indicate a notional amount of $24 trillion. The over-the-counter market is thus notionally over twenty-six times the size of the exchange market for financial derivatives.

The below graphic clearly illustrates both this exponential growth, and the slowdown after the crisis. It incorporates four sets of data, each representing the outstanding notional amount of over-the-counter financial derivatives, normalized to a yearly data point of multiples of a billion US dollars.

2. Definition

a) Over-the-counter markets versus exchanges

The financial derivatives market can be divided into regulated exchanges and over-the-counter markets. As we will see, both markets have their strengths and weaknesses. Yet, which market is chosen depends more on the financial derivative and the market participants, than on their specific advantages and disadvantages. Increasing complexity of financial markets, however, has given way to market

50 INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, Market surveys, New York, ISDA, http://www2.isda.org/functional-areas/research/surveys/market-surveys/
infrastructures are neither regulated exchanges, nor over-the-counter markets, but have characteristics of both. For clarity, these will be discussed later in this thesis.

Regulated exchanges are the “markets” as we picture them in physical or electronic form. An exchange for financial derivatives lists a finite number of derivative contracts, with buyers and sellers of the contract negotiating the one variable term before contracting. This term is most often the price, but other variables are possible. The place of actual negotiating between buyers and sellers, the “market”, can be a physical location or an electronic one. When buyers and sellers of a contract meet in an open-outcry pit, the location is physical. When buyers and sellers are grouped electronically, the location is electronic. In both cases, regulated exchanges – such as the Chicago Mercantile Exchange or the London Metal Exchange – act as intermediaries between the contracting parties. The endemic standardization also covers the terms and conditions of the contract – settlement dates and amounts, contract maturities, option strike prices are all standard and set by the exchange. Furthermore, most exchange-trade financial derivatives are settled physically, through actual delivery of the underlying.

Over-the-counter markets differ in several substantial ways, with the differences defining these markets. Firstly, unlike exchanges, an over-the-counter market has no central location (be it physical or electronic), where all orders are collected and matched; the market is formed by a fictional combination of entirely private forums. While the central location of an exchange means trading is done multilaterally, trading in over-the-counter markets is inherently bilateral. Secondly, unlike exchanges, financial derivatives traded on over-the-counter markets need not be standardized. Instead, they can be customized to the needs and desires of the contractual counterparties. Buyers and sellers can negotiate unique terms and conditions for the contract, and financial derivatives can be built on a unique or rare underlying.

The distinction between financial derivatives traded on regulated exchanges and those traded on over-the-counter markets even effects their legal characterization. A financial derivative, traded over-the-counter, is foremost a contract between two parties. However, a financial derivative, traded on an exchange, is a financial

55 Examples are the multilateral trading facilities (MTFs) under MiFID.
58 The strike price of an option is the price at which one can buy the underlying asset (in case of a call option) or sell it (in case of a put option).
60 Ibid, 732.
instrument created under exchange listing rules and thus legally more similar to stocks or bonds. T. KRIZEK therefore qualifies the former as “executory contracts usually subject to ISDA documentation”\textsuperscript{65}; the latter he qualifies as “non-negotiable financial instruments subject to property law of documentary intangibles”.\textsuperscript{66}

\begin{flushright}
\textit{(1) Advantages and disadvantages}
\end{flushright}

Both markets have advantages and disadvantages. The customization of over-the-counter traded financial derivatives is especially advantageous: maturities can be longer; financial derivatives can be tailored for specific exposures or risks, making them more efficient hedges or positions.\textsuperscript{67} Disadvantageous is the smaller liquidity and thus lesser ability to dispose of the contract before its expiry, and the credit risk towards one’s counterparty\textsuperscript{68}. As we will see later, measures such as clearing over-the-counter can mitigate this counterparty risk. Disadvantageous for exchange-traded financial derivatives is the obligation of standardization, and thus inability to customize beyond those on offer. Advantageous is larger turnover and thus liquidity\textsuperscript{69}; for many standardized contracts the spreads\textsuperscript{70} on financial derivatives will be lower. Lastly, counterparty credit risk is limited due to collateral requirements\textsuperscript{71} the exchanges impose on all market participants active on the exchanges.\textsuperscript{72}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|}
\hline
Market structure & Customization & Liquidity & Credit risk & Transparency \\
\hline
Exchanges & Centralized & None & Good & Limited & Good \\
\hline
Over-the-counter & Decentralized & Possible & Limited & Substantial & Limited \\
\hline
\end{tabular}
\caption{Table 2}
\end{table}

b) Contractual standardization

Contract customization is a benefit of over-the-counter markets, but it can be costly in terms of time and resources spent negotiating the terms and conditions.\textsuperscript{73} Extensive negotiations on clauses might be needed for novel types of financial derivatives, but

\textsuperscript{65} ISDA Documentation refers to the ISDA Master Agreement, Schedule and Confirmation, which are widely used in financial derivative contracts. (see N.M. FEDER, “Deconstructing over-the-counter financial derivatives”, \textit{Colum. Bus. L. Rev.} 2002, 744-747.)


\textsuperscript{68} Although many techniques have evolved to minimize bilateral credit risk, such as netting and credit support.


\textsuperscript{70} The spread is the interval between the bid and ask price of a financial instrument in the market.

\textsuperscript{71} Margin requirements are instated in two forms: initial margin and variation margin. (see B. TEBEGO, “Financial derivatives in theory”, \textit{SSRN}, August 2011, http://ssrn.com/abstract=1918724, 9.)


they are clearly hindersome for common contracts. The absence of common provisions slowed the development of over-the-counter markets in their early days. In order to stimulate efficient trading in over-the-counter markets, a degree of standardization of contracts was eventually introduced. When the swap market took off in the later 1980s, an industry association called the International Swaps and Derivatives Association (ISDA) was formed. Among its goals of representing leading market participants was,

“(…) promoting practices conducive to the efficient conduct of business, including the development and maintenance of derivatives documentation.”

ISDA’s first attempt at standardization was the publication in 1985 of a “Swaps Code” that established a common terminology for swap agreements. A more ambitious leap towards standardization was the publication of a first Master Agreement in 1987 and a first ISDA Form in 1992. To this day, both agreement and form (expanded in scope since then) are the backbone of over-the-counter financial derivative markets. The first step is the signing of a standardized ISDA Master Agreement by prospective counterparties, which sets out the many options that will govern their contractual relations. Such an agreement neither creates a transaction, nor does it is require one; it simply establishes the contractual framework by which the counterparties can reach an agreement. Once the counterparties have agreed on a specific trade, the second step is its confirmation through a standardized ISDA Confirmation Form. Master Agreement and Confirmation thus determine the private law which governs the transaction and which can be judicially enforced. While the over-the-counter market is bilateral and decentralized (infra), this standardization allowed a market with volume and price discovery to develop.

3. Types of market participants in over-the-counter markets

a) Sophisticated market participants

The main difference between the market participants active in regulated exchanges and in over-the-counter markets is the degree of sophistication. Access to over-the-counter financial derivative markets is, due to inherent complexity and lack of transparency, largely restricted to sophisticated counterparties. In the zoological hierarchy of finance, this mainly means large institutional parties, such as banks,

76 Ibid, 737.
77 Ibid, 741.
78 Ibid, 746.
insurance companies, hedge funds, asset managers, multinational corporations and various types of government entities. This characterization of over-the-counter markets as “inter-institutions markets” is important, as it is these market participants that are allocating the risk in these markets through their market participation.

b) Global market participants

The market participants are as global as they are sophisticated. While the over-the-counter markets are currently concentrated in New York and London, the origins of the market participants make it a true global market. The contracts are denominated in several of the main currencies, and foreign market participants use subsidiaries and branches to operate in the jurisdictions where most over-the-counter trading takes place. As long as the barriers for such cross-border market participation remain low, it makes little sense for other countries to set up their own financial derivative markets. For example, financial derivatives on Latin American listed stocks can easily trade on (over-the-counter) financial derivative markets centered in the US.

c) Market participants: end-users and dealers

While markets participants can be active as hedgers, speculators and arbitrageurs, other market participants can trade of financial derivatives without any such goal. Such participants are called “dealers”; their sole goal is to lubricate the functioning of the markets for financial derivatives and, by doing so, gain a profit. Dealers become counterparties in the financial derivative contracts with end-users and follow three distinct types.

The first type of derivatives dealing is matched trading, whereby a dealer contracts with a customer and subsequently offsets this trade by entering an opposite position. By doing so, the dealer relinquishes a speculative position. The second type is market making. Market making is similar to matched trading – except that the risk position incurred by the trade is only offset at the end of day and through varying methods. The final type is positioning. A dealer enters a contract with a customer but, unlike matched trading, he does not enter an offsetting trade. Positioning is often hard to

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81 In an end-user survey taken in 2009, 94% of Fortune 500 companies used over-the-counter financial derivatives. (see INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, Derivative Usage Survey, ISDA, 2009, http://www2.isda.org/attachment/MTY2MQ==/press042309der.pdf.)


87 Ibid, 17.
distinguish from speculation, as choosing not to offset a contract is often based on an expectation on the direction of market movements.\textsuperscript{88}

Over-the-counter financial derivative dealing is highly concentrated among several sophisticated and global market participants, who together account for a large majority of trading. These are commonly dubbed the “G14” major derivatives dealers, for the fourteen financial institutes where dealing is concentrated. The over-the-counter financial derivative is thus not only one of the largest financial markets, it is also one of the most concentrated.\textsuperscript{89}

\textsuperscript{88} Ibid, 17-18.
II. THE PRE-CRISIS REGULATORY FRAMEWORK

Analyzing the pre-crisis regulatory framework is an important part of this thesis. It allows us to assess where and why insufficiencies appeared during the financial crisis, and highlight where the post-crisis regulatory changes will be centered around.

Financial derivatives jumped many legal hurdles to stand where they do today. Many of these hurdles developed together with the financial derivatives themselves and stood strong for centuries, until eventually succumbing in the deregulatory fervor of the late twentieth century. For this reason, it is worthwhile for the pre-crisis regulatory framework to include both recent as centuries old regulatory financial history. Together with the recent removal of historical hurdles, the moderating influence on financial derivatives disappeared.

The most important current-day jurisdictions for over-the-counter financial derivative markets are those of the US and the EU. For this reason, the discussion on the pre-crisis regulatory framework, just as the post-crisis regulatory framework, will be limited to these jurisdictions. As the EU only regulatory intervened in financial markets regulation comparably recently, we will also discuss how important European national jurisdiction historically treated financial derivatives. The historical obstacles for financial derivatives developed in the common law legal systems in similar ways and remained conceptually similar for centuries, so it is logical to structure this part accordingly, before branching into national jurisdictions.

A. The common law legal systems

The main hurdle for common law countries was the common law rule against difference contracts (as financial derivative contracts where previously known). The common law legal systems traditionally distinguished between hedging contracts and purely speculative ones. In the former at least one contracting party was looking to hedge risk, while in the latter both were seeking speculative profit. Purely speculative contracts thus shared the fate of wagers: they were legally void and unenforceable. In practice, the courts looked into whether or not one of the parties owned or expected to own the underlying. If one party effectively sought to acquire the asset through the contract, it was legally enforceable. 

Precedent in the US lies foremost in the Supreme Court decision Irwin v. Williar, with further confirmations of the rule in

\[ \text{Irwin v. Williar, 110 U.S. 499 (1884).} \]

\[ \text{("\dots if under guise of such a contract, the real intent be merely to speculate in the rise of fall of prices, and the goods are not to be delivered, but one party is to pay the other the difference between the contract price and the market price of the goods at the date fixed for executing the contract, then the whole contract constitutes nothing more than a wager, and is null and void.")} \]

The only exception to this rule was the “indemnity” exception: if none of the contracting parties owned (or expected to own) the underlying, it would still be enforceable if one party had an economic interest in the underlying which could be damaged. The courts thus accepted direct (owning or expecting to own the underlying) or indirect proof of non-speculative intent (economic interest, while not owning it).

The users of financial derivatives, unable to fall back on public enforcement, had to set up a system of private enforcement. They created private ordering institutions, where rules and bylaws required their members to honor the obligation they contractually owed. These were the first of the organized exchanges for financial derivatives, such as the Chicago Board of Trade. As L.A. STOUT shrewdly observes,

“(…) the common law of unenforceability for speculative difference contracts did not eliminate the human temptation to try to profit from the future. But it did force would-be speculators to think about how they might privately arrange their affairs to ensure that their counterparties would make good on their bets. The result was “private ordering”.

1. The regulatory framework of the US

Once financial derivatives were privately enforceable through private ordering institutions (such as commodity exchanges) and telegraphs expanded market reach, their usage exploded. Markets have existed for millennia, but now they became dominated not by buyers or sellers, but by professional traders who traded abstract financial derivative contracts. The increased risk of market manipulation in these private exchanges prompted legislative interest. The first attempt at regulation was

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94 113 Ala. 120 (1896).
95 71 Ga. 400 (1882).
96 [1896] AC 166, HL.
99 Ibid, 14.
100 “In 1888 it was estimated that futures contracts for 25 quadrillion (…) bushels of wheat changed hands in the United States, even though American farmers harvested only 415 million (…) actual bushels of wheat every year.” (see L.A. STOUT, “Derivatives and the legal origin of the 2008 credit crisis”, Harv. Bus. L. Rev. 2011, 14.)
101 The first abstraction away from exchanging physical commodities was the use of “elevator receipts” and the second the use of “futures”. (see L.A. STOUT, “Derivatives and the legal origin of the 2008 credit crisis”, Harv. Bus. L. Rev. 2011, 15.)
102 See W. SIKORZEWSKI, “A corner solution: commodity futures, default fines, and unintended consequences”, New York Economic Review 2002, 4-7. (“The nineteenth century could be described as the "golden age" of commodity futures manipulators. The exchanges' internal rules were very permissive (e.g. no position limits) and the directors boards were very unlikely to take important measures to curb any nascent corner. Furthermore, the regulatory constraints were virtually non-existent.”)
introduced in 1884, but, together with more than 200 subsequent bills, it did not pass.103

a) The initial regulation

The first act to be instated (and not repealed104) was the Grain Futures Act in 1922. The Act invalidated any futures transaction by counterparties who, on the one hand, did not physically possess grain or involved land, and, on the other hand, was contracted outside a designated “contract market”.105

The Commodity Exchange Act (CEA) of 1936 strengthened, broadened and replaced the Grain Futures Act. The CEA would go to on have a profound effect on the over-the-counter financial derivative markets for over half a century. Firstly, all futures contracts had to be executed by or through a member of a designated board of trade or “contract market”.106 A board of trade, wishing to receive the designation, had to ensure certain conditions. Once designated, futures contract traded on it were legally enforceable – even if they were speculative107 However, futures contracts executed outside a designated board of trade were in breach of the CEA; over-the-counter traded futures – nowadays called forwards (supra) – were thus effectively illegal and unenforceable. Secondly, these designated boards of trade and their members were placed under governmental oversight and regulation. The Secretary of Agriculture received substantial powers, but the main oversight was for the newly established Commodity Exchange Commission, which could suspend boards of trade and their individual members.108 In 1974, the CEA was amended to create the Commodity Futures Trading Commission (CFTC), which received greater powers of oversight than its predecessor had. From then on, it exercised oversight over all futures contracts – instead of just the ones designated by the CEA.109

The modifying force thus had two faces: one was the common law rule against difference contracts; the second was its implementation by the CEA through the ban on off-exchange futures. The latter even went beyond the former, as off-exchange futures were made illegal (not just void and unenforceable, as in common law).110 Over-the-counter financial derivatives of the forward commitment type were hence relegated to organized exchanges.

b) Dismantling of the initial regulation

104 Most of the Future Trading Act of 1921 was declared invalid in Hill v. Wallace (see D.A. CAMPBELL, supra n. 91)
For half a century, this regulatory framework protected financial derivatives from too many unwelcome headlines. That is, until the deregulatory tide of the 1980s touched its shores.\footnote{“More than 30 years of deregulation and reliance on self-regulation by financial institutions, championed by former Federal Reserve chairman Alan Greenspan and others, supported by successive administrations and Congresses, and actively pushed by the powerful financial industry at every turn, had stripped away key safeguards, which could have helped avoid catastrophe.” (see NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, The Financial Crisis Inquiry Report, 25 February 2011, http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf, xviii.)}

(1) Deregulating interest rate swaps

The first step in the process of dismantling was the creation of new classes of financial derivatives with novel underlying, for which exemptions were eventually made in the early 1990s. The novelty lay in the fact that the underlying was not an asset, such as a commodity or stock,\footnote{Commodity futures and stock options had by then been commonplace for centuries.} but purely a reference rate. The first financial derivative to take off on this premise was the “interest rate swap”, which was an over-the-counter traded forward commitment with interest rates as underlying.\footnote{L.A. STOUT, “Derivatives and the legal origin of the 2008 credit crisis”, Harv. Bus. L. Rev. 2011, 19.} By the mid-1980s, an entire market for these swaps had developed over-the-counter.

Interest rate swaps, however, were born into a legally opaque environment. The market for these had matured by the late 1980s, but their legal situation had not. Market participants therefore sought guarantees that the swaps would not fall under the CEA off-exchange futures ban.\footnote{Ibid, 19.} Their lobbyists found a cooperative ear in Washington D.C. First, in 1992 Congress amended the CEA to allow the CFTC to exempt different types of derivatives. Second, a year later the CFTC used this new mandate to exempt over-the-counter swaps from the CEA and anti-wagering laws. In one sweep, this made the over-the-counter market for interest rate swaps legal and legally enforceable.\footnote{Ibid, 20.} This was a first for a financial derivative: even if the contract was purely speculative, it was enforceable (contrary to common law); even if the contract was traded over-the-counter, it was legal (contrary to the CEA).

(2) Deregulating other over-the-counter derivatives

The growth of interest rate swaps, which was further fueled by this increased legal certainty fertilized, started to scare the CFTC.\footnote{Procter & Gamble lost $157 million speculating on interest rate swaps in 1994, soon after the pension fund of Orange Country, CA bankrupted due to a $2.5 million loss, and hedge fund Long Term Capital Management almost collapsed in 1998 after a futures loss in a ‘riskless’ arbitrage strategy.} In a 1998 concept release, it sought to open the discussion on a regulatory framework for over-the-counter traded financial derivatives and included several suggestions how this could best be accomplished. As it mentioned in the concept release,

“The Commission wishes to maintain adequate safeguards without impairing the ability of the OTC derivatives market to continue to grow and the ability of U.S. entities to remain competitive in the global financial marketplace. The
Commission has identified a broad range of issues and potential approaches in order to generate detailed analysis from commenters. ¹¹¹

The markets participants, fearing any sort of regulatory intrusion, vehemently opposed the intent behind this concept release and combined forces to lobby against it. ¹¹¹ Once more they found a cooperative ear in Washington D.C. Congress recommended the President’s Working Group on Financial Markets (“the Working Group”)¹¹⁹ to discuss the modernization of financial derivatives regulation. The eventual report was released in November 1999 and dismissed most of the concerns the CFTC had aired; it concluded modernization should be aimed to improving the legal certainty of all over-the-counter financial derivatives and removing their impediments to innovation.¹²⁰ To accomplish this, the Working Group recommended,

“An exclusion from the CEA for bilateral transactions between sophisticated counterparties (other than transactions that involve non-financial commodities with finite supplies)”¹²¹

The report set the stage for the passing of the Commodities Futures Modernization Act (CFMA) a year later. In hindsight, enacting the CFMA is a definitive moment in financial derivatives regulation, but at the moment it went widely unnoticed. Just as the Working Group had suggested, the CFMA gave legal certainty to over-the-counter traded financial derivatives; it amended the CEA and excluded or exempted most transactions from its oversight.¹²² In order to enjoy the exclusions or exemptions, a contract generally had to be agreed upon by what it calls “eligible contract participants”.¹²³ Its definition includes a wide range of mainly institutional counterparties, such as banks, insurance companies, investment companies, corporation and governmental entities.¹²⁴

The CFMA goes on to differentiate between over-the-counter financial derivative contracts with an excluded commodity and those with an exempt commodity as underlying. A transaction in contract referring to an excluded commodity does not fall within the scope of regulatory oversight in two cases: (i) if the contract is agreed upon

¹¹⁹ With representatives of the Treasury Department, the Board of Governors of the Federal Reserve System, the Securities and Exchange Commission, and the Commodity Futures Trading Commission.
¹²¹ Ibid, 2.
¹²⁴ “Regulated financial institutions”, “regulated insurance companies”, “regulated investment companies”, “a corporation, partnership, trust or other business entity”, “governmental entities”, “regulated broker dealers”, “regulated futures commission merchants”, “CEA-regulated floor brokers or traders”, “individuals with assets in excess of $10 million” and “any other person the CFTC determines to be eligible”. (see Commodity Exchange Act, 7 USC § 1a, (18) (2001).)
by eligible contract participants, and the transaction is not conducted on a (multilateral) trading facility; and (ii) if the contract is agreed upon by eligible contract participants, and the transaction is conducted on an electronic (multilateral) trading facility. Excluded commodities are mostly abstract underlying and include reference rates (such as interest rates or currency exchange rates) and indexes.

A transaction referring in a contract referring to an exempt commodity is exempt in the same two cases as an excluded commodity: in both cases, a contract agreed upon by eligible contract participants, whether conducted without trading facility or with an electronic one. An exempt commodity is defined negatively as any commodity that is neither agricultural nor excluded. All energy or metal commodities hence fall under the category of exempt commodity. Finally, the CFMA adds additional exclusions for hybrid instruments, swaps and certain banking products.

In one swipe, the CMFA excluded or exempted almost the whole over-the-counter financial derivative market from the CEA. Market participants no longer faced the uncertainty of the off-exchange trading ban or oversight by the CFTC. In doing so, it removed the last moderating legal restraints that had existed for centuries. Speculative trading in practically all financial derivatives by institutional counterparties now became certifiably legal. The result was, according to D. AWREY,

“Not surprisingly, the enactment of the CFMA ushered in a period of relative inactivity in the U.S. with respect to the regulation of OTC derivatives markets. This regulatory stasis stood in dark contrast, however, with the precipitous growth and proliferation of OTC derivatives markets. (…) In retrospect, this period would prove the calm before the storm.”

(c) Financial derivatives under securities regulation

While the CEA focused on regulating futures, a different regulatory framework had been previously established for traditional securities. The Securities Act of 1933 regulated the sale of securities in the primary market. It requires providing investor with certain information before the sale and prohibits various types of securities fraud. The Securities Exchange Act of 1934 regulated the trading of those securities in the secondary market and established the Securities and Exchange Commission (SEC). Both acts are, with a limited number of prescribed exceptions, only applicable to those financial instruments that fall under the definition of a security. The definition is

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132 Ibid, 25.
broad, and includes financial derivatives such as options and swaps – as long they remain attached to notes or stock as underlying.\textsuperscript{133}

For over forty years, the jurisdictional differences between the SEC and the future CFTC were relatively clear and any competition thus relatively small. In 1974, however, the CEA was amended (supra) to establish the CFTC and to expand its scope to previously unregulated underlying. Even before this amendment passed, the SEC had lobbied, together with the Treasury Department, to limit the jurisdiction of the CFTC. The so-called “Treasury Amendment” was thus added, which clarified that the CFTC’s jurisdiction did not extend into certain security-based transactions.\textsuperscript{134} The first true clash was over futures on mortgage certificates issued by the Government National Mortgage Association (GNMA). Going against objections by the SEC - which argued the mortgages fell under “securities”, making futures or options based on “securities” SEC territory – the CFTC approved their application. The CFTC believed it had jurisdiction over the whole futures market – even if the underlying were “securities”, as defined in the Securities act. It continued to do so for futures on U.S. Treasury bills and bonds.\textsuperscript{135, 136}

In 1982, the SEC and CFTC were able to agree on a jurisdictional delineation with the Shad-Johnson Accord.\textsuperscript{137} From then on, the regulatory oversight over financial derivatives markets would be divided. On the one hand, the CFTC would regulate futures (and options on those futures) that were listed on a designated contract market, together with all futures on the securities exempt from the Securities Act and the futures on broad indices of securities. On the other hand, the SEC would regulate options on individual stocks, on foreign currencies traded on national securities exchanges, and on bonds that are not exempt from the Securities Act. These jurisdictional arrangements were subsequently codified in the Futures Trading Act of 1982.\textsuperscript{138} The Accord brought tranquility for a few years, but before long the agencies were circling each other’s jurisdictions once more.\textsuperscript{139} The main cause was the

\textsuperscript{133} “The term ‘security’ means any note, stock, treasury stock, security future, security-based swap, bond, debenture, evidence of indebtedness, certificate of interest or participation in any profit-sharing agreement, collateral-trust certificate, preorganization certificate or subscription, transferable share, investment contract, voting-trust certificate, certificate of deposit for a security, fractional undivided interest in oil, gas, or other mineral rights, any put, call, straddle, option, or privilege on any security, certificate of deposit, or group or index of securities (including any interest therein or based on the value thereof), or any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency, or, in general, any interest or instrument commonly known as a ‘security’, or any certificate of interest or participation in, temporary or interim certificate for, receipt for, guarantee of, or warrant or right to subscribe to or purchase, any of the foregoing.” (see Securities Act, 15 U.S.C. § 2a (1) (1933.))

\textsuperscript{134} “(...) the CFTC’s jurisdiction would not extend to transactions in foreign currencies, security warrants, security rights, resales of installment loan contracts, repurchase options, government securities, mortgages or mortgage purchase commits unless such transaction involved the sale thereof for future delivery conducted on a designated contract market.” (see D. AWREY, “The FSA, integrated regulation and the curious case of OTC derivatives”, U. Pa. J. Bus. L. 2010, 28.)

\textsuperscript{135} Treasury bills are short-term debt obligations with maturities of one, three or six months; Treasury bonds are long-term debt obligations with maturities of more than ten years.


\textsuperscript{137} Ibid, 29.

\textsuperscript{138} The CFTC needs a periodic reauthorization by Congress, through a “Futures Trading Act”, to continue its activities.

\textsuperscript{139} Ibid, 33-41.
continuous shifting landscape of financial derivatives; as soon as an agreement was reached on their respective jurisdictions, new financial derivatives would appear and disagreement would set in once more.\(^{140}\)

With the Gramm-Leach-Bliley Act (GLBA) of 1999, Congress addressed previous aspirations of the SEC. One the one hand, it granted the agency jurisdiction over swaps and other hybrid products, while, on the other hand, excluding (both security-based and non-security-based) swaps from the definition of “security” in the Securities Act.\(^{141}\)

With the passage of the CFMA, Congress hoped to clarify the respective jurisdictions of the SEC and the CFTC. It succeeded in doing so, but only through effectively redrawing the boundaries. Firstly, it backtracked on the GLBA, only enacted the previous year, by once more conferring jurisdiction over security-based hybrids to the SEC. Secondly, it repealed part of the Shad-Johnson Accord by placing single-stock futures under the shared jurisdiction of the SEC and CFTC.\(^{142}\)

The regulatory frameworks for futures and securities developed around the same time. For much of their history, the agencies tasked with the oversight – the CFTC and the SEC – were involved in a jurisdictional turf war. This was seemingly inevitable, as the ever innovative and opaque financial derivatives landscape encouraged conflicting jurisdictions at every turn.

2. The regulatory framework of the UK

Both the US and the UK have a historical tradition of, and preference for, self-regulation. The financial derivative markets in the US eventually succumbed to regulation in 1936 (CEA, supra), but financial markets in the UK remained almost exclusively self-regulated for another half century.\(^{143}\)

a) The Financial Services Act of 1986

The Financial Services Act of 1986 (FSA 1986) was an important moment for two reasons. Firstly, the FSA 1986 was to the UK what the CMFA was the US. The traditional moderating influence of the rule against difference contracts was swept away. No longer were financial derivatives contracts null and void – now they were legally enforceable.\(^{144}\) Secondly, it was the first imposition of legislative regulation on

\(^{140}\) *Ibid*, 34-35.

\(^{141}\) *Ibid*, 40.

\(^{142}\) *Ibid*, 41.

\(^{143}\) "This tradition has been variously explained on the basis of the U.K.’s regulatory culture, broader political and cultural factors and more grounded policy considerations such as the expertise, responsiveness and cost-effectiveness theoretically associated with regulation generated by private actors." (see D. AWREY, “The FSA, integrated regulation and the curious case of OTC derivatives”, *U. Pa. J. Bus. L.* 2010, 49.)

the UK financial markets. Until its repealing in 2001\textsuperscript{145}, the FSA 1986 upheld the self-regulatory infrastructure in a two-tiered system. The first tier was the granting of specific powers to “designated agencies” in the private sector.\textsuperscript{146} The most important of these designated agencies was the Securities and Investment Board (SIB); through circulating Statements of Principle and Core Rules, it was responsible for the main regulatory framework of financial markets. While the first tier was responsible for general oversight, the second was sectorial and tasked with daily oversight. The second tier was based on membership in self-regulatory organizations (SROs), recognized investment exchanges and professional bodies.\textsuperscript{147}

The FSA 1986 obligated persons or firms engaged in “investment business”\textsuperscript{148} – which it defined as dealings in, arranging dealing in, managing, advising on or establishing collective schemes for “investments”\textsuperscript{149} – to be authorized by and registered through membership in an SRO or the SIB itself. Their constituent members were responsible for their operational funding through membership dues and partially managed them.\textsuperscript{150} As investments included options, futures and difference contracts, all market participants in over-the-counter financial derivative markets fell under the obligatory oversight of the relevant regulatory bodies.

The two-tiered system resulted in two types of rules. Firstly, the SIB issued Core Conduct of Business (COB) rules on business conduct for all persons or firms engaged in investment business. For financial derivatives, it mainly distinguished between different types of customers\textsuperscript{151} – not all for whom financial derivatives were deemed suitable. Secondly, the relevant SROs\textsuperscript{152} imposed sector-specific rules on matters as business conduct, customer relations, capital suitability, transaction reporting and segregation of client accounts.\textsuperscript{153}

The FSA 1986 was a valid attempt at formalizing the self-regulation that already existed. In the end, however, it succumbed to its lack of institutional and regulatory ambition. On the one hand, leaving the regulatory institutions fragmented, the FSA 1986 spread legal uncertainty, tolerated regulatory inefficiencies and contributed to a

\textsuperscript{145} It was repealed by the Financial Services and Markets Act 2000 (Consequential Amendments and Repeals) Order 2001, which came into force on 1 December 2001 (see FSMA, arts. 1, 3, (1), (c))


\textsuperscript{147} \textit{Ibid}, 51.

\textsuperscript{148} FSA 1986, Sch. 1, s. 1 (2), part II.

\textsuperscript{149} FSA 1986, Sch. 1, part I (“shares etc.”, “debentures”, “government and public securities”, “instruments entitling to shares or securities”, “units in collective investment scheme”, “options”, “futures”, “contracts for differences etc.”, “long term insurance contracts” and “rights and interests in investments”)


\textsuperscript{151} It differentiated between “non-customers” and “customers”, which were subsequently split in “private customers” and “non-private-customers”.

\textsuperscript{152} Examples of SROs that were relevant for financial derivatives markets: the Securities and Futures Authority (SFA), the Financial Intermediaries, Managers and Brokers Regulatory Association (FIMBRA), the Investment Management Regulatory Organization (IMRO) and Life Assurance and Unit Trust Regulatory Organization (LAUTRO).

general feeling of confusion. Large market participants fell under the oversight of many SROs, which, as the collapse of Barings Bank PLC had shown, lacked effective coordination. On the other hand, the regulatory institutions were considered weak in both tiers. Empowering self-regulatory institutions in a formal framework resulted in regulatory institutions too weak to effectively prevent misconduct among their members.

b) The Financial Services and Markets Act of 2000

Drawing on the previous shortcomings, the Financial Services and Markets Act (FSMA) 2000 sought to instate a single, integrated financial regulator. Where previously the SIB as well as the SROs exercised oversight, all oversight over investment and other financial services now fell under one agency: the Financial Services Authority (FSA). The FSMA thereby entirely repeals the FSA 1986 and other existing regulations.

The FSMA requires every person active in a “regulated activity” – which are exhaustively listed in the FSMA and based on dealing in, managing and advising “investment” – to be authorized by the FSA before operating. As investment is broadly defined to include “(a) options; (b) futures; (c) contracts for differences; rights to or interest in an investment (…)”, any market participant active in financial derivatives needs such authorization. While financial derivatives as a category are not defined, its constituent parts (options, futures, differences contracts and rights or interests) are defined in its statutory implementation, the FSMA 2000 (Regulated Activities) Order 2001.

The FSMA maintains a non-interventionist approach to over-the-counter financial derivative markets. On the one hand, market participants in over-the-counter financial derivative markets fall under “regulated activity” and FSMA jurisdiction. All market participants are thus beholden to rules on market abuse, insider trading, misleading statement and actions. Business conduct is also set out in the FSA Conduct of Business Sourcebook (COBS): based on the perceived level of financial

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155 Barings collapsed in 1995 after trader Nick Leeson accumulated a $1.3 billion loss in unauthorized trading of futures and options on the Nikkei index.
156 “The Barings case illustrates the need for close collaboration between the Bank and other regulators, both in the United Kingdom and overseas. We understand that plans are in place for the Bank and the SFA to review their method of working together, including a review of the Memorandum of Understanding (MoU) between them.” (see BANK OF ENGLAND, Report of the board of banking supervision inquiry into the circumstances of the collapse of Barings, 18 July 1995, London, BoE, http://ific.ch/135360.htm.)
159 FSMA, arts. 1, 3, (1).
160 FSMA, s. 22 and Sched. 2, paras. 2-9.
expertise and sophistication, COBS categorizes clients as retail clients, professional clients or eligible counterparties. As market participants in over-the-counter markets are predominately institutional (supra), such “eligible counterparties” in financial derivative contracts are exempt from the risk statements obligatory for retail and professional clients. On the other hand, the FSMA refrains from addressing market participants in over-the-counter financial derivative markets too specifically. Only general requirements have an impact on market participants, unless they are exempted as eligible counterparties.\footnote{FSA, \textit{Conduct of Business Sourcebook}, London, FSA, http://fshandbook.info/FS/html/handbook/COBS}

\section*{B. \textit{The continental law legal systems}}

In Europe, financial derivatives were first used in the Low Countries (now, the Netherlands and Belgium) in the sixteenth century. Their usage subsequently spread to England and France by the beginning of the eighteenth century.\footnote{E. WEBER, “A short history of derivative security markets”, \textit{Discussion Paper 08.10}, Crawley, University of Western Australia, 2008, 39.}

The ban on difference contracts widely existed across the continent. It differed, however, in two ways. Unlike the common law rule that grew through precedent and non-enforceability, the continental rule was mainly based on the criminalization of the contracts. In France and Germany, many financial derivative contracts had been made enforceable a century before this step was taken in the US (by the CMFA) and the UK (by the FSA). Securities regulation, however, had been almost nonexistent in continental Europe until late in the twentieth century – more than half a century later than the US.\footnote{E. WEBER, “A short history of derivative security markets”, \textit{Discussion Paper 08.10}, Crawley, University of Western Australia, 2008, 24.}

\subsection*{1. \textit{The regulatory framework of France}}

France instated bans on multiple occasions. The Criminal Code of 1810 imposed fines and prison sentences on wagers with government bonds, thereby criminalizing all contracts of differences with government bonds as underlying.\footnote{Ibid, 27.} Contracts for future delivery, settled physically with delivery of the underlying and not through payment of the difference, were allowed however.\footnote{Ibid, 24-25.} Difficult to be stopped, trading of financial derivatives continued in Parisian cafés and restaurants. As trading was restricted to authorized dealers on the stock exchange floor, police orders sought to enforce the ban on off-exchange trading in January 1823.\footnote{To illustrate, in the 1980's, seven of the twelve EU countries did not require prospectus disclosure to investors in public offerings, and none had a securities regulatory agency to enforce the laws that did exist. As of five years (...) ago, nine of the twelve Member States failed to impose any criminal penalties for insider trading of securities. ” (see M.G. WARREN III, “The European Union’s Investment Services Directive”, \textit{U. Pa. J. Int’l Bus. L.}, 1994, 182.)} Naturally, this mostly affected the trading of financial derivatives since, contrary to securities and commodities, no regulated exchange existed where they could be traded legally. The
unwavering governmental objections, however, yielded in the mid-1850s when future delivery contracts became legal if the delivery date did not exceed two months. This set the gradual tone of increased deregulation during the following decennia, which ended with the full legal enforceability of financial derivatives in France in 1885.  

2. The regulatory framework of Germany

Financial derivatives spread from France to Germany in the early nineteenth century. Future delivery contracts developed in Germany as “time contracts”, which were subsequently divided in forward contracts and options. For much of the latter part of the 19th century derivatives were traded in a state of legal uncertainty, as, from 1871 onwards, German courts themselves judged whether a future delivery contract was legitimate or if it constituted illegal gambling. The legal certainty increased with the Börsengesetz of 1896; the first framework regulation in Germany, which regulated exchange-based transactions and made off-exchange transactions illegal. The law banned the concluding of future delivery contracts (even on exchanges) with (i) wheat and other milling products, and (ii) mine and factory shares. The law left it up to the government to enact bans on different underlying. Financial markets in Germany had grown substantially by the turn of the century, making it impossible to trade illicitly (as had been the result in France more than half a century earlier). Furthermore, the future delivery contracts that remained legal by governmental choice were only made enforceable if both counterparties were registered dealers. Content with a system based on counterparty reputation, most dealers, however, chose not to register and continued trading nonetheless. Compared to France, at the turn of the century the enforceability of financial derivatives, though existent for some, was more legally limitative and practically uncertain.

3. The regulatory framework of the EU

The history of EU financial regulation before the crisis is a short one, as most regulation and regulators remained national. While no such regulation had the sole intention of regulating over-the-counter financial derivative markets (as EMIR does in the post-crisis period), two subsequent directives did include the markets in their scope. The impact of both directives is comparable to the indirect impact on conduct of the FSMA in the UK, than the directness of the CMFA and all its implications in the US.

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171 Ibid, 37.
173 Ibid, 37.
175 Ibid, 38.
176 The stock price downfall of 1900 might be traced back to this decision, as many participants were able to abandon their position without fear of legal enforcement.
a) The Investment Services Directive (ISD)

The Investment Services Directive (ISD) of 1993 was the first significant piece of EU legislation attempting to create a single market for financial services.\textsuperscript{178} The ISD fully applied to all investment firms, with credit institutions only being partially covered by its provisions. An investment firm is any legal person engaged in “investment services”. These investment firms are subject to regulation with regard to certain exhaustive investment services and activities: brokerage, dealing, individual portfolio management, reception and transmission of investment orders, and underwriting or placing activities – all with regards to financial instruments.\textsuperscript{179} Financial instruments are “financial-futures contracts”, “forward interest-rate agreements”, “interest-rate, currency and equity swaps” and “options to acquire or dispose of any instruments” as financial instruments. The terminology (forwards and swaps) and the mentioned classes of financial derivatives (interest rate and currency swaps are traded over-the-counter) indicate the intent to include certain over-the-counter financial derivatives. Those that are not included – currency forwards and all commodity derivatives – are excluded.\textsuperscript{180} A portion of over-the-counter trading of financial derivatives thus fell under the scope of the ISD.

The ISD does, however, exclude certain market participants altogether.\textsuperscript{181} The most relevant exclusions for this thesis are for commodities traders\textsuperscript{182} and financial-futures and options market dealers\textsuperscript{183}. Given the limited amount of included financial derivatives (compared to MiFID, infra), and the exclusions of these dealers, over-the-counter financial derivative markets were only marginally influenced by the ISD.

The ISD facilitated the spread of financial services included within its scope into other Member States. On the one hand, it focused on their authorization by prescribing conditions firms must fulfill to be authorized by its home state.\textsuperscript{184} Once this authorization was received, the firms received a passport allowing them to freely extend their activities into other Member States.\textsuperscript{185} On the other hand, it solved the possibility of jurisdictional conflict that results from firms extending their activities into other Member States. The ISD achieves this through the principle of home

\textsuperscript{183} Art. 2, 2, (j) Investment Services Directive.
\textsuperscript{184} Art. 3, 2 and 3 Investment Services Directive.
\textsuperscript{185} “(…) either by the establishment of a branch or under the freedom to provide services by any investment firm authorized and supervised by the competent authorities by another Member State in accordance with this Directive.” (see Art. 14, 1. Investment Services Directive.)
Member State supervision\textsuperscript{186} and by furthering cooperation between the national supervisors\textsuperscript{187}. A unique and divisive provision of the ISD was the inclusion of the concentration rule.\textsuperscript{188} The ISD verged off from its main goal of market access and into market structure: a Member State may require that transactions, executed for the fulfillment of investment services, are carried out on regulated market.\textsuperscript{189} Its inclusion granted the regulated markets a final period of scarce competition\textsuperscript{190}, before MiFID did away with it. Theoretically, Member States were thus given the ability to require the financial derivatives under the scope of the ISD to be traded on regulated exchanges.

b) Markets in Financial Instruments Directive (MiFID)

The impact of the Markets in Financial Instruments Directive (MiFID) of 2004 on the over-the-counter financial derivative markets was more substantive. It replaced the ISD and was implemented through the MiFID Regulation. MiFID thus follows the four-level ‘Lamfalussy process’ for legislation.\textsuperscript{191} The MiFID Directive and Regulation introduced a framework for investment services and regulated markets, in order to,

\begin{quote}
(...) protect investors and safeguard market integrity by establishing harmonized requirements governing the activities of authorized intermediaries; to promote fair, transparent, efficient and integrated financial markets.\textsuperscript{192}
\end{quote}

The scope of MiFID not only extends to investment firms (as was already the case in the ISD), but also to regulated markets.\textsuperscript{193} The investment firms covered by MiFID are regulated with regards to their investment services and activities that are defined exhaustively.\textsuperscript{194} The investment services and activities include for the most part the same services and activities as the ISD, together with additions as investment advice

\textsuperscript{187} Art. 23, 3 Investment Services Directive.
\textsuperscript{189} Art. 14, 3 Investment Services Directive.
\textsuperscript{190} The Continental market landscape remained dominated by traditional regulated markets, while, especially London, saw many new market types develop and compete with the regulated markets for turnover.
\textsuperscript{191} The four-level ‘Lamfalussy process’ involves a framework legislation (level 1), a more detailed implementing legislation (level 2), increasing coordination among regulators (level 3) and strengthening enforcement (level 4).
\textsuperscript{194} Art. 4, 1 Markets in Financial Instruments Directive.
and multilateral trading facilities (for the regulated markets).\textsuperscript{195} The ISD refrained from including many financial derivatives among the financial instruments, but MiFID clearly reversed this. MiFID lists ten groups of financial instruments – including a wide and exhaustive scope of financial derivatives:

a) All derivative contracts relating to securities, currencies, interests rates or yields;
b) All derivative contracts relating to commodities that must or may be settled in cash;
c) All derivative contracts relating to commodities that can be settled physically and are traded on a regulated market or multilateral trading facility;
d) Derivative instruments for the transfer of credit risk\textsuperscript{196};
e) Financial contracts for differences;
f) All derivative contracts relating to climatic variables, freight rates, emission allowances or official economic statistics.\textsuperscript{197}

All these financial derivatives, whether traded on exchanges or over-the-counter, are thus included as financial instruments in MiFID.\textsuperscript{198} Certain financial derivatives, such as those for the transfer of credit risk, are almost exclusively traded over-the-counter. T. KRIZEK notes that MiFID does exclude certain financial derivatives in the summation; commodity derivatives with compulsory physical settlements not traded on a regulated exchange or multilateral trading facility being one.\textsuperscript{199}

Much of the further applicability of provisions rests on the market infrastructure where the financial instrument is traded. One aim of MiFID is clear: it aspired to add diversity of execution to the market landscape.\textsuperscript{200} As previously mentioned, the most divisive part of the ISD was the concentration rule (\textit{supra}). In giving Member States the freedom to obligate the usage of regulated markets for transactions, which many enacted\textsuperscript{201}, it gave priority to one type of market. Furthermore, it resulted in widely varying market landscapes within the EU, which the European Commission saw as a threat to the unified market.\textsuperscript{202} In return for acceding to the dismantling of the concentration rule, the states that had enacted it demanded a comprehensive framework for off-exchange markets.

\textsuperscript{195} L.C. BACER, “Monitor and merge: MiFID and power in the regulation of EU financial markets”, \textit{Yearbook of European Law} 2008, 354.
\textsuperscript{196} With the legislative intention clearly being the inclusion of credit derivatives.
\textsuperscript{199} Ibid, 19.
\textsuperscript{200} “(…) contributed to make it a level playing field also for new entrants, increasing competition and destroying many of the pre-existing cozy relationships among incumbents.” (see R. RAJAN and L. ZINGALES, “Banks and markets: the changing character of European finance” in V. GASPAR, P. HARTMANN and O. SLEIJSEP (eds.), \textit{The transformation of the European financial system}, Frankfurt, ECB, Vol. 5, 109.)
\textsuperscript{201} France, Italy, Spain and Belgium had all enacted the concentration rule before MiFID. (see A. VAN CAUWENBERGHE, “Het reglementaire landschap voor de Europese financiële markten na MiFID”, \textit{Forum Financier} 2008, 65.)
\textsuperscript{202} A. VAN CAUWENBERGHE, “Het reglementaire landschap voor de Europese financiële markten na MiFID”, \textit{Forum Financier} 2008, 65.
MiFID therefore distinguishes five types of markets and two categories. The “multilateral” platform trading types are: the regulated markets, the multilateral trading facilities (MTFs) and organized trading facilities (OTFs). The “bilateral” over-the-counter trading types are: the systematic internalisers and the true over-the-counter markets. While including over-the-counter markets into its scope, MiFID recognizes their specific nature. A preamble points out that,

“(…) the characteristics of which include that they are ad hoc and irregular and are carried out with wholesale counterparties and are part of a business relationship which is itself characterized by dealings above standard market size, and where the deals are carried out outside the systems usually used by the firm concerned for its business as a systematic internaliser.”

The applicability of the provisions differs for every type of platform (see table 3, infra), in order to account for different market structures and participants. The over-the-counter platform is the only unorganized platform for the execution of transactions. In contrast, to be qualified a systematic internaliser, an investment firms needs a degree of organization, frequency and systematicness in executing its client orders. Under MiFID, the over-the-counter market is a residual category: if the execution of orders is not through any of the four other markets and systems, it is over-the-counter. An investment firm can execute client orders over-the-counter by making itself counterparty to its clients, or through matching client orders with its internal trading book. In the former case, it runs the risk the risk of being qualified a systematic internaliser, in the latter case, it runs the risk of being qualified an MTF. For MTFs, MiFID includes certain rules on the clearing and settlement of the executed transactions.

Besides legislating the diversity of the market landscape, MiFID intends to ensure a “level playing field” between different platform types. To allow the different platforms to compete healthily and efficiently, similar regulations were needed. The regulations can be grouped based around their distinct goals. Market transparency is sought both “pre-trade”, through information on orders and trading opportunities, and “post-trade, through disseminating information on the executed transactions. Over-the-counter markets must only fulfill the post-trade transparency, as their ad hoc and irregular nature makes pre-trade transparency difficult. Further relevant provisions for over-the-counter markets are those on business conduct, which make up the core of the new regulations.

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204 Art. 1, 7 Markets in Financial Instruments Directive.
206 Ibid, 68.
207 If the investment firm executes client orders on an organized, frequent and systematic basis; the trading remains bilateral but the scale of it qualifies them as systematic internalisers.
208 If the investment firm brings together multiple third parties that are buying and selling financial instruments; the trading becomes multilateral and the firms qualifies as MTF.
209 Art. 39, (e), and 14, 5 Markets in Financial Instruments Directive.
The attainment of the different goals – diversity, a level playing field, transparency and investor protection – is expedited by the “best execution” obligation. Investment firms, in executing client orders, are obligated to follow a strategy to obtain the best results for their clients. An essential part of this strategy is choosing what platform to execute transactions on. In doing so, they are forced to take note of the strengths and weaknesses of all platforms and to execute accordingly. Over-the-counter markets, however, are best set to qualify for an exception to the best execution obligation. When transacting with eligible counterparties, which are mainly institutional participants, the regulations on business conduct, best execution and part of the client order handling rules, are not applicable with regards to this institutional client. As over-the-counter financial derivative markets are almost exclusively inter-institutional markets, the best execution and business conduct provisions will often not apply.

Since MiFID was primarily designed with equity markets in mind, its applicability to financial derivative markets is often limited. Certain concepts in the framework, such as “orders”, clearly make sense in the context of an equity market, but less so for...
financial derivative markets. Over-the-counter markets were added to its scope more as afterthought than actual goal; only a limited amount of provisions is therefore applicable, with the institutional exception leaving only post-trade transparency entirely intact.

c) Other

The London Code of Conduct (LCC) is an interesting example of a self-regulatory attempt at a substantive framework covering wholesale markets. The Bank of England drew it up in 1995, in consultation of market participants representing dealers and end-users.

Its main aim, as amended in 1999, is to set out the principles and standards dealers (“broking firms”) in the wholesale markets should abide by, and the principles to be observed by banks and other financial institutions participating as end-users (“core principals”) in these markets. A wholesale market is any professional, mainly inter-institutional market; all over-the-counter markets should principally falls under the framework. The LCC explicitly lists for which of the financial derivatives this is the case: over-the-counter options or futures on gold and silver; over-the-counter options or futures on currency rates, interest rates and a variety of bills and bonds; all interest rate and currency swaps; and all forward rate agreements or any other contract for difference.

As a self-regulatory code of conduct, it obviously does not have the same enforcement capabilities as a regulatory framework. When another dealer or end-users detects a breach, the code offers a pyramid of solutions: first, it is encouraged to settle the breach amicably; second, it can raise a complaint with the FSA; lastly, the FSA can be asked to arbitrate disputes.

C. Interim conclusion

Several valuable conclusions can be drawn from this analysis of the pre-crisis regulatory framework. Firstly, financial derivatives have existed for centuries. Since the 1980s, however, the slipstream of over-the-counter markets exponentially accelerated the speed of their development. The forward delivery contrast of yesterday seemingly has little in common with the interest rate swap of today, but conceptually both fit the definitions we discussed earlier (supra). Secondly, limitations on their enforceability and legality have existed as long the financial

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220 “For swaps, options, futures and forward rate agreements (FRAs), or other ‘contracts for differences’ (items 6, 14 and 15), the minimum underlying value is £500,000 (or the equivalent in foreign currency).” (see FINANCIAL SERVICES AUTHORITY, The London Code of Conduct: For principles and broking firms in the wholesale markets, June 1999, London, FSA, http://www.fsa.gov.uk/pubs/additional/lcc.pdf, 7.)
derivatives themselves have. In some jurisdiction these limitations were through common law precedent (UK and US), in other regulatory (US) and others criminal (France and Germany). The underlying feeling in all was that speculation was akin to a wager and thus morally void. Thirdly, the withdrawal of these limitations is therefore a much more recent phenomenon than one might expect. If the historical norm of their existence is hence a state of limitation, the post-crisis regulatory framework merely seeks to regress to that mean once more.

III. THE REGULATORY FRAMEWORK DURING THE CRISIS

The causes of the 2008 financial crisis (“the crisis”) are as numerous as they are complex.222 The failure of regulation in mitigating and preventing the crisis, however, mainly boils down to one inevitable fact. L.C. BACKER phrases it succinctly:

“Market regulation tends to serve as a partial intervention in an area of economic activity that is inherently dynamic and that develops along the lines of its own logic. (...) It merely reminds that law, in this case certainly, is attempting the control of a moving target. Regulatory efforts will always inevitably lag behind actual practice, in part because the pace of regulation is generally slower than that of market or individual behavior, and in because individuals (and markets) will tend to change their behavior in light of perceived costs of compliance with regulatory efforts and availability of substitutes or alternatives.”223

In a Sisyphean game of cat and mouse, regulation is doomed to fall short of the crest of the hill into eternity. It can regulate the previous crisis, but can impossibly foresee the next one. Much of the regulatory framework during the crisis stemmed from the Great Depression and the conditions that characterized finance then.224 Two trends have especially changed financial markets and their participants fundamentally. First, regulated financial intermediaries (such as banks and insurance companies) have been supplemented and often replaced by less-regulated intermediaries (such as hedge funds and investment firms). Second, traditional financial products and services (such as insurance and letters of credit) have had to compete with new, often less costly products. Capital markets have overwhelmingly supplied these new products, with financial derivatives being a foremost innovation.225

Regulation is doomed to lag behind the dynamic situation; this was certainly the case for the new types of financial intermediaries and products. While some tentative steps had been taken since the 1950s – which were overwhelmingly deregulatory to suit the desires of the new intermediaries and products – for many an expansive regulatory step had yet to be taken.226 The regulatory reality was thus miles behind the financial

222 Excellent conclusions can be found in the following: the Squam Lake Report, the Financial Stability Report, the Group of 30 Report, the CEPR Report by Dewatripont, and the Geneva Report by Brunnermeier et al.
reality when the crisis hit. The regulation of over-the-counter financial derivatives markets is a prime example of this.

After the above introduction, this thesis will now look into the regulatory framework during the crisis. We will first go through a chronological history of the crisis, mainly focusing on the role over-the-counter financial derivative markets playing in turning a national housing crisis into a global financial crisis. The history is complex and lengthy, but analyzing it is essential to understanding the systemic risk that over-the-counter financial derivatives markets hold. Without it, one would be unable to fully comprehend the ratio legis behind the post-crisis measures. Subsequently, we will attempt to identify certain failures and possible lessons to be learnt from them.

A. A history of the crisis

As we previously saw, financial derivatives can be used to effectively manage and neutralize risk. The credit risk of a counterparty defaulting on his obligations is transferred by financial derivative to a different counterparty; the risk of an asset declining due to market movements similarly offset by a financial derivative counterparty. Financial derivatives thus help hedgers liberate the funds otherwise destined to cover this risk. When financial derivatives are used improperly, however, they can spread risk by magnifying initial losses. The crisis started out as a housing bubble and a domestic one at that. Part of its expansion into a financial and a global crisis can be traced back to the systemic risk of the over-the-counter financial derivative market.

1. A rising housing market in the US

The housing market started its exponential growth in the late the 1990s and continued that trend into 2006. The conditions were ripe for it: credit was easy to obtain and interests rates were low. Reacting to the dot-com crash and the perceived risk of deflation, the Chairman of the Federal Reserve, Alan Greenspan, consciously kept the federal-funds rate low for years. This low rate had two important effects. On the one hand, it resulted in low interest rates on all loans. On the other hand, it created a risk-seeking environment: capital, in an attempt to circumvent the low interest rate environment, sought gains wherever it could. Furthermore, public policy was fixed on ensuring “affordable housing” for all. In May 1995, the National Homeownership

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229 Ibid, 488.
230 He lowered the federal-funds rate – the rate at which institutions depositing funds with the Federal Reserve lend to each other overnight – from 6.5% in 2001 to 1% in 2003. (see E.K. MORAN, “Wall Street meets main street: understanding the financial crisis”, N.C. Banking Inst. 2009, 13-14.)
Strategy was created to accomplish this. Its goal of increasing homeownership relied on (i) government-sponsored enterprises (GSEs) such as Fannie Mae and Freddie Mac233 and (ii) creative financing techniques to push costs. As the GSEs were limited by loan size, credit score and underwriting standards234 in the mortgage loans they could guarantee and pool, the creative financing techniques were mostly focused on lesser quality mortgage loans.235 These lesser quality loans were the “non-agency”, “subprime loans” (compared to the “agency, “prime” loans). Besides low interest rate and a public policy, a third reason for the increase in subprime lending was the rising housing market itself. Mortgage lenders assumed home prices would continue to rise, which made the collateral – the home – ever more valuable throughout the duration of the loan. Confident of the ability of the rising collateral to guarantee the mortgage loan, the actual creditworthiness of the mortgage borrower became less important.236 This obviously benefited subprime mortgages more than the prime counterparts. While prime loans always accounted for both the absolute and relative largest volume, beginning in 2002 they gained ground.

Figure 3 (Source: A.J. LEVITIN et al.237)

a) Securitization

One of the creative financing techniques was securitization: the process of turning illiquid assets into liquid securities. As investors in subprime loans could not count on any government guarantee (they could for prime loans), they had to fall back on other

233 Fannie Mae and Freddie Mac guaranteed mortgages, purchased mortgages off mortgage originators, and created mortgage-backed securities. As the securities they guaranteed remained stable during the crisis, they might have contributed to the housing bubble, but certainly were not a primary cause of the crisis. (see FINANCIAL CRISIS INQUIRY COMMISSION, the Financial Crisis Inquiry Report, January 2011, Washington D.C., FCIC, http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf, 323.)

234 Different variables of creditworthiness – payment history, current level of indebtedness, types of previous credit, length of credit history and new credit – were measured in a rule of thumb measurement of borrower credit quality called the FICO score. It ranges between 300 (very bad) to 850 (very good).


means of credit enhancement. Although prime loans were also securitized by GSEs, securitization industry became especially hooked to subprime loans. Through securitization, the mortgage industry was able to decouple the origination and servicing aspects of mortgages. Selling mortgage contracts to borrowers (“origination”) traditionally meant the contract remained on the balance sheet of the lender as an asset. Until it matured, the mortgage originator had to collect the principal and interest payment of the borrower (“servicing”). To rid themselves of this burden and the credit risk it involved, banks and mortgage banks securitized the mortgages.\textsuperscript{238} By doing so, they could decouple the origination and servicing aspects of a mortgage. The business model of the mortgage industry thus became “originate-to-distribute”, instead of “originate-to-hold”.\textsuperscript{239}

\begin{enumerate}
\item \textit{Mortgage backed securities}
\end{enumerate}

After a mortgage lender entered into a mortgage loan with a mortgage borrower, the lender would sell the loan to a Special Purpose Vehicle (SPV), where they were pooled together with many others. The purchase of these mortgages by the SPV would be financed by the issuance of notes, which were bought by investors. The mortgages also served as collateral for the notes, which bore a coupon financed by the interest payment of the mortgage borrowers. These notes were generally structured as mortgage-backed securities (MBSs), but investors could also gain exposure through (cash or synthetic\textsuperscript{240}) collateralized debt obligations (CDOs).\textsuperscript{241} The lender that originated the mortgages could thereby turn projected long-term interest into immediate cash. The market for credit default swaps (CDSs) with MBS and CDO as underlying grew simultaneously, a fact that would return to haunt AIG.\textsuperscript{242} By 2006, securitization had become so endemic to the mortgage industry that over 80\% of mortgage loans had been used as underlying in MBSs. In 1995, this had been a mere 30\%.\textsuperscript{243}

The SPVs usually contained mortgages of varying quality and location, but the notes they issued were only based on the varying quality. The notes backed by the highest quality mortgages (the “senior tranche”) received the highest credit rating, while those backed by lower quality mortgages (the “mezzanine tranches”) received a lesser rating but higher return.\textsuperscript{244} The lowest quality tranche (the “equity tranche”) bore the most risk of all. Senior notes had the first claim on interest and principal payments by

\textsuperscript{240} Instead of actually pooling mortgages and issuing notes against them, the same structure and cash flow is achieved through the usage of swaps.
\textsuperscript{242} “At the end of 2007, the monoline insurers guaranteed approximately $127 billion of CDOs with mortgage-related exposure.” (see H.B. SHADAB, “Guilty by association? Regulating credit default swaps”, Entrepreneurial Bus. L. J. 2010, 441 and 445.)
the mortgage borrower; mezzanine notes progressively less and the equity tranche the least. When a mortgage borrower defaulted on his payment, the equity tranche suffered the first losses, with the mezzanine tranches next in line and the more senior tranches only taking a hit when the losses cascaded upwards. For this reason, super-senior notes (the highest quality of the mortgage pool) always received an AAA rating.

(2) **Collateralized debt obligations and ABX indexes**

Lower tranche MBSs were less profitable to the securitizing investment firms and banks, as they received a lesser rating, but they were able to circumvent this by structuring them as *cash* CDOs. BBB notes were pooled in a different SPV, against which new notes were issued to investors. While the majority of the originals notes in the pool were rated BBB, the new notes would often be rated AAA.

While true CDOs did contain (an abstract of) mortgage loans, *synthetic* CDOs did not. Even though mortgage lenders were selling mortgages to just about anybody in the buildup towards the crisis, at a certain point they could not supply enough loans to fill the securitization demand. A first evolution to counter this was the creation of synthetic CDOs, which were structured to perform as their cash counterparts. An SPV would acquire a portfolio of high-quality assets (such as US treasuries), sell CDS protection against an index of subprime mortgages and subsequently issue notes against this pool of assets and CDS contracts. While the pool contained no mortgage loans or notes, the interests payment of the assets (the “riskless” portion) and CDS premium it received (the “risk” portion) would create a corresponding cash flow.

A second evolution was the creation of ABX indexes that allowed investors to gain exposure to mortgage loans. Just as synthetic CDOs, investors could thereby open a position without actually owning mortgage loans directly (through MBSs) or indirectly (through CDOs). These indices grouped a basket of CDS contracts on securitized mortgage tranches. As CDS premiums increase when the risk of default grows, the indexes would effectively function as a bond price by climbing and falling on creditor confidence.

(3) **Securitization and building systemic risk**

The credit rating agencies and gullible end-users made one critical mistake: they premised these financial innovations made the products a diversified investment.

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The risk of a housing downturn and subsequent mortgage loan defaults striking the whole country was considered highly improbable. Participants blinded themselves with mathematical hubris. Investment banks and firms relied excessively on mortgage default models and theoretical pricing models of the securities they wrote to prove the solidity of the notes, but which the credit rating agencies hardly understood and subsequently readily accepted. On the one hand, this risk distribution belief explains the usage of SPVs to pool mortgage loans originating from diverse places. If a housing downturn afflicted one state, it would not impair the whole pool of mortgage loans. On the other hand, it explains the creation of AAA CDOs out of BBB MBSs. In hindsight, that premise proved to be very wrong, as the housing crash effected the whole country.

Other than obfuscating the involved risks, securitization also contributed to the deterioration of mortgage lending standards. When a mortgage lender has a mortgage loan on his balance sheet, he has a large incentive to screen and monitor the mortgage borrower; when the mortgage loan sours, he bears the loss. When the loan is securitized, however, a different investor bears the credit risk. This has two effects that contributed to declining standards. On the one hand, the distance between mortgage borrower and credit-risk bearer is larger, making it the latter hard to impossible to monitor the borrower. On the other hand, a security is liquid and thus easily transferable when indications appear the borrower is having trouble paying his mortgage loan. Studies indicate a causal link between securitization and screening of borrowers, with a doubling of securitization resulting in a 10-25% increase in borrower defaults. Furthermore, areas with high concentrations of aggressive mortgage lending later suffered the largest declines in home-price declines. In the originate-to-distribute model, much of the securities assessment was outsourced to the credit rating agencies. As they rated the securities as a whole, they refused to assess the (declining) lending standards of individual mortgage loans.

2. The housing market collapses

253 “The ratings agency people were all like government employees. Collectively they had more power than anyone in the bond markets, but individually they were nobodies. They’re underpaid. The smartest ones leave for Wall Street firms so they can help manipulate the companies they used to work for.” (see M. LEWIS, The Big Short: Inside the Doomsday Machine, New York City, Norton, 2011.)
255 Ibid, 28.
256 Arizona, California, Florida and Nevada experienced the most aggressive lending, subsequent highest prices and eventual home-price declines.
With demand exceeding supply, home prices increased precipitously. The Case-Shiller home price index for the ten largest metropolitan areas grew from 100.75 in January 2000 to its peak of 226.91 in April 2006 – a rise of 225%. While it was the US housing market that created a global crisis, it was hardly the most overvalued housing market at the time. In the preceding decennia before 2007, homes prices in Spain had increased by 180%, in Great Britain 194% and in Ireland by 253%. Loose credit drove these markets up, but eventually gravity would pull them all down.

The first signs of a slowing subprime housing market appeared during the mid-2000s. These clues were, however, masked by the combination of financial innovations and subsequent worsening of lending standards, which continued to increase volumes and profitability. Furthermore, loan delinquency statistics lag behind one to two years, as mortgage borrowers unsustainably deplete their last means to avoid foreclosure and the lenders prefer not to sell homes in haphazard auctions that result from foreclosure. While some market participants became aware of the warning signs and positioned themselves accordingly, many remained oblivious until the dire end.

![Figure 4](http://www.standardandpoors.com/indices/articles/en/us/?articleType=XLS&assetID=1245214507706)

**Figure 4 (Source: Standard & Poors)**


260 The Case-Shiller indices track residential real estate prices across the US.


263 In 2007, Paulson & Co. – the hedge fund run by John Paulson – made $15 billion shorting CDOs, by buying CDSs with them as underlying. (see WALL STREET JOURNAL, *Profiting From the Crash*, 31 October 2009, http://online.wsj.com/article/SB10001424052748703574604574499740849179448.html.)

264 “What you want to watch are the lenders, no the borrowers. The borrowers will always be willing to take a great deal for themselves. It’s up to the lenders to show restraint, and when they lose it, watch out. By 2003 he knew that the borrowers had already lost it. By early 2005 he saw that lenders had, too.” (see M. LEWIS, *The Big Short: Inside the Doomsday Machine*, New York City, Norton, 2011.)

When asset bubbles pop, there is often no cause and moment to pinpoint. At a certain point, the speculative fervor in the housing market broke. The seemingly unstoppable home price rise (the Case-Shiller index composite in blue) peaked in April 2006, stagnated until March 2007 and then plummeted, hitting rock bottom in March 2009. In two years time, the average home price plummeted 46%. The collapse of home prices struck the whole country – contrary to what the models pricing MBSs and CDOs had predicted.

3. The mortgage industry fails

As mortgage borrowers skipped mortgage payments and eventually defaulted on their loans, the mortgage lenders in possession of the mortgage loans or ABSs lost their income and closed. Many mortgage originators, which had supposed offloaded the credit risk through securitization, were caught with unprocessed mortgage loans on their balance sheets. Furthermore, as the securitized products built on a pool of mortgage loans, there was simply no way differentiating between the solid and delinquent loans (within the tranche and the SPV itself). Fearing impact from the delinquent mortgage loans in the pool, many investors hopelessly tried to rid themselves of the ABSs and CDOs. The first to be hit were the equity and mezzanine tranches; they became “toxic products”, with the lesser trances skipping payments and failing, while for the higher ones market liquidity almost ceased to exist. By October 2007, 186 CDOs, representing over $200 billion in assets, had failed. If the involved banks and firms were able to sell them on the illiquid markets, it was at huge loss of initial value. If the banks and firms were not able to, these MBSs and CDOs remained on their balance sheets, forcing them mark these to market. The consequence was huge write-downs on these assets throughout 2007, 2008 and 2009.

4. The financial system locks up

a) Shadow bank run

The standard bank model is based on collecting short-term liabilities (in the form of deposits) and investing these in longer-term assets. Banks thus play an essential role in the economy by transforming short-term maturities into longer-term ones

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268 Ibid, 491.
269 Mark-to-market accounting is a transparency rule, whereby assets, which are the part of the trading book of the bank or firm, must be revalued at the end of every market day.
270 Notable write-downs on mortgage loans, MBSs and CDOs include: $39.1 billion by Citigroup, $29.1 billion by Merrill Lynch, $11.1 billion by AIG, $4.3 billion by Freddie Mac, $4.0 billion by Countrywide Financial and $2.3 billion by (the former) Fortis.
(“maturity transformation”). They also connect savers with an excess of cash, with borrowers with a lack of it (“financial intermediation”). Maturity transformation, however, is inherently linked to the risk of bank runs; depositors without confidence in the bank suddenly withdraw their cash, leaving the bank in a liquidity crisis, as it cannot sell off its longer-term assets fast enough to repay the depositors.\(^ {273}\)

The banks involved in the securitization of mortgages, however, were mostly investment firms and banks. Instead of taking deposits from retail clients, they financed their longer-term investments by borrowing through capital markets from institutional investors. Ideally, a debt structure is balanced by different maturities – nevertheless, many of the investment firms and banks relied on collateralized short-term credit, as yields were the lowest on these. Such credit mainly took on the form of repurchase agreements (“repos”) and commercial paper. Both belong to what is termed the “shadow banking” system; unlike the regulated banking system, it is a parallel banking system that was hardly regulated but of utmost importance.\(^ {274}\)

The crisis eventually showed “shadow bank runs” on investment firms and banks can be equally effective; in a matter of weeks, the capital markets that fund them can run turn from torrents into trickles. As the credit was mostly short-term, the creditors can quickly react to changing circumstances by choosing not to rollover or extend credit. When the sustainability of the housing market started to be questioned\(^ {275}\) and eventually crashed, this created a bank run in two ways. Firstly, the collateral used to secure short-term funding was reliant the housing market. As the banks and firms frequently used MBSs and CDOs as collateral for short-term credit, creditors became increasingly wary of its suitability as collateral and eventually rejected it. Secondly, debtors were worried the mortgage securitization activities of the investment firms and banks affected their creditworthiness by linking them to a struggling housing market. Particularly worrisome was their exposure to credit derivatives, such as CDSs written on CDOs, and the possible presence of subprime loans on their balance sheet.

b) Liquidity crisis

With creditors distrusting their collateral and general creditworthiness, the investment banks and firms had to sue concerns and post additional collateral. When their existing quality assets ran out, they had no choice but to procure more on the market.


\(^ {274}\) “The structure of the financial system changed fundamentally during the boom, with dramatic growth in the share of assets outside the traditional banking system. This non-bank financial system grew to be very large, particularly in money and funding markets. In early 2007, asset-backed commercial paper conduits, in structured investment vehicles, in auction-rate preferred securities, tender option bonds and variable rate demand notes, had a combined asset size of roughly $2.2 trillion. Assets financed overnight in triparty repo grew to $2.5 trillion.” (see T. GEITHNER, Reducing Systemic Risk in a Dynamic Financial System, 9 June 2008, http://www.newyorkfed.org/newsevents/speeches/2008/tfg080609.html.)

\(^ {275}\) Beginning in early 2007, serious doubts were spread on the documentation of mortgages, the quality of mortgage borrowers and all-round underwriting standards.
Cash reserves ran out before they could stabilize their finances, forcing them to sell assets haphazardly on the market to pay debtors and to procure quality collateral.276

Once rumors and news spread of the devastating effect, recapitalizing and refinancing became impossible. Debt and equity capital market plummeted due to the asset sales, which, together with the short-term financing markets withholding or not renewing funding, evaporated all funding sources. A solvency crisis, due to the losses and write-downs on subprime assets, thus turned into an even more immediate liquidity crisis. One by one, mortgage banks, mortgage insurers, investment firms and banks, Fannie Mae and Freddie Mac, all touched insolvency and illiquidity. Only the US government, as lender of last resort, was able to stop the dominos from cascading too far.277

B. Interim conclusion: lessons from the past

We previously established over-the-counter financial derivatives were a major cause in turning a national housing bubble into a global financial crisis. Inevitably, regulation will always lag behind reality (supra). When regulation drastically falls behind and a crisis erupts, unique lessons are to be drawn from it in retrospect. Like an athlete watching re-runs of his latest game, with pen and notepad in our hand we too can learn from it.278

Essential to analyzing the post-crisis regulatory reboot is hence highlighting where and why the regulatory framework was insufficient to deal with the mounting systemic risk. Furthermore, we can draw possible solutions from these lessons, which we can then compare with the post-crisis regulatory framework. While it is unlikely regulation extracted from these lessons will prevent a new and different crisis, at the least we can hope it might prevent a new and similar one. This interim conclusion therefore sets out to highlight the failures by focusing on the regulation and subsequently on the regulators.

1. The failure of regulation

   a) Securitization

Before the crisis, securitization was seen as an effective way of distributing risk to diverse investors who sought it. The credit risk that started with the mortgage borrowers was passed along the securitization chain all the way to the investors who

276 In times of crisis, investors fight to procure the most trustworthy assets (such as US Treasury bills and bonds), making it expensive to do so. (see B. BERNANKE, M. GERTLER and S. GELCHRIST, “The financial accelerator and the flight to quality”, R E S t a t 1996, 1-15.)
278 “Out of every crisis, it must recognized, arises an opportunity to improve. The objective at the end of the exercise – which may me twenty years away – therefore, must always be kept in sight: set a firm foundation or improved financial markets and economic growth potential so that the necessary restructuring becomes known more for its own success than the crisis that spurred us into action.” (see J.R. MASON, Restoring the Economy: Strategies for Short-term and Long-term Change, 26 February 2008, Congress of the United States Joint Economic Committee, http://www2.dse.unibo.it/cavazzuti/corso%20monografico/Mason_JEC_26_02_09.pdf, 3.
bought the MBSs and CDOs. When these mortgage loans started to become delinquent, however, two perverse effects became clear.

Firstly, securitization increased systemic risk by concentrating risk among several key investment firms and banks. They bought and securitized the bear share of mortgage loans and sold them to investors; when the crisis hit the eventual losses on the mortgage loans were concentrated were concentrated with them. As these financial institutions were involved in numerous other retail and investment banking activities, the large mortgage securitization losses had a deep impact. If one of these were to default, a cascading trail of defaults would quickly follow.279

Secondly, securitization had created conflicts of interest that the market was unable to correct. Mortgage loan originators had no incentives to actually uphold lending standards or to monitor which loans were being securitized, as the originate-to-distribute model offloaded credit risk onto others. Most profitable for them was to increase their mortgage lending volume (which pushed down lending standards over time) and securitize as many of these mortgage loans.280

(l) Possible solutions

Mortgage originators and sponsors should retain an economic interest in the mortgage loans they originate. Such an interest would solve the conflict of interest by creating an incentive for them uphold lending standards and to carefully select the mortgage loans that they securitized.281

One such incentive could be to retain a slice of credit risk to the securitized loans – without allowing them to hedge this exposure. Because of this exposure, they would be hit if the mortgage loans become delinquent and default. A different incentive could be the obligatory extension into the future of a securitization profit made by a loan originator. Instead of booking the profit immediately, accounting rules could be changed to reflect the long-term nature of the underlying mortgage loans. Both incentives would incentivize originators to consider the creditworthiness of the mortgage borrowers they lend to and the mortgage loans they sell of to securitizers.282

b) Transparency

Lack of transparency was a contributing factor every step of the way. While it is not of the nature to actually cause a crisis, it facilitated the buildup of systemic risk by hiding it.

281 Ibid, 44-45.
282 Ibid, 44-45.
In the theory of dynamic systems, systems can be open-loop or closed-loop. Closed-loop systems are continuously self-regulating and thus preferable, but need a control strategy to guarantee their self-regulatory stability. Feedback is essential to any control strategy, so when it breaks down the control strategy dysfunctions, thereby threatening the stability of the closed-loop system. As finance is socio-economic dynamic system, it, too, needs a control strategy to remain stable. Transparency of financial transactions and positions forms the feedback that makes the closed-loop control strategy possible. When transparency ceases to exist, the system becomes unstable and eventually results in a crisis.

Information on outstanding over-the-counter financial derivative contracts was limited and not harmonized across markets and jurisdictions before the crisis. Only one trade repository truly existed: the Depository Trust and Clearing Corporation (DTCC). Its Trade Information Warehouse served as repository for transactions in credit financial derivatives – but not for any others. Standard CDSs were thus includes in the data it collected, but CDSs on exotic underlying such as CDOs, however, were not. When the crisis burst, it was especially these latter CDSs that caused dismay and losses. A comprehensive reporting obligation would have made the buildup of CDOs clearer to all market stakeholders: the public, the market participants and regulators.

Lack of transparency stood in the way of market participants comprehending the risks of their own transactions in over-the-counter financial derivatives. They simply failed the see the interconnectedness the markets held. Secondly, it stood in the way of knowing the risks their counterparties and other market participants were taking. Lastly, it held markets participants, rating agencies and regulators alike back from foreseeing the systemic risk forming around them.

If transparency of transactions and positions had existed, it might have constituted the feedback necessary for the stability of a closed-loop system such as finance. Knowledge of transactions and positions had been especially limited for over-the-counter financial derivatives and the underlying of ABSs. Otherwise, market participants might have diminished their exposure to these financial products, credit rating agencies might have judged risk wiser and regulators might have intervened.

(1) Possible solutions

All ABSs are backed by assets, to which the investor or credit rating agency generally does not have access. The quality of these assets, however, determines the quality of the ABS. One could therefore obligate a full disclosure by mortgage lenders and securitizers of the aspects of the underlying assets that determine its creditworthiness.

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During the crisis MBSs were problematic, but regulation should be broad enough to catch all ABSs.  

Furthermore, all market participants trading over-the-counter financial derivatives could be forced to keep records and report their trades. Trade reporting is already endemic to transactions executed on regulated exchanges. For their counterparts executed on over-the-counter markets, trade reporting does not generally exist. Through the Trade Reporting and Compliance Engine (TRACE), the requirement already exists for transactions in fixed-income securities traded over-the-counter. A similar trade repository could be created for over-the-counter financial derivatives or existing repositories could be expanded to include them. If over-the-counter financial derivative contracts are cleared through CCPs, the involved trades can easily be collected. Respecting discretion entails the public should only receive aggregate data on trades and positions, with market participants possibly receiving additional data on their counterparties, but regulators receiving full individual disclosure. 

While effort should be made to allow scrutiny of ABS underlying, trade reporting is clearly the more imperative measure. It will allow regulators with a systemic overview to spot dangerous concentrations of risk. As over-the-counter financial derivatives are increasingly centrally cleared through CCPs, trade reporting will even be a natural evolution.

c) Credit rating agencies

Through their failure to accurately judge and integrate risks, credit rating agencies created a dangerous sense of security. While fault lies in their inability to correctly include risk in their assessment, investors are also to blame for relying excessively on their ratings. The credit rating agencies created a false sense of security, one that investors were all too happily to believe. The Congressional inquiry even states the crisis could not have happened without their complacency.

The frailty of their ratings had several causes. Firstly, they relied overtly on mathematical models provided by the investment firms and banks for evaluating ABSs and CDOs, without understanding their inherent limitations. Secondly, their business model created perverse incentives to overrate, as financial firms actually paid for the ratings. In a competitive market for ratings, these incentives had had a great impact. Thirdly, their offices were fundamentally understaffed to suitably

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287 Ibid, 45.
289 Moody’s Investors Service, Standard & Poors and Fitch Ratings relentlessly competed for market share.
handle the large amount of ratings they pushed through. Lastly, public oversight was practically nonexistent.\textsuperscript{290}

\textit{(1) Possible solutions}

Any measures should therefore incentivize credit rating agencies to integrate risk more soundly and disincentivize investors from overly relying on their ratings.

Credit rating agencies could be incentivized to differentiate their rating methodology between traditional credit products and structured credit products. Credit rating agencies would be forced to account for the uniqueness of structured credit products through a separate methodology. One reason why they so drastically failed to integrate all risks was because they refused to individually examine the mortgage loans underlying the MBSs. Such a stance is clearly untenable, and a separate methodology should take this into account. A further incentive could be the obligatory publishing of these methodologies, including periodic updates. On the one hand, it would force credit rating agencies to contemplate a suitable methodology to rate structured credit products. On the other hand, investors would be able to spot the faults and weakness the resulting ratings might have.\textsuperscript{291}

Another incentive could be reflected in the balance sheet of investors. The inherent complexity of financial credit derivatives (and the subsequent fallibility of their ratings) could be recognized by risk weighing the valuation of assets and liabilities they generate. Investors would thus be incentivized to develop their own internal ratings, if they wish to rid themselves of a punitive risk weighing when they use external ratings.\textsuperscript{292}

d) Over-the-counter financial derivatives

Before identifying the failures of over-the-counter financial derivatives during the crisis, we must first distinguish them. As MBSs confer a right of (partial) ownership over underlying mortgage loans in the pool, they are traditionally not deemed financial derivatives. Earlier we made a distinction between cash and synthetic CDOs (\textit{supra}). Cash CDOs – that pool different MBSs together – principally retain (an abstraction of) ownership over the underlying MBSs and mortgage loans. On the other hand, synthetic CDOs – that contain different assets and CDS contracts – clearly derive value from the cash flow recreated synthetically, without granting ownership over any MBSs and mortgage loans. They can hence be retained as financial derivatives, which were exclusively traded over-the-counter. CDSs written on both MBSs and CDOs are without doubt financial derivatives and were also traded over-the-counter.

\textsuperscript{292} \textit{Ibid.}, 46.
Both synthetic CDOs and CDSs written on MBSs and CDOs were the hardest hit of all financial products during the crisis. The losses and write-downs they caused blew holes in the balance sheets of many investment firms and banks. Synthetic CDOs mainly played a role in spreading write-downs and losses across globe, as many international banks and firms had invested in these. The risk of CDSs was more concentrated and thus able to bring down key players. Through its financial products division AIGFp, AIG had accrued a lot of CDS exposure to mortgage assets. After it was forced to recognize the sums it had to pay when these mortgage assets defaulted, only governmental intervention kept it standing.

Financial hubris in the decennia preceding the crisis left most over-the-counter financial markets practically untouched by regulation (supra). Politicians, convinced of their ability to distribute risk, lifted any uncertainty by explicitly enforcing and allowing the contracts.

During the crisis the clearing of many of these financial derivative contract became uncertain, since so many large counterparties – the investment firms and banks – were on the verge of default or actually defaulted. This resulted in two problems. Firstly, as many financial derivative contracts (such as CDSs) served to offload risk, the uncertain state of the contract suddenly exposed hidden risk if they were merely bilaterally cleared. Net exposure became gross exposure. Secondly, before the crisis many financial derivative contracts did not demand the posting suitable collateral. When the counterparty could not honor the contract (as happened a lot during the crisis) during clearing or at settlement, the absence of collateral left the counterparty empty-handed.

A further problem was the absence of liquidity in over-the-counter markets during the crisis. Market participants tried to offload CDOs and CDSs, but were confronted with little demand at whatever price. As the models used to value these financial derivatives became discredited, market participants no longer had an idea how to correctly price them. The over-the-counter market hence collapsed.

(1) Possible solutions

The executory certainty of over-the-counter contracts could be increased through changing their clearing infrastructure. All over-the-counter financial derivative contracts that are cleared bilaterally could be subjected to margin requirements – no matter the creditworthiness of the counterparty. This solves the problem of suitable collateral to secure the contract, but the bilateral exposure remains. A second solution

293 The Belgian bank Fortis, for instance, has €2.9 billion in collateralized debt obligations on its balance sheet. (see BLOOMBERG, Fortis Quarterly Profit Falls on Subprime Writedowns, 7 March 2008, http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aBT9L65NzSRA&refer=Europe.)
295 The risk management of the majority all banks and companies relies on using financial derivatives to distribute risk. In doing so, their “gross exposure” to risk is reduced to a “net exposure”. When the financial derivative contracts becomes uncertain, however, the net exposure also becomes uncertain, revealing a looming gross exposure if the counterparty cannot honor the contract.
could be for all standardized over-the-counter financial derivatives to be mandatorily cleared through regulated centralized counterparties (CCPs). CCPs place themselves between both counterparties for the clearing of the contract. Instead of retaining a bilateral exposure to the counterparty during clearing, it is substituted with bilateral exposure to the CCP. This is preferable, as CCPs employ stringent risk management and employ margin requirements.\footnote{DEPARTMENT OF THE TREASURY, Financial Regulatory Reform, a New Foundation: Rebuilding the Financial Supervision and Regulation, June 2009, http://www.treasury.gov/initiatives/Documents/FinalReport_web.pdf, 47-48.}

Market liquidity and price discovery for financial derivatives could be increased through different means. Firstly, dedicated market makers could be assigned to over-the-counter financial derivative markets, which have the obligation to trade certain volumes even in times of liquidity collapse. This is already the case for many financial derivatives traded on regulated exchanges, but could foreseeably be accomplished for over-the-counter markets. Secondly, standardized financial derivatives could be traded on regulated exchanges or other electronic trade execution systems. This would increase liquidity and price discovery. It would furthermore result in competition between several types of market platforms, thereby ultimately benefiting end-users.\footnote{Ibid, 48-49.}

2. The failure of regulators

The regulators lacked the authority, the means and the competence to monitor, mitigate and prevent the systemic risk of the over-the-counter financial derivative market forming. Even if suitable regulation is put in place, without competent and proactive regulators compliance will inevitably slide. Furthermore, regulators play an important role in financial regulation as they are often authorized to implement a legislative framework through rules and standards. As we will see further on in this thesis, this is very much the case for post-crisis regulation, consequently making this section truly important.

a) Lack of authority

The most important line of defense for regulators was their limited authority in regulatory oversight. The regulators lacked authority in exercising oversight over over-the-counter financial derivatives, systemic risk and new financial intermediaries.

Firstly, the regulators lacked the actual authority to address the risk posed by over-the-counter financial derivatives. By passing the CFMA, Congress had effectively removed over-the-counter financial derivatives from the regulatory oversight of the CFTC and the SEC. Earlier intentions by the CFTC, under former Chair Brooksley Born, to create a regulatory framework for over-the-counter derivatives foundered until after the crisis.\footnote{S. MAXFIELD, “Lessons from the history of over-the-counter derivatives regulation”, SSRN, 2009, http://euce.org/eusa/2011/papers/12e_maxfield.pdf, 7-8.}

Furthermore, no regulator had been exclusively competent for overseeing the financial system as a whole. Instead, different (oft competing) regulators oversaw
different participants and markets. Systemic risk is systemic since it is interconnected; merely overseeing different participants and markets prevents a scope wide enough to spot the interconnectedness. Regulators and bankers agreed the stumbling housing market would cause losses, but their limited scope had them believe these would be limited and contained. Furthermore, regulatory competition among different regulators actually led to reduced regulation, as the unclear jurisdictional divides allowed firms and banks to cherry-pick regulation.

Lastly, new types of financial intermediaries went largely unregulated. Their lack of regulation contrasted with their importance in over-the-counter markets and the broader shadow banking system. Privately held investment funds – such as hedge funds and other private pools of capital – fell almost entirely outside of the regulatory framework, allowing them to trade with little limitations or transparency. These arguments certainly weigh in the favor of lifting blame from regulators, but they are balanced by conflicting opinions. The Congressional inquiry into the crisis takes an opposing view; it argues regulators had ample authority to intervene, but they deliberately chose not to. Even if they did not have the authority in certain domains, they could have easily sought it.

This thesis takes the view that the lack of authority was a clear hurdle for regulators, but a hurdle they never sought to circumvent due to lack of means and competence. Removing the hurdles would therefore would not be a panacea, but it would at least lower the barrier.

(1) Possible solutions

An obvious solution is reestablishing regulatory oversight over over-the-counter financial derivative markets. Heeding industry wishes and political preferences at the time, over-the-counter financial derivatives were explicitly removed from regulatory oversight. As financial derivatives do distribute risk and thereby contribute to efficient financial markets and a healthy economy, they remain essential to many end-users. Regulatory oversight should therefore seek monitor, mitigate and prevent a buildup of systemic risk, without impairing their usage by end-users.

301 An infamous example of this lack of limits and transparency is the downfall of hedge fund Long Term Capital Management (LTCM), which had, largely unbeknownst, garnered a position in over-the-counter derivatives worth a notional amount of more than $1 trillion. (see R.M. STULZ, “Should we fear derivatives”, June 2004, Working Paper, 10574, NBER, 31-33.)
302 “To give just three examples: the Securities and Exchange Commission could have required more capital and halted risky practices at the big investment banks. It did not. The Federal Reserve Bank of New York and other regulators could have clamped down on Citigroup’s excesses in the run-up to the crisis. They did not. Policy makers and regulators could have stopped the runaway mortgage securitization train. They did not.” (see NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, The Financial Crisis Inquiry Report, 25 February 2011, http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf, xviii.)
Effort should be made to integrate systemic risk within regulatory oversight. This can be done with or without a centralized regulator. If regulators remain fragmented, a regulatory agency could be created solely to monitor systemic risk. Through aggregating information and analysis, and facilitating interagency discussion, it can effectively monitor systemic issues. Subsequently, its analysis can support a well-informed response to emerging trends, regulatory gaps and supra-jurisdictional issues.\textsuperscript{303} If, on the other hand, regulatory oversight is centralized in the hands of one agency, the creation of a specialized agency to monitor systemic risk is unnecessary. The monitoring of systemic risk can simply be added to its mandate, with the preventive and reactive activities being implemented under the same roof.

New types of financial intermediaries, especially the ones aggregating pools of capital, should be placed under increased regulatory oversight. As the importance and influence of these new financial intermediaries has increased, oversight over them should too. Hedge funds and other alternative asset managers that reach a certain threshold for assets under management could be forced to register with a regulator. Such a registration would allow regulatory reporting and periodic inspection by regulators. Both are critical to assess any buildup of systemic risk within these new financial intermediaries.\textsuperscript{304}

b) Lack of means

Another premise is that regulators lacked the means to effectively assess the amount of risk in over-the-counter financial derivatives markets. Regulators simply did not have the funds or staff to assess the mounting systemic risk and judge if the transaction were conducted on the basis of honest valuations.\textsuperscript{305} If they had become aware of the systemic risk, notwithstanding their lack of authority, concerns might have been voiced and spread to legislators.

Furthermore, the fragmentation of the regulatory landscape very likely contributed to their lack of means. Most investment firms and banks were subject to regulation and oversight by a federal regulator when the crisis hit. As personnel, expertise and knowledge were divided among the different regulators, regulatory scale effects were lost.

Both arguments tie into the slowly evolving nature of a regulatory framework. The growing financialization of most advanced economies over the last few decades resulted in extremely large and complex financial markets. Both that width and depth makes it harder for regulators to achieve their objectives. Decennia ago, the personnel and expertise might have been enough, but not anymore. Decennia ago, fragmented

\begin{footnotes}
\item[304] Ibid, 37-39.
\end{footnotes}
regulatory jurisdiction might have worked as the interconnectedness was much less, but not anymore. Both arguments thus have merit.

(1) Possible solutions

If regulators are to oversee increasingly complex financial markets – of which over-the-counter financial derivative markets are a prime example – their means must match their goals. Staff and funds could be increased, and put to use more efficiently. Regulatory scale effects could be realized by concentrating oversight in one main regulator. Together with the systemic overview argument made above, the case for one integrated regulator of financial markets becomes strong.

c) Lack of competence

Some authors are more direct in their accusations and believe regulators were unable to successfully exercise regulatory oversight due to intrinsic failures. Early on, regulators did not spot the dangerous decline of standards in the mortgage market. The Federal Reserve, especially, shares the blame. In second instance, when it became clear the mortgage market was faltering, time and time again they failed to see the systemic risk it held.

One theory is regulators were afraid to suddenly change their regulatory policy, as this would equate to admitting malfeasance in their prior oversight. The result, according to JOSEPH MASON, was,

“Regulators, however, failed to listen to discussion within the industry, choosing instead to ignore the developments until the scale of difficulties rose to a national economic crisis that demanded their attention.”

Another is that national regulators weighed the costs and benefits, but deemed regulatory action addressing the systemic risk of over-the-counter financial

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306 The concentration of risk in a few large institutions that dominate multiple geographic and financial markets has greatly increased interconnected and hence systemic risk. Policy has attempted to identify these as systemically important financial institutions (SIFIs) or global SIFIs (GSIFIs), using criteria as complexity, leverage, size and substitutability.


309 “Time and again, from the spring of 2007 on, policy makers and regulators were caught off guard as the contagion spread, responding on an ad hoc basis with specific programs to put fingers in the dike. There was no comprehensive and strategic plan for containment, because they lacked a full understanding of the risks and interconnections in the financial markets.” (see NATIONAL COMMISSION ON THE CAUSES OF THE FINANCIAL AND ECONOMIC CRISIS IN THE UNITED STATES, The Financial Crisis Inquiry Report, 25 February 2011, http://www.gpo.gov/fdsys/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf, xxi.)


derivatives markets too costly. In a global financial system regulatory action will always incur costs, as business can choose to move outside its jurisdiction. The benefits, however, remain small: national jurisdiction will remain exposed to crises erupting in other jurisdictions where the national regulator failed to take similar measures to mitigate systemic risk.\(^{312}\)

The former argument, that the regulators were afraid to admit guilt, is less satisfactory than the latter. The CFTC had previously shown its regulatory concern over over-the-counter financial derivatives – until legislative action reprimanded it. If any institution is to be faulted, it is more likely a Congress that had shown an overtly complacent ear to ISDA and the broader financial industry.

\((1)\) Possible solutions

The new regulatory framework could be supported by a strong global approach. Once agreed upon minimum standards are in place across global financial centers, the cost-benefit analysis of regulatory intervention might yet tip the scale in the positive direction. If all major jurisdictions have the same standards, regulators can intervene without fearing the market participants they regulate will move elsewhere. For such a global approach to work, standards should be upheld globally through a parallel rulebook, but also for implementation and application by regulators.

3. To regulate or not to regulate?

When one analyzes the failures of regulation and regulators, the running assumption is that we need a better regulatory framework for over-the-counter financial derivative markets. Certain voices in academia, politics and industry, however, believe better regulation means less regulation and better oversight means less oversight. Some even believe governmental intrusion in financial markets was the primary cause of the crisis.\(^{313}\)

Deregulatory voices point out financial collapses\(^{314}\) have historically also been produced by exchange-traded financial derivatives.\(^{315}\) Moving the trading of financial derivatives from over-the-counter markets to regulated exchanges – as one post-crisis requirement holds – would therefore not reduce systemic risk. This argument, however, is not persuasive. Systemic risk is together with information asymmetries


and deficiencies one type of market failure that the market cannot self-correct. As in previous crises, these market failures must be identified and addressed with governmental intervention.

Firstly, the majority of the financial derivative collapses they list were due to the influence of rogue traders (Barings Bank, Sumimoto or Société Générale) or questionable market practices (Amaranth Advisors). Of the fifteen biggest trading losses since 1990, 68% have been prescribed to unauthorized trading activities. The market infrastructure – regulated exchange or over-the-counter – is hence hardly relevant. One could even argue that the lax trade recordkeeping and reporting standards of over-the-counter markets would even be more conductive for such unauthorized traders. Secondly, many of the largest financial derivative losses were in over-the-counter traded financial derivatives. The large trading losses during the crisis (Morgan Stanley, Deutsche Bank) and afterwards (JPMorgan Chase) were mainly on over-the-counter financial derivative markets.

Furthermore, detractors point out that the market participants themselves are regulated, even though the over-the-counter financial derivatives are not. This argument is valid to a certain extent, but it glances over the newer financial intermediaries (supra). Market participants in these markets are almost exclusively institutional; while traditional financial intermediaries such as banks were strongly regulated, hedge funds on other new financial intermediaries were lightly regulated at best.

C. Consequences of the crisis

The post-crisis financial environment differs in several important ways from the pre-crisis one. The post-crisis regulatory framework, however, means to address the pre-crisis regulatory failures; a regulatory framework, built on past failures, is being implemented in a current and different financial environment. Certain problems that existed in the run-up to the crisis therefore might not now. On the other hand, certain

316 Ibid, 136.
320 “Approximately 85% of AIG (measured by allocated capital), moreover, was regulated by some other regulator in addition to OTS.” (see C.L. CULP, “OTC-Cleared Derivatives: Benefits, Costs, and Implications of the Dodd-Frank Wall Street Reform and Consumer Protection Act”, Journal of Applied Finance 2010, 4.)
problems might have since exacerbated. These differences are important for evaluating the possible consequences of the post-crisis regulatory framework.

The clear need of trade repositories for other classes of over-the-counter financial derivatives has since given way to the establishing of two new ones. (Besides the DTCC repository for over-the-counter credit financial derivatives that already existed.) The Global OTC Derivatives Interest Rate Reporting Repository was established in October 2009 and collects data from over-the-counter interest rate financial derivatives.\textsuperscript{322} The Equity Derivatives Reporting Repository was established in August 2010 and collects data from various kinds of over-the-counter equity financial derivatives.\textsuperscript{323} Interestingly enough, both launches were spearheaded by ISDA after requests for proposals and a selection process.

The securitization of mortgages received a major hit with the crisis. Loan origination once more implies the retention of the mortgage asset on the balance sheet until maturity. This had consequences for revenue, as profits could not be realized immediately, and funding, as capital remained tied up in the mortgages.\textsuperscript{324} Investors shunned existing structured assets, which resulted in permanently depressed prices and subsequent write-downs on their value.\textsuperscript{325} By October 2007, estimated losses on US subprime loans and securities were over $250 billion.\textsuperscript{326} This goes for all of these assets – even the highest rated ones before the crisis, with synthetic CDOs being the worst hit.

The crisis resulted in the liquidation of over $3.1 billion in mostly subprime private structured products.\textsuperscript{327} Many of these assets were used as collateral (often for multiple times in the continuous collateral chain)\textsuperscript{328} in many types of secured financial transactions. With their liquidation, the financial system lost a massive amount of collateral that it is still struggling to fill. The graph below clearly illustrates this evaporation of private label structured products (red) and public agency asset-backed securities (light blue) value.

\begin{itemize}
\item \textsuperscript{323} Ibid, 48-49.
\item \textsuperscript{325} Ibid, 9.
\item \textsuperscript{328} One asset can be pledged and re-pledged as collateral multiple times; if it disappears, it sucks liquidity out of the financial system in multiples of its actual value. (see M. SINGH, “‘Velocity of pledged collateral: analysis and implications”, November 2011, \textit{IMF Working Paper}, WP/11/256, 3-4.)
\end{itemize}
Figure 5 (Source: Credit Suisse)
IV. THE POST-CRISIS REGULATORY FRAMEWORK

The will to create a new regulatory framework ran extremely high after the financial crisis. In the conciliatory spirit of recent trauma, an international consensus emerged early on. Instead of acting as salesmen of competing jurisdictions, world leaders agreed at the G20 in Pittsburgh on a baseline for creating a new regulatory framework.

The importance of this can hardly be understated. In the words of C.M. BAKER,

“Today, major financial markets, such as the OTC derivative markets, are global markets which no jurisdiction can successfully regulate. International regulatory cooperation is needed to regulate the OTC derivative markets.”

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In a global market, when conditions in one jurisdiction change for the worse, little barriers exist for the market participants to set up shop elsewhere. As over-the-counter markets are decentralized, these market participants would eventually take the over-the-counter markets with them. This would move systemic risk elsewhere – and not diminish it, as the new regulatory push intends.

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The post-crisis regulation, as it was globally intended, rests on four main pillars. In the words of the G20,

1. “All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate;
2. (...) and cleared through central counterparties by end-2012 at the latest;
3. OTC derivative contracts should be reported to trade repositories;
4. Non-centrally cleared contracts should be subject to higher capital requirements.”

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The most important jurisdictions regarding the implementation of this regulatory framework are those of the US and the EU. The analysis of the post-crisis regulatory framework in this thesis will therefore be limited to these. While the common approach clearly resulted in numerous similarities, noteworthy differences exist.

The US rapidly enacted an exhaustive regulatory framework. President Obama signed the Dodd-Frank Wall Street Reform and Consumer Protection Act (“the Dodd-Frank Act”) into federal law July 21, 2010. In doing so, he completed a process that started with the introduction of the act on December 9, 2009.

Due to negotiations between the European Parliament and the Council, the regulatory push came later in the EU.\textsuperscript{332} The European Market Infrastructure Regulation (EMIR) was adopted on July 4, 2012 and entered into force on August 16, 2012. The EU did not implement all of the common requirements in EMIR, as the trading requirement and a supplementary reporting requirement will be enacted in the proposed Market in Financial Instrument Regulation (MiFIR). Just as EMIR, disagreement between the European Parliament and the Council has substantially slowed the adoption of MiFIR. Current expectations focus on an agreement during the Irish presidency. Although we previously discussed the ISD and MiFID as part of the pre-crisis regulatory framework, we will not discuss the proposed MiFID II. Although it will entail provisions for over-the-counter financial derivative markets, the common core requirements of the post-crisis regulatory framework are adopted with EMIR and soon with MiFIR.

While both regulatory frameworks – the Dodd-Frank Act and EMIR – have come into force, much of the actual implementation by regulators is still ongoing. Without implementation, the requirements of the framework are mere shells; therefore this thesis has decided to include them within its review of post-crisis regulation. This has major consequences for the variety of legal sources: jurisprudence merely skims over the top and rarely mentions implementation; case law hardly exists, as the markets are just digesting the new regulation; and legislation (especially the Dodd-Frank Act) is extremely complex in both content and structure. In many cases, this thesis has therefore been forced to consult documents drafted by regulators, law firms and industry groupings. These obviously have conflicting interests, which this thesis has attempted to keep in mind when drawing on these sources. If these documents were used for content, especially concerning scope and requirements, they were crosschecked with legislation as much as possible.

A. The post-crisis regulation

Before the crisis, regulation of over-the-counter financial derivative markets was for the most part limited to non-specific regulation of market participants. The regulation the market participants were subject to was the same for their activities in other financial markets. Post-crisis regulation, however, rests on specific regulation of the market participants with regards to over-the-counter financial derivative trading, together with limited amount of implications for the over-the-counter financial derivatives themselves.

1. The Dodd-Frank Act and EMIR: instruments and entities

a) Subjected instruments

(1) The Dodd-Frank Act

\textsuperscript{332} MEMO/12/90.
The Dodd-Frank Act applies to “swaps” and “security-based swaps”. As its provisions regarding over-the-counter financial derivatives amend both the CEA and the SEA, the division between swap and security-based swaps is unsurprising. Swaps referring to securities as underlying have historically been associated with the regulatory framework of the securities themselves and hence placed under SEC oversight. For the definition of “security-based swap”, the Dodd-Frank refers back to SEA.\(^{333}\)

The definition of a “swap” in the Dodd-Frank Act is exhaustive and includes options,\(^{334}\) forwards,\(^{335}\) swaps\(^{336}\) and exotic variations of these\(^{337}\). While the first three categories catch the three main types of over-the-counter financial derivative within their scope, the latter category seeks to include customized financial derivatives. Given the exhaustive definitions and the rest category, the legislative intent was clearly to subject all over-the-counter financial derivatives to the Dodd-Frank Act.

To avoid conflicting interpretations of overlapping areas of the Dodd-Frank Act, the CFTC and the SEC have issued joint rules. One important joint rule is that further defining “swap”, “security-based swap”, “security-based swap agreement” and “mixed swap”.\(^ {338}\) Mixed swaps fall under the regulatory oversight of both agencies, while security-based swap agreement fall under the oversight of the CFTC but the SEC for anti-fraud oversight. Its main goal is clarifying that certain insurance products, consumer and commercial agreements, and loan participations are not swaps or security-based swaps.\(^ {339}\)

Earlier we mentioned the financial practice uses the term swap for over-the-counter forward commitments with consecutive maturities (supra). The definition “swap” in the sense of the Dodd-Frank Act, however, makes no such distinction and it is the


\(^{334}\) “(…) a put, call, cap, floor, collar, or similar option of any kind that is for the purchase or sale, or based on the value, of 1 or more interest or other rates, currencies, commodities, securities, instruments of indebtedness, indices, quantitative measures, or other financial or economic interests or property of any kind;” (see Dodd–Frank Act § 721(a)(21)).

\(^{335}\) “that provides for any purchase, sale, payment, or delivery (other than a dividend on an equity security) that is dependent on the occurrence, nonoccurrence, or the extent of the occurrence of an event or contingency associated with a potential financial, economic, or commercial consequence;” (see Dodd–Frank Act § 721(a)(21)).

\(^{336}\) “that provides on an executory basis for the exchange, on a fixed or contingent basis, of 1 or more payments based on the value or level of 1 or more interest or other rates, currencies, commodities, securities, instruments of indebtedness, indices, quantitative measures, or other financial or economic interests or property of any kind, or any interest therein or based on the value thereof, and that transfers, as between the parties to the transaction, in whole or in part, the financial risk associated with a future change in any such value or level (…)” (see Dodd–Frank Act § 721(a)(21)).

\(^{337}\) Dodd–Frank Act § 721(a)(21).


functional equivalent of “financial derivative” we have been using throughout. When talking about a swap in the context of the Dodd-Frank Act, we will mean the exhaustive definition it uses.

(2) **EMIR**

In defining a financial derivative, EMIR refers back to its definition in MiFID. The MiFID definition is very broad and includes most types and classes over-the-counter financial derivatives (supra).

b) Subjected entities

(1) **The Dodd-Frank Act**

The Dodd-Frank Act distinguishes “swap dealers” and “major swap participants”. A “swap dealers” is any market participant who enters into financial derivative contracts for its account and in its ordinary conduct of business. Furthermore, a swap dealer is any market participant who is a market maker in a swap market, conducts itself as a swap dealer or becomes known as market maker or swap dealer.

A “major swap participant” is a market participant that is subject to the requirements due to the importance of its transactions. As a major swap participant cannot be a swap dealer, it will most likely be a large financial or even non-financial end-user. Firstly, this importance can be the result of it maintaining a substantial position in swaps – excluding those positions held due to hedging and mitigating credit risk. What exactly delineates a substantial position is up to the regulator. Secondly, this importance can be the result of its outstanding swaps creating enough substantial counterparty exposure that it could threaten US financial stability. Even if it maintains positions for hedging purposes, an end-user falls under the clearing requirement if they contain systemic risk. On the other hand, if the position is large, but not of systemic nature, only speculative or arbitrage positions must be cleared.

A second set of CFTC-SEC joint rules further defines “swap dealer”, “security-based swap dealer”, “major swap participant”, “major security-based swap participant”, and “eligible contract participant”. These rules are clearly one of the most important ones to appear, as falling under these definitions most often means registering with one of the agencies and subsequently being beholden to the mandatory clearing

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343 Dodd-Frank Act § 721(a)(16).

requirements. Firstly, it defines what constitutes a substantial position and substantial counterparty exposure under the definition of major swap participant. End-users who do not fit either of these definitions do not qualify as major swap participants. Secondly, it introduces a safe harbor from the major swap participant definition: end-users whose terms of swap agreements or whose exposure is substantially small will not be deemed major swap participants. Thirdly, the rules introduce several additional exclusions for swap dealers. Of the four exclusions, two are especially relevant: swap dealers whose dealing transactions do not reach a de minimis gross notional amount of $8 billion the preceding year, and those whose transactions are limited to hedging through physical commodity swaps.

(2) EMIR

EMIR applies to both financial and non-financial counterparties. Financial counterparties are exhaustively defined as investment firms, insurance companies, collective investment funds, pension funds and alternative investment funds – as authorized by respective EU Directives. A non-financial counterparty, on the other hand, is any undertaking that is nor a financial counterparty (as defined above) or CCP. As most undertakings one might think of are neither financial counterparties nor CCPs, the definition of non-financial counterparty is basically any undertaking established in the EU.

2. Regulation of over-the-counter financial derivatives

Post-crisis regulation does not seek to constrain over-the-counter financial derivatives as a financial product. The regulation directly effecting over-the-counter financial derivatives is hence limited to a push towards standardization. Standardization of over-the-counter financial derivatives will allow the trading and clearing requirements for market participants to be implemented (infra). As much of the regulation of market participants is based on the dualism between financial derivatives that can be standardized and those that cannot, the concept is important to grasp.

Financial derivatives are essentially bilateral contracts between two counterparties. Standardizing therefore depends on achieving enough uniformity between different

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345 An end-user has a substantial position when it passes one of two tests: under the first one has substantial exposure if the daily average uncollateralized exposure exceeds $1 billion, while under the second one has substantial exposure if the daily average uncollateralized exposure and potential future exposure exceeds $2 billion. An end-user has substantial counterparty exposure when its current uncollateralized exposure exceeds $5 billion (or $2 billion for security-based swaps), or its current uncollateralized exposure and potential future exposure exceeds $8 billion (or $4 billion for security-based swaps).


347 Ibid, 6-9.

348 Art. 2, (8) European Market Infrastructure Regulation.

349 Art. 2, (9) European Market Infrastructure Regulation.

contracts to make these functionally interchangeable. Three conditions can be identified to assure suitable uniformity to allow this to happen. Firstly, financial derivative contracts must be legally uniform. As a private contract, the counterparties are free to negotiate the terms and conditions; for a contract to be standardized, however, they must agree on a uniform documentation and definitions. ISDA Master Agreements and Documentation already achieves this for many of the less exotic variants. Secondly, financial derivatives must be process uniform. Once a legally uniform contract is agreed upon, processing the contract through electronic trade platforms is greatly facilitated through automated systems such as trade confirmation. Thirdly, financial derivatives must be product uniform. Normally options as payment structure, maturity and asset class that normally customizable must be frozen into certain pre-determined combinations.

3. Regulation of market participants

The extensive part of post-crisis regulation is a set of requirements market participants must adhere to when trading over-the-counter financial derivatives. The core requirements include the trading requirement, the central clearing requirement, the margin requirements for non-centrally-cleared trades, and the trade reporting requirements. These are the core requirements the G20 identified and also the most intrusive ones for market participants. Other requirements include ones on registration, capital and business conduct. As these other requirements do not have the same commonality across jurisdictions and are less intrusive for market participants, this thesis will not discuss these.

In discussing the four core requirements, we will focus on the requirements from the perspective of the market participants. The regulatory frameworks includes provisions regulating entities such as CCPs and trade repositories, but due to the limitations placed on any inquiry we will not look into these. As over-the-counter markets are mainly inter-institutional markets, viewing the post-crisis changes from their perspective is only logical. Furthermore, as these markets are decentralized, the way every marked participant reacts to the changes has to potential to change the nature of over-the-counter financial derivative markets.

a) Clearing of over-the-counter financial derivatives

(1) Introduction: central clearing

352 Ibid, 7-9.
353 Ibid, 9.
Entering an over-the-counter financial derivative contract exposes one to credit risk, since the counterparty can default and fail to fulfill its obligation. In turn, such credit risk can become systemic due to interconnectedness and the possibility of cascading defaults. Before the 1990s, counterparties would mainly control their credit risk through bilateral credit enhancement, which diminished exposure to risky counterparties or reduced the loss if counterparty did default. Such enhancements include bilateral netting, collateralization, mark-to-market pricing, cash resettlement of positions and third-party guaranties.

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356 “As the recent financial crisis demonstrated, without proper controls, the interconnectedness within the OTC market has the potential to produce systemic instability across the financial system. It is in response to this systemic instability that central clearing, to which this paper now turns, is offered as a solution.” (see P.M. McBRIDE, “The Dodd-Frank Act and OTC derivatives: The impact of mandatory central clearing on the global OTC derivatives market”, Int’l Law. 2010, 1094.)

357 Bilateral netting replaces the periodic gross payments into smaller net payments, with closeout netting fixing these net payments in case of counterparty default or early termination.

358 A large majority of collateral is cash, with high-quality forms of credit such as governmental bonds, letters of credit forming the rest.

359 During the crisis, many MBSs and CDOs were used as - supposedly secure - collateral. Mark-to-market pricing, however, deeply devalued their worth as collateral, thereby forcing counterparties to post more collateral. As many could not, the contract was liquidated and the existing collateral sold in a firebrand sale.

By clearing trades through a CCP, credit, operational and systemic risk can be substantially reduced through the efficiency of its risk management. While the financial derivative contract is bilateral, the CCP places itself between the original counterparties to the contract through novation. In doing so, it substitutes the one contract with two new ones; essentially, it thus becomes a buyer for every seller of a contract and a seller for every buyer.

By becoming counterparty to a whole raft of financial derivative contracts, a CCP obviously concentrates credit risk. Were it to default, it would clearly increase systemic risk – instead of decrease it, as it actually intends. A CCP therefore relies on a set of controls and techniques to reduce the risk of default to an absolute minimum.

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Firstly, any market participant wanting to clear its trades through a CCP must obtain membership and become clearing member. In turn, membership depends on fulfilling stringent financial requirements. As long as both original counterparties fulfill their obligations, the long and short positions that result from the CCP taking on each new contract are automatically offset. If one of the original counterparties fails to fulfill its obligation, however, the CCP finds itself in a long or short position that can be lossmaking. As the CCP is only as solid as its weakest member, it must choose its clearing members carefully. Non-members can transact with the CCP, but a clearing member must guarantee its payment obligations.

Secondly, a CCP instates margin requirement its clearing members must uphold. Margin requirements come in two forms: initial margin and variation margin. Before a CCP accepts a trade for clearing, the original counterparties must post initial margin in their accounts. The initial margin is calculated on the risk that type of financial derivative poses (due to inherent volatility and liquidity) to the CCP, and on the size of the contract. As the CCP inherits the open positions of a defaulting member, the aim is to cover the costs it incurs when it liquidates or hedges that position. As certain financial derivatives are more liquid than others and can be thus unwound easier and cheaper, initial margin must reflect this.

While initial margin is only posted once, variation margin is updated daily. When market movements effect the position of one of the original counterparties, creating an unrealized loss or profit, variation margin reflects this by ensuring the market participant posts enough collateral to deck the unrealized loss or profit. High volatility, however, can result in a delay between the deterioration of a position and the posting of more maintenance margin; it is the task of initial margin to create a buffer to prevent losses due to such a delay. While membership seeks to diminish the chances of a clearing member defaulting, margin requirement seek to limit the loss of the CCP if one were to default. It therefore functions as a second line of

370 A position in a thinly traded financial derivative could take days or even weeks to unwind, thereby increasing the risk of a fire-sale loss in times of crisis. A position in an actively traded derivative can often be unwound in the matter of days. Furthermore, the size of the position also contributes to how much a market can swallow.
373 For instance, initial margin on credit default swap is generally larger than for interest rate swaps, as the creditworthiness of the referenced borrower can deteriorate much faster than an interest rate moves.
defense. Furthermore, margin functions as a condition to be continuously met for the CCP to clear the financial derivative contract: if a variation margin call cannot be met, the trade that is being clearing will be liquidated.375

Lastly, all clearing members must contribute to a guarantee fund. The guarantee fund collectivizes the loss created by a member defaulting in extreme market circumstances. In theory, the above margin requirements should cover any loss under normal market conditions, but this might not be the case when the market collapses. When the rowing boat of margin requirement capsizes in extreme waves, as a life vest the guarantee fund helps keep the CCP afloat.376

(2) Under the Dodd-Frank Act

The applicability of the clearing requirement under the Dodd-Frank Act depends on over-the-counter financial derivative contracts qualifying as transactions in “swaps” between “swap dealers” or “major swap participants”.377

One important exception to the applicability of the clearing requirement is for certain non-financial end-users.378 A non-financial entity379 that is solely using swaps to hedge or mitigate commercial risk and notifies the respective regulator is exempt from the clearing requirement. As swap dealers and major marker participants are thus considered financial entities, the clearing requirement is always applicable to them. Only non-financial end-users that use swaps to hedge or mitigate risk are exempt. Speculative swap positions must therefore always be cleared – be they by financial or non-financial entities.380 The Dodd-Frank Act entrust the non-financial end-user to utilize this exemption. One the one hand, sole discretion for calling upon this exemption lies with that end-user381; on the other hand, if it chooses to clear anyway, it had the discretion to choose where.382

The actual clearing requirement leaves much leeway for input by regulators.383 A swap must be cleared if the CFTC requires it must384, while a security-based swap must be cleared if the SEC requires.385 The clearing requirement thus only becomes truly mandatory once the CFTC or the SEC implements the provision for particular swaps. On the one hand, the Dodd-Frank Act determines such implementation should

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377 Ibid, 1102.
378 Dodd-Frank Act § 723(a)(3).
379 A financial entity is any swap dealer, major market participant, commodity pool, private fund, employee benefit plan, or person engaged in the banking business or financial activities. (see Dodd-Frank Act § 723(a)(3)).
381 Dodd-Frank Act § 723(a)(3).
382 Dodd-Frank Act § 723(a)(3).
383 The CFTC identified almost 40 provisions in the Dodd-Frank Act needing its implementation through the issuance of rules, while the SEC identified more than 90 provisions.
384 Dodd-Frank Act § 723(a)(3).
385 Dodd-Frank Act § 763(a)(1).
be a process on ongoing review with a 30-day public comment period; on the other, the CCPs themselves can submit applications for those swaps they wish to clear.\(^\text{386}\) It presents criteria the regulators should keep in mind when determining what types, groups, classes or categories are appropriate to be cleared. These include notional exposures, liquidity, pricing data, clearing infrastructure and mitigation on systemic risk.\(^\text{387}\) The clearing requirement is thus the same in content, but the jurisdictional difference in regulatory oversight could result in different implementation.

(a) CFTC and SEC implementation

On 26 September 2011, the CFTC adopted the first of its implementation rules: that on the process of reviewing swaps for mandatory clearing requirement. Further final implementation by the CFTC – such as entity definitions and the end-user exception – started on 7 January 2012 and ended on 8 November 2012. On the same day the last of the provisions were implemented, the regulatory oversight was extended to the first category of entities. On 6 February 2013, the second category of entities was added to the regulatory oversight. The final date in the road to full implementation was 7 May 2013, when the regulatory oversight over mandatory clearing of swaps went into full effect.\(^\text{388}\) Just as the CFTC, the Dodd-Frank Act required the SEC to adopt rules implementing provisions of the Dodd-Frank Act.

(3) Under EMIR

Certain counterparties are obligated to clear designated over-the-counter financial derivatives through a CCP that has been authorized or recognized to clear them.\(^\text{389}\) The over-the-counter financial derivatives and the counterparties to these contracts thus demarcate the clearing obligation under EMIR.

As mentioned above (supra), EMIR delineates financial and non-financial counterparties as regulated entities. Contracts between financial counterparties always fall under the clearing obligation. When a financial counterparty transacts with a non-financial counterparty or two non-financial counterparties enter a contract, however, the contract must only be cleared once a minimum threshold is crossed.\(^\text{390}\) ESMA is authorized to establish this minimum threshold.\(^\text{391}\) EMIR is, however, entirely silent

\(^{386}\) Dodd-Frank Act § 723(h)(2) and Dodd-Frank Act § 763(b).


\(^{389}\) Art. 4 European Market Infrastructure Regulation.


\(^{391}\) “After conducting an open public consultation, ESMA shall submit those draft regulatory technical standards to the Commission by 30 September 2012. Power is delegated to the Commission to adopt the regulatory technical standards referred to in the first subparagraph in accordance with Articles 10 to 14 of Regulation (EU) No 1095/2010. After consulting the ESRB and other relevant authorities,
on what over-the-counter financial derivatives are designated to be subject to the obligatory clearing requirement. ESMA is therefore authorized to designate the over-the-counter financial derivatives that should be subject to obligatory clearing. In making this choice, it should include three criteria into its consideration: standardization, volume and liquidity, and pricing information.

(a) ESMA implementation

Just as the mandatory clearing requirement under the Dodd-Frank Act needed implementation by regulators, the same goes for the clearing obligation and other provisions in EMIR. The European Supervisory Authorities (ESAs) – especially the European Securities and Markets Authority (ESMA) – are the implementing regulators for EMIR.

The draft technical standards concerning the clearing requirement were adopted by ESMA on 19 December 2012. The criteria for selecting over-the-counter financial derivatives are further substantiated in these draft standards. A contract is suitably standardized in a legal sense when it incorporates common legal documentation. In practice, common legal documentation will mainly refer to ISDA documentation, which provides the contractual basis for most over-the-counter financial derivative contracts (supra). Secondly, a contract is suitably standardized in an operational sense when its post-trade processing and lifecycle are automated through a commonly agreed timetable. Thirdly, when weighing on the volume and liquidity of a class of contract, the margin and financial requirements, the market size and depth and market volatility will all be considered by ESMA. All characteristics referring to differing amounts of risk – such as complexity and ability to stress test – in classes of financial derivatives, are thus excluded. R. ZEPEDA faults this apparent exclusion by ESMA and urges the use of a transparent methodology open to public scrutiny, in order to avoid further issues.

ESMA shall periodically review the thresholds and, where necessary, propose regulatory technical standards to amend them. ” (see art. 10 European Market Infrastructure Regulation.)

Art. 5, 2, (a) European Market Infrastructure Regulation.

Art. 5, 4 European Market Infrastructure Regulation.

This process is an adaption of the four-level Lamfalussy process, with EU authorities (such as ESMA, EBA and EIOPA) being given a greater role in the second-level implementation – to the detriment of the specialized advisory committees that they replace.


“whether the contractual terms of the relevant class of OTC derivative contracts incorporate common legal documentation, including master netting agreements, definitions, standard terms and confirmations which set out contract specifications commonly used by counterparties; ” (see Art. 7, 1, (a) Clearing Commission Delegated Regulation.)

Art. 7, 1, (b) Clearing Commission Delegated Regulation.

Art. 7, 2 Clearing Commission Delegated Regulation.

On the one hand, it will use a “top down” approach, by identifying the classes it believes fit the criteria. On the other hand, it will use “bottom up” approach, with national authorities authorizing CCPs for clearing certain types. The current perspective of ESMA, for submitting its draft technical standard on the over-the-counter financial derivatives to fall under the clearing obligation, varies between 16 October 2013 and 16 September 2014. In all likelihood, the clearing mandate will not enter into force until early 2014, as CCPs must be authorized or recognized (infra) and the proposed classes must go through a process of public consultation under ESMA. From the variables it uses in its consideration, we can already conclude it will follow a pragmatic approach by given much consideration to the question of standardization.

The regulation also quantifies the clearing threshold for contracts with one or two non-financial counterparties and does so per category of underlying. Over-the-counter credit and equity financial derivative contracts must be cleared if the notional amount tops €1 billion; interest, foreign exchange, commodity and all other financial derivative contracts only when the amount tops €3 billion. These notional amounts are for the rolling average position over 30 working days.

b) Trading of over-the-counter financial derivatives

During the initial tarring of over-the-counter financial derivatives after the crisis, voices rose to have most trading moved to regulated exchanges. While regulation instating obligatory central clearing continues to allow over-the-counter trading, such a requirement would not. It is therefore one of the most ambitious of all post-crisis regulations – but one that was watered down substantially over time.

While a trading requirement was adopted in the Dodd-Frank Act, no similar rule found its way into EMIR. A final version is yet to be adopted, but a similar rule will in all likelihood find its way into a separate Market in Financial Instrument Regulation (MiFIR). In October 2011, the European Commission came up with an initial proposal for MiFIR. Exactly a year later, the European Parliament adopted its vision with a plenary text amending the earlier Commission proposal. With little progress in sight, the Irish Council presidency released its view on a compromise text in April 2013. The next step towards actually adopting it is on 22 October 2013.

400 Ibid, 41.
403 Art. 11 Clearing Commission Delegated Regulation.
404 Art. 10, 1, (b) European Market Infrastructure Regulation.
405 Dodd-Frank Act § 721(a)(21).
408 COD(2011)0296.
when the European Parliament is slated to have a first reading. Certain provisions differ, but the main concept of the trading requirement remained the same throughout. This thesis will analyze the latest compromise text, but indicate where it substantially differs from previous versions.

(1) Under Dodd-Frank

The mandatory trading requirement of the Dodd-Frank Act builds on the previously established clearing requirement. All transactions in swaps that are obligatorily cleared, must also be executed on a “designated contract market” or registered “swap execution facility” (SEF). All security-based swaps that are obligatorily cleared must also be executed on a “national securities exchange” or security-based SEF. A designated contract market is a regulated futures exchange under CFTC oversight (such as the CBOT), while a national securities exchange is a regulated stock exchange (such as the NYSE). The Dodd-Frank characterizes a SEF as any multilateral trading platform or system in which multiple market participants execute and trade swaps, including a platform or system that facilitates execution between participants, but is not a regulated exchange. It is hence the EU equivalent of an MTF or OTF under MiFID.

The only true exemption (other than those exemptions from the mandatory clearing requirement) is if no exchange or SEF makes that type of swap available to trade. The CFTC and the SEC have interpreted what exactly constitutes “availability to trade” in separate proposals. The CFTC proposes an annual assessment and reports by regulated exchanges and SEFs to determine whether a swap has been made available for trade and whether it should continue to do so. The SEC is wary of creating a conflict of interests by allowing the regulated exchange or the security-based SEF to decide and proposes the decision be made according to objective measures established by the Commission.

This is clearly a pragmatic safety switch to an unknown question: will a liquid market have developed for on-exchange trading of financial derivatives normally traded over-the-counter? Were this not the case, immediate applicability would ban the over-the-counter market – without certifying a liquid alternative.

410 Dodd-Frank Act § 723(a)(3).
411 Dodd-Frank Act § 763(a).
412 Dodd-Frank Act § 721(a)(16).
415 § 37.10, (d) and § 38.12, (d) Process for a Designated Contract Market or Swap Execution Facility to Make a Swap Available to Trade, CFTC, 14 December 2011, 76 FR 77728.
(2) **Under MiFIR**

The current MiFIR proposals contain provisions on the trading of financial derivatives on organized venues. Just as in EMIR, the definition of financial derivative refers to that of MiFID.\(^{417}\)

The scope of the trading obligation under MiFIR is based on the scope of the clearing obligation under EMIR. On the one hand, the counterparties subject to the clearing requirement will also be subject to trading requirement: transactions between financial counterparties, and, with one or between two non-financial counterparties if the threshold is crossed.\(^{418}\) On the other hand, the financial derivatives that it applies to are only part of those that fall under the clearing obligation. One exception unique to the trading obligation\(^{419}\) is the exception for large transactions.\(^{420}\) This exception is new addition in the compromise text, as previously it had merely been a liquidity criterion to be considered by ESMA in drafting technical standards for the classes to be obligatorily trades.\(^{421}\)

ESMA is authorized to adopt criteria and then to designate classes of financial derivatives that should be cleared; it is among these classes or subset thereof that ESMA must subsequently choose the ones to subject to the trading requirement.\(^{422}\) Once the technical standards designating the clearing obligation classes have been adopted, ESMA must draft technical standards designating the classes it wishes to subject to the trading requirement.\(^{423}\) In developing these technical standards, MiFIR supplies criteria for evaluating sufficient liquidity.\(^{424}\) As the former technical standards are likely only to be adopted in early 2014 (*supra*), and given the time it takes to allow public consultations, it seems highly unlikely these technical standards would come into force before 2015. If the adoption of MiFIR extends late into 2014, it will take ever longer.

Once these regulatory standards indicating the over-the-counter financial derivatives to be traded come into force, even then, the trading obligation does not necessarily take effect immediately. Firstly, the class or subset of financial derivative must be admitted to at least one organized venue. Secondly, there must sufficient liquidity herein to sustain the whole market in that type.\(^{425}\) Both criteria thus function as the “available to trade” limitation of the Dodd-Frank Act (*supra*).

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\(^{417}\) Art. 2, 1, (14) COD(2011)0296.

\(^{418}\) Art. 24, 1 COD(2011)0296.

\(^{419}\) The exception for intragroup transactions was adopted by EMIR as well.

\(^{420}\) Art. 26aa COD(2011)0296.

\(^{421}\) Termed “the average size of trades” in the initial European Commission proposal and “the average size of trades and the frequency of large in scale trades” in the European Parliament amendment.

\(^{422}\) Art. 26, 1, (a) COD(2011)0296.

\(^{423}\) “(a) the average frequency and size of trades over a range of market conditions, having regard to the nature and lifecycle of products within the class of derivatives; (b) the number and type of active market participants including the ratio of market participants to products/contracts traded in a given product market; (c) the average size of the spreads.” (see art. 26, 1, third paragraph COD(2011)0296.)

\(^{424}\) Art. 26, 3 COD(2011)0296.

\(^{425}\) Art. 26, 2 COD(2011)0296.
When the trading obligation is eventually applicable to certain over-the-counter financial derivatives, the trading must be done on a limited list of organized exchanges. EMIR limits the options to regulated exchanges, MTFs, OTFs and certain recognized third country trading venues. The trading is from then on no longer bilateral and over-the-counter, but multilateral and centralized.

c) Margin requirements for non-centrally-cleared trades

The post-crisis regulation reflects the fact not all over-the-counter financial derivatives are suitable for central clearing. Those contracts that do not fit the criteria will thus not be subjected to the clearing requirement and remain bilaterally cleared. Estimates put this amount at one-third of credit and equity derivatives, and two-third of equity, commodity and foreign exchange derivatives. Leaving these untouched, could allows a possible source of systemic risk untouched and unblocked. In the words of the BIS-IOSC,

“These non-centrally cleared derivatives, which total hundreds of trillions of dollars of notional amounts, will pose the same type of systemic contagion and spillover risks that materialised in the recent financial crisis. Margin requirements for non-centrally cleared derivatives would be expected to reduce contagion and spillover effects by ensuring that collateral are available to offset losses caused by the default of derivatives counterparty.”

Before the crisis, many counterparties voluntarily employed credit enhancement strategies to reduce their counterparty credit risk of bilaterally clearing over-the-counter financial derivatives. Many counterparties – such as non-financial corporates and sovereigns – however, were deemed creditworthy enough to make such credit enhancement strategies unnecessary. The post-crisis regulation therefore makes certain measures obligatory. The most important of these measures is the obligatory use of collateral to fulfill margin requirements, which we will now analyze.

(1) Under Dodd-Frank

The Dodd-Frank Act subjects (both non-security-based and security-based) swap-dealers and major swap participants to margin requirements for their non-centrally-cleared trades. Once again implementation is needed, for which the authority is

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426 Art. 24, 1 COD(2011)0296.
split between three different regulators. The prudential regulators, consulting the CFTC and the SEC, must adopt initial and variation margin requirements for swap-dealers and major swap participants that are banks. Banks are simply those market participants for which a prudential regulator exists. Swap-dealers and major swap participants that aren’t banks, however, will be subject to separate rules on initial and variation requirement developed solely by the CFTC (for swaps) or the SEC (for security-based swaps). In setting these margin requirements, the systemic risk of their uncleared positions should be taken into consideration.

The prudential regulators and the CFTC both released their proposed rules on 12 April 2011. Over a year later, on 18 October 2012, the SEC released its proposal rule. To date, all of these proposed rules have yet to be adopted, but this thesis will briefly outline the scope, quantity and quality of the margin requirements they intend to implement. It will also indicate where resistance has been the largest, as future enactment might cede here. All in all, the proposed rules are to a great extent similar, as the regulators worked together on many occasions.

(a) Which counterparties?

The proposed rules distinguish different categories of entities covered by their margin requirements. Certain counterparties are more risky than others and the margin requirements include this with such categorization. The rules proposed by the prudential regulators and the CFTC distinguish between: (i) counterparties that are swap dealers or major market participants, (ii) high-risk financial end-users, (iii) low-risk financial end-users and (iv) non-financial end-users. In all likelihood, most non-governmental entities would be high-risk end-users. Compared to low-risk entities, they have no threshold under which they do not need to post margin.

The rules proposed by the SEC are based on a different categorization: it merely differentiates between (i) security-based swap dealers and (ii) security-based major

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430 Prudential regulators include the Federal Reserve Board, the Office of the Comptroller of the Currency, the Federal Deposit Insurance Corporation, the Farm Credit Administration, and the Federal Housing Finance Authority. (see SULLIVAN & CROMWELL LLP, Proposed Margin Requirement for Uncleared Swaps under Dodd-Frank, 18 April 2011, http://www.sullcrom.com/Proposed-Margin-Requirements-for-Uncleared-Swaps-under-Dodd-Frank/.)

431 Dodd-Frank Act § 731; Dodd-Frank Act § 764, (a).

432 Dodd-Frank Act § 731; Dodd-Frank Act § 764, (a).

433 “(i) help ensure the safety and soundness of the swap dealer or major swap participant; (ii) be appropriate for the risk associated with the non-cleared swaps held as a swap dealer or major swap participant.” and “(i) preserving the financial integrity of markets trading swaps; and (ii) preserving the stability of the United States financial system.” (see Dodd-Frank Act § 731.)

434 A financial end-user is an end-user that is a commodity pool, a private fund, an employee benefit plan, a person predominately engaged in banking or financial activities, or governmental entity. (see Prudential Regulators Proposed Rules)


436 The threshold acts as an exception to both the initial and variation margin requirement, by identifying the amount of risk the counterparty is willing to accept without necessitating margin. (see SHEARMAN & STERLING, Dodd-Frank: CFTC and Prudential Regulators Release Proposed Margin Requirements for Uncleared Swaps, 27 April 2011, http://www.shearman.com/dodd-frank-cftc-and-prudential-regulators-release-proposed-margin-requirements-for-uncleared-swaps-04-27-2011/.)
swap participants. When a swap dealer transacts with another counterparty, it would be forced to collect margin from it to cover its exposure to it. When a major swap participant transacts with another counterparty, it would not only be forced to collect margin to cover its exposure, but also to deliver margin to cover the exposure its counterparty has to it.\(^{437}\) The scope proposed by the prudential regulators and the CFTC covers many different counterparties, so the only obligation the designated counterparties have is to post margin (in contrast to collecting it). The SEC takes a different stance with its narrow scope, but mitigates it by having security-based major swap participants not only collect collateral, but also post it with their counterparties.

While the Dodd-Frank Act seemingly intended to subject all non-centrally-cleared transaction to margin requirements, regulators nonetheless interpreted it to allow room for certain counterparty exemptions. The CFTC and SEC hence both propose rules exempting non-financial end-users from mandatory margin requirements. Non-financial end-users are presumed to be hedging commercial risk and therefore not systemically risky.\(^ {438}\)

(b) What type of margin?

As the Dodd-Frank Act explicitly stipulates, the margin requirements encompass both initial and variation margin (supra). Initial margin is the margin that is collected (or posted, for major swap participants under the SEC) before entering the trade and serves as a buffer for future losses due to the counterparty not fulfilling its obligations. The proposed rules contain several ways of calculating the amount of initial margin. Under the CFTC proposal, the covered swap entity can use a model used to margin cleared swaps, a model used by an entity under prudential regulator supervision to margin uncleared swaps, or a model available through a vendor.\(^ {439}\) The proposal by the prudential regulators is stricter and allows two possibilities: covered swap entities can use a standard “look-up table”, which calculates a percentage of the notional swap amount to be collected\(^ {440}\); or they can use an internal margin model, which meets the many criteria \(^ {441}\) the rules set out and has been approved by the

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\(^{440}\) The percentages of the look-up table change based on the asset class and the duration of the contract, for instance: 1-3%, for credit swaps with a 0-2 year duration; 5-15%, for credit swaps with a 5-10 year duration; 10-20%, for commodity swaps; and 3-9%, for foreign exchange swaps. (see Shearman & Sterling, Dodd-Frank: CFTC and Prudential Regulators Release Proposed Margin Requirements for Uncleared Swaps, 27 April 2011, http://www.shearman.com/dodd-frank-cftc-and-prudential-regulators-release-proposed-margin-requirements-for-uncleared-swaps-04-27-2011/, 7.)

\(^{441}\) These include all the material price risks to be included, to what extent offsetting exposures can be included, what historical data that can be included, when the model should be recalibrated, and when it should benchmark the performance of its model to equivalents. (see Sullivan & Cromwell, Proposed Margin Requirement for Uncleared Swaps under Dodd-Frank, 18 April 2011,
prudential regulator. A look-up table does not allow the inclusion of netting and other offsetting exposures – an internal model, however, does, so it is unlikely any covered swap entities would choose to use a look-up table. Unlike the others, the SEC rules accept different margining models for different underlying and only require collecting initial margin for swap dealers. They also allow the use of an internal margin models – but only for credit and fixed-income total return security-based swaps. For security-based swaps with equities as underlying, a different methodology is provided. Lastly, many security-based swap dealers or major swap participants are not approved to use internal models, so, unless the swaps have equity underlying, they can only use standardized haircuts.

Variation margin is collected periodically to reflect unrealized losses or profit from the outstanding swap contract. All proposed rules permit the calculation of variation margin on an aggregate basis across all swaps executed under a master netting agreement. This means variation margin can reflect the many swap contracts major swap entities close amongst themselves. As with initial margin, the proposals differ on the actual calculation method. The CFTC proposal loosely allows any methodology specified in the credit support agreement between the parties. The proposal by prudential regulators calculates the amount of variation margin as the difference between the marked-to-market value of the swap contract and the previously collected variation margin. The SEC closely follows the latter, by requiring variation margin if a negative equity position appears after marking-to-market the swap positions. The actual monitoring of current positions and collection of variation margin must be done daily.

(c) What collateral?

http://www.sullcrom.com/Proposed-Margin-Requirements-for-Uncleared-Swaps-under-Dodd-Frank/, 4.)


("Major security-based swap participants would not be required to calculate a potential future exposure measure because they would not be required to collect margin collateral to cover this amount.") (see SECURITIES EXCHANGE COMMISSION, Fact Sheet: Proposing Rules Governing Capital, Margin, and Segregation Requirements for Security-Based Swap Dealers and Major Security-Based Swap Participants, Washington D.C., SEC, http://www.sec.gov/news/press/2012/2012-210.htm.)


Lastly, the proposed rules specify the collateral that counterparties can post to fulfill their margin requirements. The proposal by the prudential regulators allows immediately available cash and direct US governmental obligations (i.e. Treasury bills and bonds) as initial and variation margin. In contrast, initial margin can also be senior debt obligations by GSEs such as Fannie Mae and Freddie Mac. The eligible collateral is the same under the CFTC proposal – except for non-financial end-users, where the proposal allows any asset that can be periodically valued. Any asset that has a liquid market – such as cash, equity and debt markets – can therefore be considered eligible. As the overarching goal of the margin requirement is to reduce systemic risk, non-financial end-users are considered less threatening, as they mainly hedge their commercial risk. The SEC proposal only accepts cash, securities or money-market instruments as eligible collateral.

All proposals instate haircuts, mainly based on duration and issuer, on the value of the eligible collateral other than immediately available cash. The intent is to account for the risk of losses through not being able to sell it readily in difficult liquidity – never the case for cash.

(2) Under EMIR

EMIR makes provisions on credit enhancement techniques for non-centrally-cleared trades obligatory for financial and non-financial counterparties. The most important one is the collateralization of financial derivative contracts. Although it refrains from using the actual word, it is clearly the EMIR equivalent of the margin requirements under Dodd-Frank.

(a) Which counterparties?

As financial and non-financial counterparties are principally subject to the central clearing requirement, only the counterparties that are not will have to fulfill the margin requirements. On the one hand, contracts between financial counterparties will be subject to the margin requirement if they are exempted from the clearing requirement. On the other hand, contracts between a financial and a non-financial

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450 Ibid, 9.
454 Art. 11, 3 European Market Infrastructure Regulation.
455 ESMA(2012)600.
counterparty, or between two non-financial counterparties, will be subject if they do not pass the minimum threshold of €1 or €3 billion or are exempt for other reasons.\textsuperscript{456}

The collateralization provision is sparse on content, but implementation regarding the level and type of collateral is foreseen by the European Supervisory Authorities (ESAs).\textsuperscript{457} In contrast to previous implementation, EMIR does not authorize ESMA itself, but the joint ESAs.\textsuperscript{458} Therefore the collateralization requirement was not included with the other bilateral risk mitigation techniques, such as timely confirmation and portfolio compression, in the delegated regulation of 19 December 2012.\textsuperscript{459}

(b) What type of margin?

The Joint Committee of the ESAs released a proposal outlining its vision on future margin requirements: while it strongly supports the exchange of variation margin by both financial and non-financial counterparties, it is wary about obligatory initial margin inducing liquidity constraints.\textsuperscript{460} For calculating variation margin, it refers back to EMIR and the risk-mitigation technique of marking-to-market or marking-to-model.\textsuperscript{461} For calculating initial margin, it prefers a standardized method, but might include internal models if they are approved.\textsuperscript{462} In determining eligible collateral for margin, it would prefer to use widely used standards such as those by ESMA. Haircuts on their value should be standardized or internal estimations can be used under certain requirements.\textsuperscript{463} This concept was released to allow market participants to voice their concerns in a period of public consultations. Many voiced their concern over the undesirability and inability of certain market participants posting collateral.\textsuperscript{464} It is therefore likely that the eventual technical standards will take this into account – together with the future recommendations by BCBS-IOSCO (infra).

(c) What collateral?

\textsuperscript{457} Art. 11, 15, (a) European Market Infrastructure Regulation.
\textsuperscript{458} Together with the European Banking Agency (EBA) and the European Insurance and Occupational Pensions Authority (EIOPA), ESMA is one of the three ESAs. The ESAs were established at the same time as the European Systemic Risk Board (ESRB) as the institutional pillars of the European System of Financial Supervision (ESFS). (see Art. 1, (2) and (3) Regulation of the European Parliament and of the Council No 1092/2010, 24 November 2010 on European Union macro-prudential oversight of the financial system and establishing a European Systemic Risk Board, O.J.L. 5 December 2010, Vol. 331, 1.)
\textsuperscript{459} Articles 12-20 Clearing Commission Delegated Regulation.
\textsuperscript{460} JC/DP(2012)1, 1.
\textsuperscript{461} JC/DP(2012)1, 8.
\textsuperscript{462} JC/DP(2012)1, 14-15.
\textsuperscript{463} Ibid, 17-18.
The precise level and exact type of collateral is yet to be jointly specified by the ESAs. The Commission expects to adopt such draft regulatory standards on margin requirement by 2014. Until then, counterparties are allowed to follow their own rules on collateral, in accordance with the vague EMIR provision on collateral.465

(3) Under BCBS-IOSCO

Fearing fragmented rules across jurisdictions, the Basel Committee on Banking Supervision (BCBS) and the International Organization of Securities Commissions (IOSCO) have been working on a proposal for universal margin requirement for non-centrally-cleared financial derivatives.466 The second working paper, published 15 February 2013, intends to limit the liquidity impact of the regulation, while still reducing systemic risk and ensuring a level playing field.467 All in all, its minimum standards can be deemed to be less stringent than the proposals of margin requirements under the Dodd-Frank Act and EMIR. The suggestions it is working on are plentiful, but certain ones are new or different.

(a) Which counterparties?

Its scope is limited to contracts between systemically important entities: financial firms and systematically import non-financial entities.468 In doing so, it reminds regulators the post-crisis regulation intends to reduce systemic risk; since much risk is concentrated among a handful of large market participants469, only collateralizing their loans would achieve a significant amount of systemic risk reduction – while reducing the liquidity impact.470

(b) What type of margin?

It proposes a maximum initial margin threshold of $50 million.471 Worried about the liquidity impact of suddenly imposing initial margin requirements, it furthermore proposes an extensive phase-in period for initial margin all the way into 2019. At this point, it prefers a de minimis level of $8 billion of gross notional amount of non-
centrally-cleared financial derivative activity to be subject to initial margin requirement.\footnote{472}{BASEL COMMITTEE ON BANKING SUPERVISION and INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIONS, Second Consultative Document: Margin requirements of non-centrally cleared derivatives, 15 February 2013, BIS-IOSC, http://www.bis.org/publ/bcbs242.pdf, 22.}

(c) What collateral?

Lastly, an important, new addition is a ban on re-hypothecating, re-pledging or re-using collateral. Re-using collected collateral in such a way detracts from its usefulness when a counterparty defaults; as third parties might have subsequently acquired a title to it, it is often caught up in legal disputes that create uncertainty instead of increasing it.\footnote{473}{Ibid, 18.} While there is a seeming consensus on this matter, the SEC believes it should be allowed in very limited circumstances.\footnote{474}{BLOOMBERG, Basel Group Seeks Tougher Rules for Non-Centrally Cleared Swaps, 7 July 2012, http://www.bloomberg.com/news/2012-07-06/basel-group-seeks-tougher-rules-for-non-centrally-cleared-swaps.html.}

d) Trade-reporting

The final core rule of the post-crisis regulation is trade reporting. Coupled to a recordkeeping requirement, it seeks to increase the transparency of transactions and positions.

(1) Under Dodd-Frank

The Dodd-Frank Act contains provisions imposing trade reporting requirements and provisions concerning the trade repositories themselves. Among the trade reporting requirements, the Dodd-Frank Act distinguishes standard trade reporting, large swap trader reporting and public reporting of swap transaction data. Standard trade reporting is the baseline for trade reporting and will know the broadest application. We will hence discuss it together with an outline of large trader reporting, which is interesting because of the systemic concern that motivates it. Public reporting concerns the least amount of data and is therefore less interesting from our post-crisis perspective.

(a) Standard trade reporting

Standard trade reporting requires the reporting of each swap that is not centrally cleared to a swap data repository. If no swap data repository accepts that type of swap, the swap must be reported to the CFTC or the SEC if it concerns security-based swaps.\footnote{475}{Dodd-Frank Act § 729 and § 766.} Outstanding swaps on 21 July 2010 (the date of the Dodd-Frank Act enactment) are also subject to the above reporting requirement, but only after a certain period has elapsed after the issuance of an interim final rule by the CFTC or the

\footnote{472}{BASEL COMMITTEE ON BANKING SUPERVISION and INTERNATIONAL ORGANIZATION OF SECURITIES COMMISSIONS, Second Consultative Document: Margin requirements of non-centrally cleared derivatives, 15 February 2013, BIS-IOSC, http://www.bis.org/publ/bcbs242.pdf, 22.}
\footnote{473}{Ibid, 18.}
\footnote{475}{Dodd-Frank Act § 729 and § 766.}
As such a rule was issued on 14 October 2010 for swaps and on 20 October 2010 for security-based swaps, the responsible counterparties afterwards had thirty days to report such outstanding “pre-enactment swaps”.

(i) Responsible counterparty?

The Dodd-Frank Act sketches three scenarios for determining the responsible counterparty. If only one of the counterparties to the contract is a swap dealer or major swap participant, it is responsible for reporting the swap. If one of the counterparties is a swap dealer and the other a major swap participants, the swap dealer is responsible. In all other scenarios, the counterparties themselves select the counterparty responsible for reporting. One exception to this last scenario is the individual or entity that disregards its clearing obligation or the timeframes for reporting: instead of the counterparties selecting, that entity or individual is responsible. The principle is thus subjecting a sole counterparty to the mandatory reporting requirement, with preference being given to the presumably most sophisticated one.

(ii) CFTC: what and when to report?

The details of what and when to report are substantiated in a final rule by the CFTC and proposed rule format by the SEC. The CFTC differentiates between two important stages in the life of a swap: the creation of a swap, and the continuation of its life until termination or expiration. Swap creation data must be electronically reported either by the registered entities or the counterparties to the swaps. In certain cases, registered entities, instead of the counterparties, must report the creation data of that swap contract. On the one hand, this is the case for contracts traded on regulated exchanges or a SEF. On the other hand, for swap contracts that are traded over-the-counter, but mandatorily cleared centrally, the reporting requirement lies with the CCP. It must report creation data consisting of confirmation data and primary economic terms to the trade repository. The same even goes for swaps that are voluntarily cleared, if the CCP submits the report before the responsible counterparty does.

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476 The Dodd-Frank Act stipulates outstanding swaps on enactment must be reported 30 days after the issuance of an interim final rule by the CFTC, or a different length it simultaneously establishes.
478 Dodd-Frank Act § 729 and § 766.
479 Swap Data Recordkeeping and Reporting Requirements, CFTC, 13 January 2012, 17 CFR Part 45. (from here on “CFTC Data Reporting Rule”.)
480 Reporting and Dissemination of Security-Based Swap Information, SEC, 19 November 2010, 17 CFR Part 240. (from here on “SEC Data Reporting Rule”.)
482 § 45.3 CFTC Data Reporting Rule.
483 § 45.3 (a) CFTC Data Reporting Rule.
484 § 45.3 (b) 2 CFTC Data Reporting Rule.
485 § 45.3 (b), 1 CFTC Data Reporting Rule.
The CFTC also provides a complex maximum timeline for the submittal of creation data, which it bases on two variables: assumed sophistication of the reporting entity or counterparty, and applicability of the mandatory clearing requirement. Furthermore, it includes a certain phase-in period, with timelines lessening during the first two or three years.

Swap continuation data must also be reported in order to keep the data in the repository current and accurate throughout the existence of the swap. This obligation includes daily reporting of state and valuation data, and life cycle reporting whenever a relevant event occurs. Keeping the data current and accurate can be done in “snapshot”, by providing daily updates, or in “life cycle”. One interpretation is that the CFTC grants the freedom which of these two reporting methods is most appropriate. The necessary data includes: current valuation, novation, change in cash flows and change in the corporate structure of a counterparty. In the case centrally cleared swaps, the CCP must report such continuation data. In the case non-centrally cleared swaps, the responsible counterparty must report the data. Registered entities or counterparties responsible for reporting state and life cycle data can, however, transfer the task to a third-party. All the above swap data on a contract should be reported to a single swap data repository. The reason is simple: failing to do so would lead to data being fragmented between several depositories, thereby diminishing oversight. If no registered swap data repository exist for that class of swap, reporting must done to the CFTC.

While other requirements of the Dodd-Frank Act have phased-in applicability, the reporting requirement only allows phased-in compliance depending on the class of derivative and the reporting subject. The first phase is for registered entities, swap dealers and major swap participants reporting credit and interest rate swaps: compliance is expected 16 July 2012. The second phase is for those same subjects, but this time for equity, foreign exchange and other commodity swaps: compliance is

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486 For instance, while the maximum time for reporting by a swap dealer or major swap participants is initially thirty minutes, the maximum time for counterparties who do not qualify as one of these is initially four business hours. (see § 45.3 (b), 1, (i) and (ii) CFTC Data Reporting Rule.)
487 For instance, the maximum time for reporting by a counterparty, which is not a swap dealer or major swap participant, to a trade under the mandatory clearing requirement is four business hours initially. The maximum time for reporting by the same counterparty to trade not under the clearing requirement is forty-eight hours. (see § 45.3 (b), 1, (ii) and (d), 1 CFTC Data Reporting Rule.)
488 For instance, the maximum time for reporting by CCPs is set at four hours the first year, two hours the second and one the third. (see § 45.3 (b), 2 CFTC Data Reporting Rule.)
489 § 45.4 (a) CFTC Data Reporting Rule.
492 § 45.4 (b) CFTC Data Reporting Rule.
493 § 45.4 (c) CFTC Data Reporting Rule.
494 § 45.9 CFTC Data Reporting Rule.
495 The CFTC differentiates once more between over-the-counter swaps where a swap dealer or major swap participant has the reporting obligation and those where a different counterparty has it. (see § 45.10 (b) and (c) CFTC Data Reporting Rule.)
496 § 45.11 CFTC Data Reporting Rule.
expected 90 calendar days after the previous date. The last phase is for all counterparties who are not swap dealers or major swap participants: compliance with the requirement is expected a further 90 days after the previous date. Sophisticated subjects are thus given less leeway before being required to comply.

(iii) SEC: what and when to report?

The SEC has yet to adopt final rules implementing the Dodd-Frank Act trade reporting requirements. Its last proposed rules of 19 November 2010 outline its vision on the reporting requirement for security-based swaps, which it will eventually implement after public consultations. While the Dodd-Frank already establishes the party responsible for reporting (supra), the SEC proposal seemingly adds another variable. If one of the counterparties to a security-based swap contract is US person, this US person is responsible for reporting. When both counterparties are US persons, the sophistication hierarchy of the Dodd-Frank Act is repeated. If neither of the counterparties are US persons, but the regulation is still applicable, the counterparties can choose which of them will report.

The information regarding the swap that is to be provided must be reported to a registered security-based swap data repository, or, if no relevant repository exists, to the SEC. Just as the CFTC, the proposal differentiates between the required data based on time. In contrast to the CFTC, however, it segregates the following: (i) data to be reported in real time, (ii) additional data to be reported in fifteen minutes to a day depending on trade execution and confirmation, and (iii) life cycle data when the event transpires. Real time data includes the basic inputs as notional amount, termination date and clearing. Additional information is more detailed and includes master agreements, valuation and clearing agency. The last category, life cycle data, must be reported whenever the event that changes the real time or additional transpires. While the rule is a mere proposal of a final one, it does already contain phase-in compliance dates, with the first phase being six months, the second nine, the third twelve and the fourth eighteen. The phase-in is thus vastly longer than the one established by the CFTC.

(b) Large trader reporting

It is unlawful for a market participant to enter a contact or acquire a position in a swap that is important for price discovery if the amount equals or exceeds a set limit. Only

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497 The provision mentions 16 July 2012 – unless the joint final specifying the “swap” definition has not been published by then. This happened on 23 May 2012, thereby retaining 16 July 2012 as phase-in date.
498 SEC Data Reporting Rule.
499 § 242.901 (a), (1) SEC Data Reporting Rule.
500 § 242.901 (a), (2) SEC Data Reporting Rule.
501 § 242.901 (a), (3) SEC Data Reporting Rule.
502 § 242.901 (b) SEC Data Reporting Rule.
503 § 242.901 (c) SEC Data Reporting Rule.
504 § 242.901 (d) SEC Data Reporting Rule.
505 § 242.901 (e) SEC Data Reporting Rule.
if the market participants keeps specified books and records, and notifies the CFTC or SEC in advance, is it lawful.\textsuperscript{506} If the market participant maintains a position over the designated limit, it will have to submit periodic reports. Instead of reporting to a privatized trade repository, the reports hence go straight to the relevant regulator. The goals include: assessing the risk in various swaps, assessing the market power of individual market participants and monitoring compliance limits set by regulators.\textsuperscript{507}

The CFTC adopted a final rule for large swap trade reporting in a set of forty-six physical commodity swaps.\textsuperscript{508} The enforcement of the requirement in the head of clearinghouses, clearing members, reporting participants and swap dealers was postponed three times\textsuperscript{509}, as the final rule allowed, before expiring and hence being enforced by the CFTC on 2 July 2012.\textsuperscript{510} Similarly, the SEC implemented a final rule on large trader reporting.\textsuperscript{511} In contrast to previous implementations, its scope forsakes the usual security-based swap for the much broader “NMS security”, which includes equity securities together with standardized options.\textsuperscript{512} Traders who pass a daily numerical threshold in transaction must fulfill the large trader reporting requirement together with a limited form for their brokers and dealers.\textsuperscript{513} The Dodd-Frank Act thus made sure large traders would certainly not be able to run up large positions without the full and clear knowledge of regulators.

\textit{(2) Under EMIR}

EMIR provides a comprehensive trade-reporting obligation. All trades in financial derivative contracts must be reported to a trade repository within one business day of execution.\textsuperscript{514} This day of execution includes the conclusion, the modification and the termination of the contract. The counterparties and the CCPs (if the trade is centrally cleared, them the novation qualifies as a modification of the contract) are the ones responsible for fulfilling the reporting obligation.\textsuperscript{515} Counterparties and CCPs, however, may delegate the task of reporting to a third party.\textsuperscript{516} The reporting obligation applies to financial derivatives that are still outstanding at the time EMIR

\textsuperscript{506} § 730 and § 763, (h) Dodd-Frank Act.
\textsuperscript{508} Large Trader Reporting for Physical Commodity Swaps, CFTC, 1 June 2012, 17 CFR Part 15 and 20.
\textsuperscript{509} The first temporary and conditional relief by the CFTC was granted on 16 September 2011, the second on 18 November 2011 and the final on 20 March 2012. (see COMMODITY FUTURES TRADING COMMISSION, Staff No-Action Relief: Temporary and Conditional Relief from the Requirements of §§ 20.3 and 20.4 of the Commission’s Regulations Regarding Large Swaps Trader Reporting for Physical Commodities, 20 March 2011, http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/relief_letter_032012.pdf.)
\textsuperscript{510} § 20.10 CFTC Data Reporting Rule.
\textsuperscript{511} Large Trader Reporting, SEC, 27 July 2011, 17 CFR Part 240 and 249.
\textsuperscript{515} Art. 9, 1, first paragraph European Market Infrastructure Regulation.
\textsuperscript{516} Art. 9, 1, third paragraph European Market Infrastructure Regulation.
entered into force and those that are entered into thereafter.\textsuperscript{517} Uncharacteristic for EMIR is the applicability of the reporting obligation to both over-the-counter derivatives and exchange-traded derivatives.\textsuperscript{518}

(a) ESMA: what and when to report?

As with previous core rules, EMIR remains vague on details, but solves this by authorizing ESMA to construct draft technical standards on the content of the reports and the reports themselves.\textsuperscript{519} Its draft regulatory standards concretizing the content of the reporting obligation were adopted on 19 December 2012.\textsuperscript{520} They entered into force on 13 March 2013, twenty days after publication. Firstly, a set of details concerning the contract itself must be reported.\textsuperscript{521} Such “common data” includes, for example: the underlying, the deliverable currency, the notional amount, the use of a Master Agreement and the applicability of the clearing obligation. Furthermore, specific data is requested depending on the contract.\textsuperscript{522} Secondly, a set of details concerning the counterparties must be reported.\textsuperscript{523} Such “counterparty data” includes: name of the counterparty, domicile, collateralization and valuation data. When a regulator wants to examine individual exposure, information on collateral is essential, as it will allow the incorporation of offsetting exposures. As many market participants do not collateralize per transaction, ESMA makes an exception and allows reporting on collateral per portfolio.\textsuperscript{524} The relevant portfolio information can hence be reported daily.\textsuperscript{525} If both counterparties file reports, a report on the contract details must be submitted only once, while each report should contain the information pertaining to their counterparty in the contract.\textsuperscript{526}

The draft technical standards on the rules, standards and formats concerning the reports themselves were adopted on the same date in a different regulation.\textsuperscript{527} The frequency of the required reports differs. Mark-to-market or mark-to-model valuations of contracts must be reported daily, while all other elements must only be reported as they occur.\textsuperscript{528} This is logical, as data such as deliverable currencies and

\textsuperscript{517} Art. 9, 1, second paragraph European Market Infrastructure Regulation.
\textsuperscript{518} ESMA(2013)324, 16.
\textsuperscript{519} Art. 9, 5 and 6 European Market Infrastructure Regulation.
\textsuperscript{520} Commission Delegated Regulation No 148/2013, 19 December 2012 supplementing Regulation (EU) No 648/2012 of the European Parliament and of the Council on OTC derivatives, central counterparties and trade repositories with regard to regulatory technical standards on the minimum details of the data to be reported to trade repositories, OJ. L. 23 February 2013, Vol. 52, 1. (from here on “Data Reporting Commission Delegated Regulation”.)
\textsuperscript{521} Art. 1, 1, (a) Data Reporting Commission Delegated Regulation.
\textsuperscript{522} Specific data is requested for interest rate, foreign exchange and commodity financial derivatives. Options, too, demand specific information such as strike price.
\textsuperscript{523} Art. 1, 1, (b) Data Reporting Commission Delegated Regulation.
\textsuperscript{524} Art. 3, 1 Data Reporting Commission Delegated Regulation.
\textsuperscript{525} ESMA/2013/324, 16.
\textsuperscript{526} Art. 1, 3 European Market Infrastructure Regulation.
\textsuperscript{528} Art. 2 Data Reporting Commission Implementing Regulation.
domiciles rarely change daily. Most importantly, the regulation determines the start
dates of the reporting obligation. Reporting obligations for credit and interest rate
financial derivatives will commence from 1 July 2013, while reporting obligations for
all other financial derivatives will only commence from 1 January 2014 onwards.529
These dates are ideal situations, where trade repositories for that particular derivative
class have been registered by that date.530 If this is not the case by that date, trade
reporting will become obligatory for that class of financial derivative only 90 days
after such a specific trade repository is registered.531 The ultimum remedium, if no
suitable trade repository is registered by 1 July 2015, is the reporting of trades to
ESMA.532 From the start date of obligatory reporting onwards, all new contracts must
be reported; outstanding contracts on that date, however, are given a leeway of 90
days to comply.533 As trade repositories now exist for credit, interest rate and equity
financial derivatives (supra), many financial derivatives will immediately fall under
the obligatory reporting requirement. The ESMA reasoning behind the earlier date for
credit and interest rate financial derivatives is hence quite clear.

(3) Under MiFIR

EMIR is unlikely to remain the only regulation requiring over-the-counter financial
derivative reporting, as MiFIR proposals include the disclosure of such data to the
public. Investment firms that execute transactions in financial instruments are
required to report details of their transactions to the competent authority as quickly as
(technologically) possible, but no later than the end of the next business day.534 As the
requirement applies to financial instrument traded both on and off trading venues535, it
also applicable goes for over-the-counter execution of financial derivatives.536

The data that is to be reported is would be termed “creation data” under the Dodd-
Frank Act; it entails details on the quantity and type of financial instruments, the
execution, the price and client identification.537 As the reporting requirement is
neither aimed at over-the-counter markets, nor at financial derivatives, it contains
only a small portion of the data under the Dodd-Frank Act and EMIR. Lifecycle data
and valuation data are notably missing – which is logical, as these have little to no
value in more standard financial instruments.

(4) Under CPSS-IOSCO

529 EUROPEAN COMMISSION, EMIR: Frequently Asked Questions, 8 February 2013, Brussels, EC,
530 Art. 5, 1, (a) Data Reporting Commission Implementing Regulation.
531 Art. 5, 1, (b) Data Reporting Commission Implementing Regulation.
532 Art. 9, 3 European Market Infrastructure Regulation and Art. 5, 1, (c) Data Reporting Commission
Implementing Regulation.
533 Art. 5, 3 Data Reporting Commission Implementing Regulation.
534 Art. 23, 1 COD(2011)0296.
535 A trading venue under MiFIR (and MiFID) means any regulated market, MTF or OTF. (see art. 2, 1,
(25) COD(2011)0296.)
536 Art. 23, 2, third paragraph COD(2011)0296
537 Art. 23, 3 European Market Infrastructure Regulation.
The Committee on Payment and Settlement Systems (CPSS) and IOSCO jointly drafted a report discussing data reporting requirement for over-the-counter financial derivatives. The final report concludes with a set of policy recommendations concerning minimum data reporting requirements.

Data should be reported per transaction, including at least primary economics terms, counterparty information, underlying information, operational data and event data.  

The annexes include a standard set of minimum data fields applicable to all financial derivatives, but it also contains specific minimum data fields for all main types of financial derivatives (commodity, credit, currency, equity and interest rate). Additionally, the report pays attention to what can be termed “systemic data”. Trade reporting should include data important for monitoring systemic risk and financial stability, such as collateral, netting arrangements, market values of transactions and reference data on affected parties in case of default. While national initiatives have often lost touch with the overarching goal of post-crisis regulation – reducing systemic risk and increasing financial stability – such supranational initiatives have consistently reached back to that goal.

B. The post-crisis regulators

Failure to foresee and forestall the crisis can be attributed to regulation as well as regulators. Having previously discussed the post-crisis changes to the regulation of over-the-counter financial derivative markets, this thesis will now analyze the various post-crisis measures of regulatory oversight reform.

1. The post-crisis American reform

The Dodd-Frank Act implemented a set of regulatory oversight reforms, which aimed to embody the lessons learnt during the crisis. The broad theme of the regulatory oversight reform is including macroprudential regulatory oversight, which oversees the financial system as a whole. In comparison, microprudential oversight merely overlooks the safety and soundness of individual market participants and infrastructures. Until recently, the emphasis lay almost exclusively in the latter. As over-the-counter financial derivatives turned a national housing bubble into a global financial crisis (supra), the macroprudential approach is for a great part aimed at these markets. The macroprudential reform of the Dodd-Frank Act therefore warrants our attention. On the other hand, the Dodd-Frank Act also seeks to harmonize and unify the historically fragmented and conflictuous regulatory oversight over over-the-

539 Ibid, 50-62.
540 Ibid, 37.
541 “Notably, a central element of the legislation is the requirement that the Federal Reserve and other financial regulatory agencies adopt a so-called macroprudential approach--that is, an approach that supplements traditional supervision and regulation of individual firms or markets with explicit consideration of threats to the stability of the financial system as a whole.” (see BEN BERNANKE, Implementing a Macroprudential Approach to Supervision and Regulation, 5 May 2011, http://www.c.federalreserve.gov/newsevents/speech/bernanke20110505a.pdf, 1-2.)
counter financial derivative markets. Such microprudential oversight remains important for these markets and will be discussed first.

a) Over-the-counter financial derivative oversight

The Dodd-Frank Act expanded oversight over over-the-counter financial derivative markets and attempted to stabilize relations between the two relevant regulatory agencies.

In order to reestablish the authority of the CFTC and the SEC to oversee over-the-counter financial derivative markets, the Dodd-Frank Act repeals the GLBA and provisions amended by the CMFA. These acts had eliminated oversight by the CFTC by excluding contracts between “eligible counterparties” and reduced oversight by the SEC to antifraud authority. By repealing the provisions of both, the Dodd-Frank Act reestablishes the principal oversight by the regulatory agencies. Without the repealing, they would have been unable to implement and supervise the enacted regulation this thesis previous discussed.

The CFTC and the SEC have been engaged in a game of jurisdictional tug-of-war since their genesis (supra), with both agencies winning ground at times and losing it at others. The Dodd-Frank Act therefore sought to push coordination and cooperation between them. Before the CFTC adopts any rules or orders regarding swaps, defined swap counterparties or registered entities, it must first consult the SEC before it goes over to rulemaking. The same goes for the SEC with regards to the CFTC. Although they are not absolutely bound to it, they should attempt to treat identical products and entities economically and functionally similar in their rulemaking. For certain rulemaking areas – such as for mixed swaps, the definition of “swaps”, “security-based swaps” and other offshoot definitions, and trade repository recordkeeping – they must cooperate to issue joint rules. If they fail to jointly rules in these designated domains, it will be referred to the FSOC. This joint rulemaking has already been accomplished with apparent success (supra).

b) Macroprudential oversight

The Dodd-Frank Act founds a new body, the Financial Stability Oversight Council (FSOC), as macroprudential supervisor. It is made up out of ten voting members and five advisory non-voting members. The ten voting members are designated for their leadership of agencies within the US regulatory landscape and include: the Secretary of Treasury, the Chairman of the Board of Governors (of the Federal Reserve System), the Comptroller of the Currency, the Federal Deposit Insurance Corporation, the Director of the Office of Finance, the Director of National Intelligence, the Director of the Consumer Financial Protection Bureau, the Commissioner of Customs and Border Protection, and the Commissioner of the Federal Maritime Commission. The members of the FSOC are nominated by the President and confirmed by the Senate. The FSOC is led by the Secretary of Treasury, who is designated as Chairperson by the Dodd-Frank Act.

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542 Dodd-Frank Act § 762.
544 Dodd-Frank Act § 712, (a), (1).
545 Dodd-Frank Act § 712, (a), (2).
546 Dodd-Frank Act § 712, (a), (7).
547 Dodd-Frank Act § 712 (a), (8) and (d).
548 Dodd-Frank Act § 111, (a).
549 The Secretary of Treasury is designated by the Dodd-Frank Act to serve as Chairperson of the Council. (see Dodd-Frank Act § 111, (b), (1).)
Reserve System), the Chairman of the (Securities Exchange) Commission and the Chairperson of the CFTC.\textsuperscript{550} The FSOC meets at least every quarter with the purpose of identifying risk to financial stability, promoting market discipline by diminishing moral hazard and to responding to threats to the US financial system.\textsuperscript{551}

To accomplish this, it is authorized to take a variety of measures. One such measure is determining a possibly systemic nonfinancial company will be placed under Federal Reserve regulatory oversight\textsuperscript{552}. Another is its ability to recommend the Federal Reserve to adopt more stringent prudential standards and reporting requirements for systemic financial institutions\textsuperscript{553}, which it can also do with regards to other financial regulatory agencies\textsuperscript{554}. The legislators, remembering the nefarious regulatory battles of the past, also aspired for the FSOC to be body to solve jurisdictional disputes between its constituent agencies. It can hence resolve such disputes brought to its attention, under the understanding that its recommendations are non-binding\textsuperscript{555}. As we will discuss in the last part, this might be an important provision, were a dispute between the CFTC and the SEC to transpire once more over over-the-counter financial derivative oversight.

With its input from a huge variety of regulators, the FSOC is the embodiment of what was previously missing: the able to distribute and coordinate knowledge decentralized among many regulators. The fact that most of its measures it can respond with are exerted through the Federal Reserve or other regulators, further accentuates its emphasis on sharing knowledge and identifying threats to financial stability. In doing so, it can help eliminate gaps in can continue to eliminate gaps and weakness within the regulatory framework.\textsuperscript{556} So far the FSOC has released three annual reports and advised Congress on a variety of other matters.

In order to analytically assist the FSOC, the Dodd-Frank Act also establishes an Office of Financial Research within the US Treasury.\textsuperscript{557} Its purpose is hence to support the FSOC and its member agencies with administrative and rulemaking research.\textsuperscript{558} The Office can thus contribute to raising the quality of the work done by the FSOC.

2.  The post-crisis European reform

\textsuperscript{550} The other voting members are: the Comptroller of the Currency, the Director of the (Consumer Financial Protection) Bureau, the Chairperson of the (Federal Deposit Insurance) Corporation, the Director of the Federal Housing Finance Agency, the Chairman of the National Credit Union Administration Board, and, lastly, an independent member with insurance experience appointed by the President. (see Dodd-Frank Act § 111, (b), (1).)
\textsuperscript{551} Dodd-Frank Act § 112, (a), (1).
\textsuperscript{552} Dodd-Frank Act § 113.
\textsuperscript{553} Dodd-Frank Act § 115.
\textsuperscript{554} Dodd-Frank Act § 120.
\textsuperscript{555} Dodd-Frank Act § 119.
\textsuperscript{557} Dodd-Frank Act § 152, (a).
\textsuperscript{558} Dodd-Frank Act § 153, (a).
a) Over-the-counter financial derivative oversight

After the crisis, the previous system of supranational committees was completely overhauled. The Lamfalussy process of 2001, reacting to shortcomings in the legislative process of financial regulation, had outlined a four-level hierarchy for regulation. The so-called “3L3” committees were established at this time to help with the third-level implementation. The crisis, however, showed the EU rulebook and supervisory coordination to be lacking. These committees were deemed too loose and unstable, since they were merely composed of networks of national regulators, to assist the post-crisis regulatory push and were subsequently replaced by the ESAs. The CEFR – the 3LR committee of securities regulators – was thus replaced by ESMA.

ESMA was formally established on 1 January 2011. Its Board of Supervisors – out of which six members are selected for the Management Board – is comprised mainly of representatives from national authorities overseeing financial markets. As one objective is ensuring the integrity, transparency, efficiency and orderly functioning of financial markets, of the three ESAs the supervision of over-the-counter financial derivative markets falls within its domain. Furthermore, EMIR authorizes it for most drafting of regulatory and implementing technical standards.

ESMA clearly bears the scars of the financial crisis: it has an overarching responsibility to pay attention to systemic risk, is delegated far-reaching powers to take direct action in emergency situations and must play a coordinating role in systemic risk management and crises. Were another crisis to strike with over-the-counter financial derivatives at its center, ESMA would consequently be well equipped to respond supranational. This is needed, as a financial crisis erupting in one country will have negative externalities in others; only relying on national crisis fighting will inevitably fall short.

b) Macroprudential oversight

Macropudential oversight was established in Europe on both supranational and national level. On supranational level, the European Systemic Risk Board (ESRB)

559 The “3L3” committees were the Committee of European Securities Regulators (CESR), the Committee of European Banking Supervisors (CEBS) and the Committee of European Insurance and Occupational Pensions Supervisors (CEIOPS).
561 Ibid, 43.
563 Art. 40 and 45 ESMA Regulation.
564 Art. 1, (5), (b) ESMA Regulation.
565 Art. 10 and 15 ESMA Regulation.
was established by regulation on 24 November 2010.\textsuperscript{567} Just as the FSOC, it is responsible for macroprudential oversight: it monitors and acts on systemic risk to financial stability of the EU.\textsuperscript{568} The bulk of its general board membership is composed of central bank representatives: the President\textsuperscript{569} and Vice-President of the ECB, and the governors of the national central banks. This monetary preference is because,

“The ECB and the national central banks should have a leading role in macro-prudential oversight because of their expertise and their existing responsibilities in the area of financial stability. National supervisors should be involved in providing their specific expertise.”\textsuperscript{570}

The rest of its voting membership exists of a Commission representative, the Chairmen the ESAs and the Chairs of the Technical and Scientific committees within ESRB. Interestingly, while national central bank governors are voting members, representatives from national supervisory authorities are non-voting members.\textsuperscript{571} Such membership contribution is in clear contrast with the FSOC, where the regulatory agencies form the majority. As the above quote states, the EU believes macroprudential oversight should reside with central bankers – a move clearly influenced by parallel national reforms in Europe.

The tools it is given, however, are less distinctive and forceful than those of its US counterpart. Firstly, it can issue warnings it finds signs of systemic and simultaneously make recommendation of the remedial action to hence taken. These warning can be addressed to the ESAs, the national supervisory authorities or the even the public.\textsuperscript{572} These addressee must keep the ESRB informed on actions regarding its recommendation – if they choose not to follow it, they must justify it.\textsuperscript{573} Secondly, it can issue confidential warnings to the Council indicating an emergency situation, which the Council can use to assess the need of establishing such an emergency situation vis-à-vis the ESAs.\textsuperscript{574} The emphasis is thus clearly placed, not on a direct contribution to stemming systemic risk, but through indirectly analyzing possible sources of systemic risk and issuing recommendations to the ESAs and national supervisory authorities based on this.\textsuperscript{575}

\textsuperscript{568} Art. 3, (1) ESRB Regulation.
\textsuperscript{569} The regulation designates the President of the ECB as the Chair of the ESRB. (see Art. 5, (1) ESRB Regulation.)
\textsuperscript{570} Perambulatory clause (24) ESRB Regulation.
\textsuperscript{571} Art. 6, (1) ESRB Regulation.
\textsuperscript{572} Art. 16 and 18 ESRB Regulation.
\textsuperscript{573} Art. 17, (1) ESRB Regulation.
\textsuperscript{574} Art. 3, (2), (e) ESRB Regulation.
\textsuperscript{575} For instance, in a recent hearing before a subcommittee of the European Parliament, the Chair of the ESRB issued two concrete recommendations on bank funding and money market funds. (see MARIO DRAGHI, \textit{ESRB Recommendations on bank funding and money market funds}, 18 February 2013, http://www.esrb.europa.eu/news/pr/2013/html/is130218.en.html.)
V. EVALUATIVE CONCLUSION: POST-CRISIS REGULATORY FRAMEWORK

The final part of this thesis attempts to evaluate the post-crisis regulatory framework. How this post-crisis framework is remembered in financial history rests on striking a fine balance between integrating the lessons learnt whilst not disrupting the over-the-counter financial derivative markets. If the changes to the regulatory framework do not go far enough and the lessons are thus not properly integrated, we are already laying the foundations of a future crisis. If the changes go too far and the over-the-counter financial derivative markets are severely disrupted because of it, other financial markets and the broader economy will likely be affected.

The post-Depression framework established the regulatory pillars on which the financial system rested for more than half a century, the question if this regulatory framework can do the same for the ensuing decades.

Firstly, we analyze its ability to cement the gaps and weaknesses of the pre-crisis regulatory framework we previously identified. Secondly, we try to postulate the effects the post-crisis regulatory framework will have on the functioning of the over-the-counter financial derivative markets.

A. Correcting the pre-crisis failures

After the dust settles on an earthquake, the faults of the flattened houses are surveyed and the houses rebuilt to withstand another tremor; after we are hit by a financial crisis, we aim to incorporate the faults we learn into the new regulatory framework. While this is hardly a guarantee for success – we regulate the previous crisis and not the next – there is little else we can do than lick our wounds. In a previous interim conclusion, we identified failures of the pre-crisis regulatory framework attributable to both regulation and regulators. Now that we have discussed the post-crisis changes, we are able to analyze to what extent these gaps and weaknesses have been addressed.

1. The failures of regulation

We previously thematically discussed the failures of the pre-crisis regulatory framework (supra). While credit rating agencies and securitization both played essential roles in upholding the chain that originated with a mortgage loan and ended with a CDS on a synthetic CDO, we will not include them in this section as they fall outside of the immediate regulation of over-the-counter financial derivatives. As we did extensively discuss the transparency, the clearing, the trading and margin requirements of the post-crisis over-the-counter financial derivative regulation, we will obviously weigh in on these.

a) Transparency

A lack of transparency contributed to the crisis by masking the buildup of systemic risk through large transactions and positions in over-the-counter financial derivatives.
Neither the regulators, nor the counterparties, nor the public had been fully aware.

Ensuring the suitable transparency of transactions and positions was therefore one of the core rules of the post-crisis regulation. Both the Dodd-Frank Act and EMIR have succeeded incredibly well at this goal. They both include the reporting of two important data sets – creation and lifecycle – at regular times. The large trader reporting requirement of the Dodd-Frank Act even establishes a separate and more stringent reporting requirement for market shifting transactions.\(^{576}\)

Requiring the reporting of trades to trade repositories will obviously not work if no existing trade repositories accept a certain class of financial derivative. If this the case, both the Dodd-Frank Act and EMIR are pragmatic enough and replace reporting to a trade repository by reporting to, respectively, the CFTC or the SEC, or ESMA. The post-crisis changes to the financial environment, however, reduce the necessity of this provision: the Global OTC Derivatives Interest Rate Reporting Repository and the Equity Derivatives Reporting Repository have since started collecting data on interest rate en equity financial derivatives \(^{(supra)}\). Of the five main classes of over-the-counter financial derivatives, only currency and commodity financial derivatives have no specific trade repository at this point.

b) Clearing

Before the crisis, many over-the-counter financial derivatives were cleared bilaterally. When the counterparty to the contract defaulted on its obligations, in many cases this set off a cascade of sudden exposures and losses \(^{(supra)}\). In the best of cases, the bilaterally cleared contracts were secured by collateral; in many cases, they were not.

\(1\) Central clearing through CCPs

Mandating the central clearing through CCPs is hence seen as way of reducing the counterparty credit risk during the clearing. Both the Dodd-Frank Act and EMIR make it a central part of their post-crisis regulation. As CCP clearing is in most cases preferable above bilateral clearing, due to better risk management and multilateral netting, we can judge the clearing requirement by its exemptions. The main exemption from the requirement in the Dodd-Frank Act is for non-financial end-users that are solely hedging.\(^{577}\) This is acceptable, as long as effort is made to oversee a hedge does not slide into speculation, which often happens as choosing to hedge frequently implies a vision on the evolving market. Even if solely for hedging, the unlimited size of the non-financial end-user exemption of EMIR opens the way for potential.

One substantial difference between the two frameworks is the criteria the implementing regulators must take into consideration when specifying what over-the-counter financial derivatives should be cleared. The CFTC and the SEC are mainly

\(^{576}\) Dodd-Frank Act § 730 and § 763(h).

\(^{577}\) Dodd-Frank Act § 723(a)(3).
asked to judge systemic criteria and no mention is made of standardization.\textsuperscript{578} ESMA, on the other hand, is mainly asked to judge legal and process standardization.\textsuperscript{579} As we will see later centrally clearing over-the-counter financial derivatives without a level of standardization is very difficult. For that reason, the Dodd-Frank Act lacks a degree of pragmatism with real consequences; to avoid the situation where a certain over-the-counter financial derivative must be cleared, but no CCP is willing to accept it, it should have included an “availability exemption” as it did for the trading requirement. Furthermore, as the goal of a CCP is to secure the clearing of risky over-the-counter financial derivative contracts, their systemic nature should certainly be included within the consideration of regulators.

(2) \hspace{1em} \textit{Margin requirement for non-centrally-cleared}

Many counterparties did not fulfill margin requirements for the bilateral clearing of over-the-counter financial derivatives during the crisis. While some counterparties already did so voluntarily before the crisis, part of the post-crisis regulation is making these obligatory for non-centrally-cleared contracts.

The scope of the subjected entities differs greatly between the different proposals resulting from the Dodd-Frank Act, and the one resulting from EMIR. The prudential regulators and the CFTC identify four different counterparties, of which the least risky end-user one is granted a clearing threshold.\textsuperscript{580} This implicates a broad field of application, although the exception will most likely only apply to governmental end-users. Non-governmental end-users, such as corporates, should be able to use a clearing threshold, too. EMIR takes a similar approach by subjecting financial and non-financial counterparties, although the latter also enjoy a threshold. As we see later (\textit{infra}), especially initial margin can be a heavy burden for small non-financial end-users. Demanding them to post collateral can even have pro-cyclical effect\textsuperscript{581} and hence increase systemic risk instead of reducing it as the requirement intends.

c) \hspace{1em} \textit{Trading}

Over-the-counter financial derivative froze once the housing bubble burst, thereby increasing the panic among market participants with mortgage-linked assets on their balance sheets wishing to rid themselves of these at whatever cost.

Trading certain financial derivatives on regulated exchanges could increase liquidity and price discovery in all times, and possibly even in times of financial crises. Both the Dodd-Frank Act and EMIR base the applicability of the trading requirement on the scope of the central clearing requirement. Clearing an over-the-counter financial derivative through a CCP demands a degree of standardization that is substantially

\begin{itemize}
\item \textsuperscript{578} P.M. McBride, “The Dodd-Frank Act and OTC derivatives: The impact of mandatory central clearing on the global OTC derivatives market”, \textit{Int’l Law.} 2010, 1103-1104.
\item \textsuperscript{579} Art. 7, 1, (a) and (b) Clearing Commission Delegated Regulation.
\item \textsuperscript{581} In time of great financial volatility, variation margin calls can sap the cash reserves of a counterparty, thereby pro-cyclically increasing the pressure on it in difficult times.
\end{itemize}
less than that for the trading requirement (*infra*). Forcing over-the-counter financial derivatives onto exchanges that are not standardized enough will likely result in many trading without the liquidity and price discovery that one might hope. These remarks are if the trading requirement ever gets adopted, as fierce resistance has pushed its implementation consecutively back.

Furthermore, it is a pity the post-crisis regulatory frameworks did not include different means to increase liquidity and price discovery, such as ensuring dedicated market makers remain active in all times.

2. The failures of regulators
   
a) Lack of authority

Lack of authority was major gap in the pre-crisis regulatory framework (*supra*), as it resulted in a failure to supervise, over-the-counter financial derivatives, systemic risk to financial stability and new type of financial intermediaries. Had these gaps not existed, it is probable the crisis might have mitigated or lessened.

1) Over-the-counter financial derivatives

Firstly, much effort has been made to principally bring over-the-counter financial markets under regulatory oversight. In the US, the Dodd-Frank Act repealed the provisions, respectively, excluding and limiting CFTC and SEC oversight. Both agencies were even given a big role in the implementation of rules they must supervise. In the EU, ESMA has replaced the previously inefficient CESR as supranational agency for financial markets – including over-the-counter financial derivative markets. Previously, CESR had, too, been authorized for supranational coordination and cooperation involving financial markets. The main difference between the two, however, is in their means (*infra*).

2) Systemic risk

Secondly, systemic risk has been specifically integrated into the post-crisis regulatory landscape. The Dodd-Frank Act establishes the FSOC to oversee systemic risk to financial stability. Similarly, the ESRB oversees systemic risk to financial stability of the EU. Their purpose is similar, but they differ in means and membership. While both bodies are well needed and useful edition to the regulatory landscape, they will likely fall short in two ways. Firstly, the vision behind both was mainly one of knowledge sharing – they lack most means to intervene and must rely on other regulatory authorities to see their analysis implemented. This is especially the case for the ESRB, whose power is limited to warnings and recommendations. The FSOC must, too, rely on execution by regulatory authorities (mainly the Federal Reserve), but certain of its measures leave little leeway for these authorities to apply them. It can determine – not recommend – a nonfinancial company should be placed under regulatory oversight by the Federal Reserve.
could easily disregard its recommendations. This is especially the case within the EU, where national regulatory authorities have the residual authority, but are not even voting members. The path towards financial crises is littered with divergent interpretation and denial – “This time is different”\(^{583}\), which makes future regulatory disagreement and inaction quite plausible.

Secondly, both the FSOC and the ESRB are separate from other regulatory bodies. Integrating systemic risk oversight into the existing regulatory authorities might have been a more effective solution, which counters the above lack of measures and possibility of disagreement. Even replacing the existing regulatory authorities – the SEC and the CFTC in the US, the ESAs in the EU – by one covering all jurisdictions would automatically and organically achieve macroprudential oversight. The systemic bodies are artificial constructions to share and coordinate microprudential knowledge; inevitably, they will lack a certain efficiency.

\(3\) \textit{New financial intermediaries}

Lastly, before the crisis, regulators lacked oversight over new kinds of financial intermediaries active in the shadow banking system, such as hedge funds. In the EU, the Alternative Investment Fund Managers (AIFM) Directive will subject such alternative investment managers (including mainly hedge funds and private equity) to transparency and disclosure requirements towards national authorities. Information on the financial derivatives it is trading over-the-counter and the positions it builds up will therefore be known. ESMA can even have a hand in this by request the national authorities to impose further reporting requirements in exception circumstances.\(^{584}\)

The Dodd-Frank Act addresses this gap by requiring the registration of private fund advisers. Once registered, it falls under a “systemic” reporting requirement towards the FSOC including positions, credit risk and valuation.\(^{585}\)

Much headway has been made in bringing over-the-counter financial derivative markets and new financial intermediaries under regulatory oversight. Most notably, in the US, the exemptions to oversight for over-the-counter financial derivative were turned back. Through the creation of the FSOC and ESRB, the legislators showed their will to explicitly include systemic risk into the regulatory landscape.

b) \hspace{0.5cm} \textbf{Lack of means}

Earlier, we noted one contributing factor for the lack of effective regulatory oversight in the run-up to the crisis was the lack of means of regulators (\textit{supra}). Over-the-counter financial derivative markets greatly increased complexity and interconnectedness – without a corresponding increase in regulatory means.

Firstly, increasing staff and funding could lead to an increased ability to exercise regulatory oversight. The CFTC saw its budget rise by a third over two years, from $199 million in 2012 to a requested $315 million in 2014.\footnote{\textsc{Commodity Futures Trading Commission}, \emph{President’s Budget and Performance Plan 2014}, 10 April 2013, http://www.cftc.gov/ucm/groups/public/@newsroom/documents/file/cftcbudget2014.pdf, 8.} Such a substantive increase in the short-term can be considered indicative of an understanding of its previous underfinanced state. In its 2012 performance report, however, the CFTC explains the reason for it missing several Dodd-Frank Act implementation deadlines: while a thoughtful approach was a main consideration, the second it deemed due to an insufficient amount of staff due to funding constraints.\footnote{\textsc{Commodity Futures Trading Commission}, \emph{CFTC Annual Performance Report 2012}, February 2013, http://www.cftc.gov/ucm/groups/public/@aboutcftc/documents/file/2012apr.pdf, 15.} The regulatory means not only lagged behind the financial markets, but implementing the post-crisis regulation even added more pressure. The mandate of the SEC is significantly broader with a majority of its activities concerning enforcement and compliance with securities laws (i.e. transparency and fraud). Drawing any conclusions from its budget and performance is hence hard, as overseeing security-based swaps concerns only a sliver of its activities and 2012 budget of $1.236 billion.\footnote{\textsc{Securities and Exchange Commission}, \emph{Fiscal Year 2012 Agency Financial Report}, November 2012, http://www.sec.gov/about/secpar/secaf2012.pdf, 35.} Furthermore, a more invasive increase of means could have been realizing scale effects by concentrating all (financial derivative) oversight into one regulatory authority. With the Dodd-Frank Act, the division between both was sustained.

\textbf{(2) ESMA}

In the EU, the regulatory push under EMIR is supranational. It is therefore only logical that the implementation and coordination of application and supervision ideally should be too – otherwise divergent implementation and coordination would leave room for disparaging regulatory arbitrage. With a budget of a $28 million, however, ESMA’s means are second to those of national regulatory authorities. As it already supervises pan-European financial services directly or with national cooperation, its means should grow parallel with such direct pan-European supervision.\footnote{\textsc{European Securities and Markets Authority}, \emph{2013-2015 Multi Annual Work Programme}, http://www.esma.europa.eu/system/files/2012-632_0.pdf, 4.} Failing to do so would be repeating a previous mistake. While national authorities obviously have the residual authority, the creation of ESMA is a positive step in the post-crisis regulatory framework and a new means in the supervision of financial derivatives.

c) Lack of competence
A further reason regulators failed to intervene timely, was possibly due to a fear of scaring away market participants while not singlehandedly being able to stop a global crisis (supra). As we discussed, ensuring a global minimum of regulation and oversight could negate the possibility of jurisdictional arbitrage, thereby creating an incentive for regulators to intervene.

The push towards a post-crisis regulatory framework was initiated globally with the G20 leaders identifying the priorities of regulation in Pittsburgh. These priorities – central clearing, trading, margin requirement for non-centrally-cleared and trade reporting – were identified as the pillars of the post-crisis regulatory framework. All G20 jurisdictions have since been making headway on finishing a regulatory framework and further implementing regulations. The speed of progress, however, strongly differs depending on the jurisdiction and the specific requirement. Trade reporting is the furthest along with the requirement effective in five jurisdictions on 15 April 2013, while the margin requirements for non-centrally-cleared contracts are not effective in any jurisdictions. This G20 progress clearly mimics the range of contentious nature of the requirements: trade reporting being the least and margin requirements the most contentious. The three main jurisdictions for over-the-counter financial trading – the US, the EU (and Japan) – show above average progress.

While efforts are well under way for the G20 to adopt a set of requirements, effectively completing a set of global minimum standards for over-the-counter financial derivatives needs further coordination. As the devil is in the details, further guidelines would be helpful for detailed implementation to converge. While the four requirements will eventually be enacted in all G20 jurisdictions, without further coordination of details – such as scope, exemptions and enforcement – they could end up only similar in name. The international initiatives to supply voluntarily guidelines for the requirements are therefore valuable additions. The CPPS-IOSCO final report on trade reporting of 2012 was the first of such voluntarily guidelines and likely played a great role in creating a widespread consensus which, together with its less contentious character, led to early adoption. The BCBS-IOSCO proposal on margin requirements for non-centrally-cleared trades will undoubtedly be even more of a key instrument for many jurisdictions when it is adopted, as by April 2013 only India had partially adopted such margin requirements.

B. Consequences for the markets

Overtly regulating over-the-counter financial derivative markets risks impacting them negatively. These markets serve many unique purposes, so it would be wise to heed a note of caution on certain issues. We will now analyze in what way the post-crisis regulatory framework could possibly change the nature of over-the-counter financial derivative markets.

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591 Ibid, 1.
592 In ten out of the twenty jurisdiction trade reporting requirements were effective, partly effective or the final implementing had been adopted by 15 April 2013.
1. Standardization

As the requirements are being implemented, one of the more interesting concerns will be to what degree the trading and clearing requirements will be implemented. Or be able to be implemented, as, even if the requirements do not explicitly mention standardization, the requirement inherently linked to fulfilling the trading and clearing requirements of over-the-counter financial derivatives.

   a) Conditions for standardization

This thesis earlier outlined the three conditions needed to allow standardization of financial derivative contracts (*supra*). To achieve uniformity and interchangeability between essentially bilateral contracts legal uniformity, process uniformity and product uniformity must first be achieved.

   b) Reasons trading and clearing need standardization

An organized exchange has no capacity for trading financial derivatives that are not standardized. Organized exchanges work by *a priori* setting out uniform terms and conditions to a contract, except for one variable: the price at which the contract is acquired. Over-the-counter markets, in contrast, are open for legal and product customization; the counterparties can basically negotiate all terms and conditions. When the trading requirement obligates the trading of financial derivatives on organized exchanges, all the terms and conditions must be solidified.

While a CCP is less stringent on it than an organized exchange, it still needs a degree of standardization to be functionally able to accept financial derivatives for clearing. When a CCP clears a financial derivative, it takes on credit risk towards both of the initial counterparties to the contract. The two contracts it takes on are offsetting, but if one defaults on its obligation the CCP can face losses. To mitigate this, the CCP uses risk management policies, of which the margin requirement is one. To determine the amount of margin to be posted by the initial counterparties, it relies on valuation models of the financial derivatives. The more complex a financial derivative and the less standard its terms are, the more difficult it is to value. CCPs will therefore not be willing to clear contracts that are not suitably standardized. One condition for a CCP to clear a financial derivative is thus a certain level of standardization.594

   c) Likely consequences for trading and clearing

Some over-the-counter financial derivatives are intrinsically incompatible with standardization. Those that are not intrinsically incompatible, will fall under the trading and clearing requirements and thereby principally demand standardization. Even then, as private actors, the trading and clearing infrastructure providers face a

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binary choice: accepts the financial derivatives for trading and clearing or drop those financial derivatives altogether from their services. Looking at the consequences of standardization therefore means analyzing the incentives for them to trade and clear standardized versions of previously over-the-counter financial derivatives. First, we will identify those financial derivatives intrinsically hostile to standardization. Second, we will analyze the conditions amenable for trading and clearing infrastructure providers to accept standardized financial derivatives.

(1) Non-standardizeable contracts

Over-the-counter financial derivatives that are too customized and complex can intrinsically not be standardized. One of the great advantages of over-the-counter markets is the ability to customize to specific needs; an end-user, confronted with a specific risk profile, is able to negotiate a financial derivative that covers this risk in a bespoke way. Standardization, however, implies a degree of uniformity, an ability to fit the needs of multiple end-users. Customization will often not be necessarily complex, but date- and location specific, therefore negating a possibility of uniformity.\(^{595}\)

Customized over-the-counter financial derivatives will often be complex constructions though, comprised of multiple types of financial derivatives and underlying. Their terms and conditions will be entirely unique. In market statistics, such exotic financial derivatives cannot be categorized to one of the five main types and will fall under the category “unallocated”. Mid-2012, this category accounted for $42 billion notional outstanding - less than a fifteenth of the total amount.\(^{596}\) In many ways, this is a logical consequence of the inter-institutional character of over-the-counter markets; liquidity is not an important issue, thereby tolerating the creation of highly customized, non-liquid financial derivatives.\(^{597}\) One can therefore take the stance that customization is most often at odds with standardization.

(2) Standardizeable contracts

Certain classes of financial derivatives are more amenable to standardization than others. Over-the-counter credit financial derivatives are the most standardized of all asset classes, as the contracts are already strongly legally, process- and product-wise uniform. One problem, however, is the low liquidity for many reference names \textit{(infra)}. Furthermore, over-the-counter interest rate financial derivatives are also strongly standardized. Those with equity as underlying are the least standardized, with foreign exchange and commodity over-the-counter financial derivatives falling in the middle ground.\(^{598}\)

d) Incentives for infrastructure operators

Even if many of the less customized over-the-counter financial derivatives can principally be standardized, one cannot be certain the trading and clearing infrastructure operators will actually be willing to. These operators are private enterprises, subject to the logic of profitmaking logic of capitalism.

The main condition for them to trade and clear is a reasonable transaction volume in the standardized financial derivative. On the one hand, organized exchanges gain income by charging market participants fees per executed transaction. On the other hand, the clearing of financial derivative contracts is a risk-based activity for CCPs, exposing them to potential liquidation or hedging losses when an initial counterparty defaults. Furthermore, liquidating a financial derivative with little liquidity is more likely to be lossmaking. Trading or clearing financial derivative with little transaction volume can therefore makes little economic sense for operators of trading and clearing infrastructure.

2. Customization

Over-the-counter financial derivatives are essentially bilateral contracts whose terms and conditions can be customized to suit specific demands. Standardization of legal documentation has reduced the need of negotiating the contract every single time, but conceptually customization is always a possibility.

As trading and clearing requirements push contracts towards legal, process and product uniformity, the fear is standardization might come at a cost. Every end-user has different operations, goals and balance sheets, which confront it with unique set of risks. Perfectly hedging such a unique risk profile is a task only customization can fulfill; attempting to hedge a unique profile with a predefined set of standardized financial will always fall short. Similarly, speculative end-users often have a specific set of risks they wish to gain exposure too. Only customization of a financial derivative contract can help such end-users perfectly their hedge of exposure.

Once the trading and clearing requirements are implemented, a lack of customization possibilities would diminish the ability of financial derivatives to fit their specific demands. They are subsequently faced with different options. Firstly, use predefined financial derivatives and accept an imperfect hedge, leaving them exposed to certain risks. Secondly, if no suitable financial derivative exists in standardized form, they might choose to forsake a hedge altogether. Both these options nefariously raise the total risk exposure of their activities. Thirdly, if the involved risks are too large to tolerate, they might forsake the activity altogether.

a) Preliminary conclusion

Due to higher bid-ask spreads and the longer period it can take to be liquidated, which can increase losses in a volatile market.
The validity of the argument is hard to contest for exotic financial derivatives that combine forward commitments and contingent claims, and different types of asset classes. Standardization will make it harder and costlier to acquire financial derivatives that perfectly a risk profile. The forsaking of an activity altogether seems unlikely though, as the cost of an imperfect hedge will be lower than the opportunity and dismantling cost of forsaking the activity.

3. **Product innovation**

One consequence of the trading requirement might be the stifling of product innovation for new types of financial derivatives.

Over-the-counter markets often serve as an incubator for innovation, allowing experimentation before winning concepts eventually make it onto regulated exchanges. The trading requirement, however, mandates trading of standardized over-the-counter financial derivatives on organized market infrastructures, thereby possibly hampering this incubatory process. Once the financial derivative has been developed and popularized over-the-counter, enough demand will allow it to be listed on a regulated exchange.

a) **Exchange-traded financial derivatives**

From 1955 to 2010, the amount of listed futures on regulated US exchanges increased from 61 to 916.\(^\text{600}\) It certainly attests to the possibility of product innovation on regulated exchanges. The regulated exchanges make profit based on trading and clearing volume. To raise profits, they can attempt to raise volume in existing futures or they can accept new types with financial derivatives onto exchanges. The latter option creates a strong incentive for them to encourage product innovation.\(^\text{601}\) With an eye on future profitability, the incubatory process of a new financial derivative – paired with little trading volume and subsequently detrimental bid-ask spreads – might therefore be tolerated by the exchanges. Furthermore, most of early financial derivative trading was on organized exchanges (supra). Although much of this was out of legal necessity, for centuries the financial derivative market developed was exchange-based.

b) **Over-the-counter financial derivatives**

The amount of financial derivatives products that are exchange-traded, however, pales against those that are traded over-the-counter. If one differentiates distinct financial derivative products to include those different underlying, then interest rate and credit financial derivatives especially account for a vast amount. The trade repository DTCC, for instance, discloses data of the top 1000 CDSs referring to single underlying entities. Of these contracts, even the least active reference entity still has a


gross notional amount of more than $600 million. Tens of thousands of others undoubtedly exist with lesser notional amounts – not to mention the specifically customized variants. One can make the point though that options, that are mainly exchange traded, also account for hundreds of thousands. While the variety of over-the-counter financial derivatives is already so imposing, its growth is even more so. An interest rate swap between IBM and the World Bank is commonly cited as the first (modern) over-the-counter financial derivative. This whole market – numbering hundreds of thousands – has developed since. Interest rate swaps and CDSs are the most prominent additions to the family of financial derivatives; these were developed over-the-counter and are almost exclusively still traded over-the-counter.

c) Preliminary conclusion

Over-the-counter markets do not have a monopoly on product innovation. Organized exchanges have the incentives to encourage product innovation, have generated product innovation in the past and can continue to do so once the trading requirement is in place. Over-the-counter markets, however, develop faster and have created an awe-inspiring range of financial derivatives the last three decennia. One can therefore conclude product innovation will not be stopped by those hit by the trading requirement, although one should expect a slowdown in the speed of development. This could even be a potentially positive thing in containing systemic risk though, as it would allow regulators to catch up in the race.

4. Systemic risk

The requirements of the Dodd-Frank Act and EMIR all seek to reduce systemic risk in one way or another.

a) Central clearing through CCPs

Both the clearing requirement and the margin requirements for non-centrally-cleared contracts focus on lessening the systemic nature of credit risk. When one counterparty to a CCP defaults, the losses are limited by collateral, absorbed by it or even mutualized amongst its members; when one counterparty to a non-centrally-cleared contract defaults, the posted initial and variation margin should cover any liquidation losses and its open position. In both cases, the requirements are intended to prevent an exponential chain of cascading defaults between inter-linked counterparties.

1) Systemic risk of CCPs

The central clearing requirement seeks to reduce systemic risk by concentrating credit risk among several CCPs. Instead of two counterparties retaining credit risk towards each other, the CCP substitutes credit risk towards an initial counterparty with credit risk towards itself (supra). The strategy of a CCP is hence pooling credit risk within the risk-managed safety of its walls. Were these consecutive walls to fall and the CCP

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to default, however, it would be disastrous. While more of an infrequent anomaly than the norm, CCPs are not invincible and have failed before. Three examples exist in history, with the last failure being the Hong Kong Futures Exchange in 1987, resulting in a four-day closure of the Hong Kong equity and futures financial markets.\(^\text{603}\) With financial markets since becoming more interconnected and global, undoubtedly a shutdown would spread further now.

\[\text{(2) Risk distribution among CCPs}\]

Since the clearing requirements was made public and eventually adopted, market infrastructure providers have been adding clearing services to their portfolio. For instance, nineteen CCPs are registered with ESMA to operate within the EU – three more than five years ago.\(^\text{604}\) The amount of CCPs is positive sign for risk distribution among CCPs, but a negative one for the efficiency of netting. The more contracts are spread across different CCPs, the less efficient multilateral netting across different counterparties is and the higher net exposure is.

This does not mean the clearing volumes are evenly distributed, however. In a 2012 survey, fund managers indicated they would acquire their clearing services from the four most established CCPs: almost 35% of clearing volume would go towards LCH Clearnet, 25% to CME Clearing, with ICE Clear and EUREX not far behind.\(^\text{605}\) Furthermore, many CCPs have a history and specialty in clearing a certain class of financial derivative, which concentrates the clearing of a certain financial derivative market in one CCP. This is the case with LCH Clearnet for interest-rate financial derivatives, and ICE Clear for credit-default swaps. During the crisis, CDSs with CDO underlying were the worst hit with involved market participants suffering total losses (\textit{supra}). Had all such CDSs been cleared on one CCP, it would have come under concentrated pressure.

\[\text{(3) Preliminary conclusion}\]

Overall, CCPs do stop the cascade of defaults and their risk management policies are stringent enough to withstand difficult times. Believing a CCP invincible, however, breaks the trail to faltering standards; all it takes is competition between the CCPs for market share to initiate a race to the bottom. Both the Dodd-Frank Act and EMIR place the CCP entities under regulatory oversight, which hopefully inhibits this.

\[\text{b) Margin requirement for non-centrally-cleared}\]

The margin requirements for non-centrally-cleared contracts are a useful addition, though the measure is likely to affect only a small portion of contracts.

\(^{603}\) The two others are the Caisse de Liquidation in 1974 and the Kuala Lumpur Commodities Clearing House in 1983. (see R. ZEPEDA, “Optimizing risk allocation for CCPs under the European market infrastructure regulation”, \textit{The Capco Institute Journal of Financial Transformation} 2013, Vol. 37, 45.)


Firstly, surveys show about two-third of over-the-counter financial derivative contracts were already collateralized when the crisis hit.\textsuperscript{606} Since then, the run towards secured lending will in all likelihood have resulted in a higher ratio. The one-third that does not post collateral is mainly made up out of creditworthy non-financial end-users. These contracts will now be subjected to both initial and variation margin, but given the type of end-user, the value of these requirements can be contested. The initial margin is, especially, still seen as problematic for end-users, indicating the margin requirements measure is important enough to warrant considerable attention.\textsuperscript{607} The posting of variation margin can even increase systemic risk due to its pro-cyclical nature of inducing margin calls during times of financial volatility. Thirdly, many over-the-counter financial derivative contracts will – mandatorily or voluntarily – be centrally cleared through CCPs.

\textit{(1) Preliminary conclusion}

For these three reasons, the contribution of the margin requirements for non-centrally-cleared contracts to overall systemic risk reduction will be small, certainly when compared to trade reporting or central clearing through CCPs.

c) Trade reporting

The lack of transaction and position transparency allowed dangerous amounts of to build up unseen. The post-crisis regulatory framework made serious effort to address this, so the question remains what type of difference it will make.

Together with lack of authority by regulators, the lack information on potentially systemic transactions and positions was a barrier towards regulators intervening. As we briefly mentioned above, removing such barriers, however does not guarantee action by regulators. Firstly, regulators are bounded by their ability to judge the way complex market participants and markets all interconnect to form systemic risk to financial stability. Correctly evaluating risk, even with full individual disclosure of transaction and positions, remains intrinsically difficult. Secondly, regulators – the humans they are – are bounded in their ability to rationally evaluate and intervene systemic risk. The biases and heuristics that form our cognitive frame are imperfect and frequently make us dangerously risk-averse to intervene and complacent with the current situation.

\textsuperscript{607} INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, Margin Requirements for Non-centrally-cleared derivatives, 12 April 2013, http://www2.isda.org/attachment/NTQ4NQ==/Margin%20Requirements%20for%20Non-Cleared%20Derivatives.pdf, 2.
Preliminary conclusion

Even in the situation where all information was ex ante available to regulators, as the reporting requirements attempt, it remains likely the complexity and our cognitive framework would trip the regulators nonetheless.\textsuperscript{608}

5. Collateral

A main pillar of the post-crisis regulatory framework is based on making the clearing of over-the-counter financial derivative contracts safer with margin requirements. Such margin requirements are used for both centrally cleared and non-centrally-cleared contracts. Fulfilling margin requirements means posting collateral by one or both of the counterparties. The regulations hence create an extra demand for collateral that can be used to post initial and variation margin. As margin plays an important in the new regulatory vision, it is important to dwell on the actual availability of such collateral.

a) Availability depends on suitable collateral

First, only certain types of collateral are accepted as margin. The Dodd-Frank Act allows both the CFTC and the SEC to work out their own rules regarding on what constitutes suitable collateral for non-centrally-cleared trades (\textit{supra}). Although differences exist between the agencies, and concerning initial or variation margin, only cash or high-quality, liquid assets are allowed. The ESAs, which are implanting the analogous provision in EMIR, have yet to make a proposal on suitable collateral, but in all likelihood it will take the same line or follow the final BCBS-IOSCO proposal expected shortly.

CCPs, which also impose initial and variation margin requirements, uphold their own rules on what constitutes suitable collateral and generally give more leeway. For instance, LCH Clearnet even allows precious metals to fulfill the initial margin requirement.\textsuperscript{609}

b) Difference between central and non-central clearing

Secondly, the amount of collateral needed for CCP margin requirements differs strongly from bilateral margin requirements. The amount of collateral to be posted to a CCP is, often, a sliver of what would be posted if the same contract were bilaterally cleared with margin requirements. Central clearing allows for multilateral netting across positions with different counterparties cleared by the CCP, thereby reducing the exposure to be collateralized to a minimum. Bilateral clearing only allows bilateral netting across different positions with that counterparty, which is less efficient.


c) Tight market for suitable collateral

Most problematically, however, is the supply of suitable collateral. With the renewed regulatory push, many previously uncollateralized contracts will now be subject to both initial and variation margin. Two-thirds of over-the-counter contracts were already collateralized when the crisis hit\(^\text{610}\); allowing for scope exemptions, less than one-third remains to be collateralized. This creates a sudden expansion of demand in a market whose supply was badly hit by the crisis. One mitigating factor is likely the regulatory move of many previously bilaterally cleared contracts that were collateralized towards CCP clearing, resulting in lower use of collateral.

As we previously noted, before the crisis MBSs (both private label and backed by GSEs) and CDOs were an important source of collateral. This supply all but evaporated during the crisis, leaving a gaping hole in collateral supply (\textit{supra}). Coupled with a flight-to-quality\(^\text{611}\), the market for quality collateral is faced with structural over-demand, resulting in precipitous price rises and even negative yields. Furthermore, the velocity of collateral re-usage has substantially declined since the crisis, limiting the amount of collateral theoretically available.\(^\text{612}\) Acquiring suitable collateral to fulfill margin requirements had become an expensive task.

\hspace{1cm} d) Consequences for market participants

In this environment, many market participants that have never posted collateral – mainly non-financial end-users – have now had to prepare for it. Consensus has formed on the need for variation margin\(^\text{613}\), but many still fear initial margin requirements are an unneeded burden on the narrow market and the market participants under its scope. Intended or not, the difficult in acquiring collateral creates a strong incentive for counterparties to clear their contracts through CCPs to make more effective use of collateral. Even then, one BIS study estimates the amount of extra initial margin to be posted with CCPs by non-dealers between $0.3 trillion in times of low volatility and $1.2 trillion in high volatility.\(^\text{614}\) Another consequence is more troublesome. In volatile contracts, calls for more variation margin can appear rapidly, forcing the counterparty to post more collateral. To prepare appropriately for such a situation, the counterparty would have to retain lines of credit or set aside

\hspace{1cm} \begin{footnotesize}
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\item \textit{\textsuperscript{611}} A flight-to-quality refers to the instinct of investors to buy the safest assets, at any cost, during time of financial trouble and uncertainty.
\item \textit{\textsuperscript{613}} \textbf{INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION}, \textit{Margin Requirements for Non-centrally-cleared derivatives}, 12 April 2013, http://www2.isda.org/attachment/NTQ4NQ==/Margin%20Requirements%20for%20Non-Cleared%20Derivatives.pdf, 2.
\item \textit{\textsuperscript{614}} D. HELLER and N. VAUSE, “Collateral requirements or mandatory central clearing of over-the-counter derivatives”, March 2012, \textit{BIS Working Papers}, No 373, 28.
\end{itemize}
\end{footnotesize}
capital to cover any sudden margin calls. Non-financial end-users with small cash reserves would be the obvious victims, but variation margin calls could even quickly use up the reserves of G14 dealers. The two above measures verge to the extreme of the possible consequences, but changing investment strategies and asset allocations are more likely than not. Liquid assets and lower maturities will hence gain preference in allocation decisions.

The market for quality collateral, however, is cumbersome barrier. Making efficient use of collateral will therefore become an imperative strategy. One the one hand, this can be a positive incentive, with counterparties voluntarily moving their contracts to CCPs. On the other hand, this can be a negative inventive, possibly stimulating the shadow banking trade in collateral through repurchase agreements and other means. The BCBS-IOSCO ban on re-using pledged is hence a welcome proposal.

e) Preliminary conclusion

This thesis takes the stance that regulation, though well intentioned, goes to far in imposing universal margin requirements in an already overburdened collateral market. Initial margin requirements, especially, should slowly be phased in for non-financial end-users. The rules adopted by the prudential regulators and the CFTC for non-centrally-cleared trades, respectively, broadening suitable collateral for initial margin and non-financial end-users (supra), are suitable answers but a phasing-in period would be more useful.

6. Costs

The post-crisis regulatory framework will inevitably increase regulatory and trading costs for all market participants – dealers, end-users, CCPs and trade repositories – in over-the-counter financial derivative markets.

Regulatory costs include all new costs aimed at complying with the new regulatory requirements: these can be one-time costs, such as upgrading infrastructure or training personnel; or consecutive costs, such as keeping records and reporting trades. One 2011 market survey estimated the cost of updating technological infrastructure to comply with EMIR at $950 billion. Clearing service providers – CCPs or clearing brokers – represent the majority of this with, respectively, 23% and 20% of this expenditure. Adjusting the pricing and valuation infrastructure alone to the Dodd-Frank Act and EMIR is estimated to cost $634 million, and the collateral infrastructure alone $53 billion. Trading costs, on the other hand, include the cost

increase, compared to before, on every traded or cleared transaction. Depending on which G14 dealer, one BIS study estimates the increased amount of variation margin to be posted with CCPs in case of high volatility anywhere between $0.1 billion and $9.5 billion. A 2012 market survey estimated the total cost of top-tier capital and wholesale market banks in complying with the Dodd-Frank Act, EMIR and Basel III between $150 and $350 million per bank.

a) Preliminary conclusion

The sheer width of requirements and depth of technical implementations is a heavy burden – even for a market with a $25 trillion gross market value.619 The above numbers were computed by surveying market participants; as implementation is ongoing, these market participants have an interest in exaggerating the expected costs. Even with a healthy dose of skepticism, however, high costs are hardly surprising and only logical.

One recent survey of DTCC clients indicates this level of deep-rooted unease has even become fear, with over 82% of those polled indicating the impact of the new regulations as the greatest systemic risk – above a Eurozone breakup or U.S. recession.620 The rationale seems to be that poor implementation can increase rather than reduce it. It is easy to brush off industry complaints, spearheaded by ISDA, as mutterings of a self-interested industry, but one must make sure not to push the market participants too far. Its three-pillar proposal for regulation – variation margin, central clearing for some and capital standards – should therefore have been given more thought.621 Even a colossal circus elephant eventually tires of jumping through tiny hoops.

619 D. HELLER and N. VAUSE, “Collateral requirements or mandatory central clearing of over-the-counter derivatives”, March 2012, BIS Working Papers, No 373, 33.
VI. FINAL CONCLUSION

Financial derivatives have existed hand-in-hand with legal limitations for centuries. These limitations were enacted in differently in most historical jurisdictions, but the underlying rationale was always a feeling of unease over the speculative potential of financial derivatives. As a financial derivative derives value from an external underlying, they were seen as wagers instead of enforceable bilateral contracts. Encouraged by the deregulatory and financialization trends of the late 1980s, the pressure increased to release over-the-counter financial derivatives from their shackles. The main jurisdictions of the US and the UK eventually ceded to this request. The next decennia of financial derivative development were unique in many ways: products such as interest-rate swaps were created, new intermediaries such as hedge funds became active in them, but above all the speed of development was hitherto unseen.

Over-the-counter financial derivatives played an important role in turning a national housing bubble into global financial crisis. In the mortgage chain that started with a subprime mortgage loan in Nevada and ended with investors buying structured mortgage products across the globe, over-the-counter financial derivatives played an important role in the part of the chain close to investors. The involved over-the-counter financial derivatives – synthetic CDOs and CDSs – caused among the largest of all losses and write-downs of the crisis, thereby toppling entities such as AIG and hitting foreign banks such as Fortis. Several regulatory failures contributed to this destruction: a total lack of transparency, which stupefied both regulators as counterparties; a lack of collateralization or other means of credit enhancements, for the clearing of contracts; and a lack of any liquidity and price discovery in over-the-counter financial markets during the volatile times.

As a fragmented approach to regulation only encourages regulatory arbitrage by the global and sophisticated market participants that populate over-the-counter financial derivative markets, world leaders decided to create a commonality of core rules. These four requirements – central clearing through CCPs, trading on exchanges, margin requirements for non-centrally-cleared traded and trade reporting to trade repositories – are thus being enacted in all the large jurisdictions for over-the-counter trading. By analyzing these four requirements as they are being enacted by the Dodd-Frank Act in the US, and EMIR and MiFIR in the EU, two facts became obvious. Firstly, the legislative frameworks themselves are extremely sparse on provisions. The details are therefore being hammered out by the CFTC and the SEC (for security-based financial derivatives) in the US, and ESMA in the EU. The commonality of the global approach is thus eaten away by regulatory implementation with many exemptions and thresholds. Secondly, it will surely take several more years before all requirements come into force. The requirements that are broadly supported, such as trade reporting, are already far in the process of implementation; those that are bitterly contested by the market participants and especially ISDA, such as trading, will take years to be come into force – if they do it all.

While is the post-crisis regulation is leaking due to its extensive and slow implementation process, the post-crisis reforms to the regulators overseeing over-the-
counter financial can be deemed a general success. The authority of US regulators over over-the-counter financial derivative markets is reestablished and special bodies have been created to oversee systemic risk. The means of these regulators have especially been growing, although this cannot truly be said of their incentives to intervene.

Whatever the goodness of the post-crisis intensions, every regulatory intervention will generate certain negative consequences. After analyzing different consequences, one can conclude the following are especially worrisome and should be monitored rigorously: a further shrinking and thus diminishing of quality collateral markets, the high costs that markets participants are grudgingly having to bear and a possible pro-cyclical effect of margin requirements for non-centrally-cleared contracts.

As the implementation process can still be shifted to include these worrisome notes, the post-crisis regulatory framework is far from over.
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