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Reforming OTC derivatives markets

Observable changes and open issues

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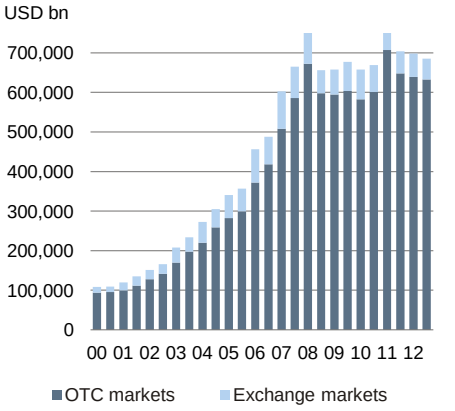
Regulatory reforms of derivatives markets aim at strengthening the infrastructure of this large and economically important financial market segment. To date, the bulk of new legislation on swap trading in the US has already entered into force, whereas in the EU the rule making process is almost completed, but implementation of the rules will only occur in 2014. Although the Dodd-Frank Act and EMIR have significant commonalities in terms of transposing G20 commitments, differences can still be observed which raises the risk of regulatory Balkanisation.

In broad terms, mandatory central clearing for standardised contracts, mandatory reporting, collateralisation, and higher capital requirements for non-centrally cleared contracts are the cornerstones of the new derivatives landscape. Having said this, some crucial issues still remain open. The exact definition of standardised derivative contracts, exemptions for non-financial corporations and the treatment of cross-border trades need to be addressed more clearly by regulators. From a systemic risk perspective, CCP access to central bank liquidity and the extent of interoperability between these institutions are yet to be clarified.

Regulatory reform has already had an impact on market structures and volumes. The observable decrease in the size of the derivatives market is mostly due to trade compression. Even though there has been a notable shift from dealer to CCP trades for IRSs and a less remarkable shift for CDSs, the actual capacity of the clearing market is much higher, suggesting that CCP clearing is still unattractive for many market participants. Regulatory pressure to encourage standardisation seems to have created little impetus for greater standardisation to date and the use of exchange platforms remains subdued. Even though collateral requirements would make the use of derivatives more expensive for all market participants, such obligations are likely to affect non-financial corporations as counterparties relatively more seriously than others.

CCP concentration presents a notable development in the financial infrastructure. Certain CCPs that dominate the market are also specialised in clearing particular products. This structure may offer netting benefits but may also increase the transaction costs for market players and lead to systemic risks in case of a major CCP failure.

Derivatives market: Notional amounts outstanding 1



Source: BIS

1. Introduction

In the wake of the recent financial crisis, derivatives markets have been amongst those markets receiving heightened regulatory attention in spite of the fact that derivatives markets per se were not amongst the causes of the financial crisis. More specifically, regulators and policy makers have criticised the alleged opaqueness and complexity of over-the-counter (OTC) derivatives markets as being potential sources of heightened volatility and systemic risks. This obviously stands in stark contrast to the view, widely held both before and after the crisis, that derivatives are useful to manage risks in the financial system and in the real economy alike.

What both sides do agree on is that derivatives markets certainly constitute an important and sizeable part of the financial system and warrant, by virtue of their sheer size, the attention of authorities and market participants alike. Indeed, the period prior to the financial upheaval was marked by very rapid growth and in mid-2008 the notional amounts of derivative contracts outstanding had increased by around ten times compared to a decade ago and had peaked at USD 754 trillion, of which USD 672 trillion was OTC (See chart 1). Following the turmoil in global markets, notional amounts have stabilised at some USD 700 trillion. As of end-2012, the size of the derivatives market was estimated to total around USD 685 trillion, which is about 9 times the nominal GDP of the world and 41 times the nominal GDP of the EU.

The limited transparency, massive size and interconnectedness of the derivatives market created impetus for more regulation with a view to improving the robustness and resilience of this market segment. At their 2009 Pittsburgh summit, the leaders of the G20 agreed on regulatory initiatives to achieve these objectives. At the same time, while regulatory reforms aim at reducing structural weaknesses in the framework for derivatives markets, the reforms pursued – such as mandatory central clearing, reporting and collateralisation – will also drastically change the financial landscape and force market participants to revise their practices and business models. It is therefore timely and appropriate to look at the status quo of the reform process and to analyse the market impact visible already as well as the consequences for market participants and the economy as a whole.

Consequently, in this article, we take a closer look at the current state of the derivatives market reforms and analyse their potential impact. In doing so, we start by summarising the key objectives of the regulatory reforms. Building on this, we describe the measures initiated. More specifically, we focus on the key building blocks of the new rules in Europe and in the US, differences across jurisdictions as well as the major crunch points. We then discuss the market changes visible already. In particular, we focus on the trends in market volumes, the share of the market moved to central clearing and to exchange-based trading. Moreover, we look at recent developments in collateral practices in the OTC space and discuss the concentration of central clearing houses. Finally, we address open issues such as an increase in collateral needs and the potential impact of a financial transaction tax (FTT) which would entail a marked reduction of liquidity in derivatives markets, and discuss the potential of central clearing to become a source of systemic risk.

In order to carry out the above-mentioned analysis, this paper is organised as follows. Section 2 presents a discussion regarding the objective of reforms. Section 3 takes a closer look at the regulatory measures initiated. Section 4 performs an analysis on the actual size of the derivatives market; the share of derivatives cleared by clearing houses and the share of derivatives trading moved to exchange platforms. Also presented in this section is the change in collateral practices. Section 5 studies open issues such as an increase in

collateral demanded, a change in volumes traded and central clearing counterparty riskiness. Section 6 contains our conclusions.

2. Objective of reforms

The recent financial crisis has highlighted structural problems in the OTC derivatives market. Limited transparency regarding risk exposures, poor risk management practices to mitigate counterparty risk and potential risk of contagion arising from interconnectedness have increased systemic risks, thereby threatening the functioning of the international financial markets. In order to overcome these weaknesses, the G20 leaders, at their 2009 Pittsburgh Summit, agreed on regulatory initiatives to reform the derivatives markets.

The key reform elements have been defined as follows:

— All standardised OTC derivatives should be traded on exchanges or electronic platforms, where appropriate.

— All standardised OTC derivatives should be cleared through central counterparties.

— OTC derivative contracts should be reported to trade repositories.

— Non-centrally cleared derivative contracts should be subject to higher capital requirements.

Realisation of these reform measures in the EU and in the US is particularly important for the future shape of global derivatives markets, given that these two jurisdictions account for roughly 80% of the global derivatives markets. Indeed, as the Financial Stability Board (FSB) notes in its recent progress report on derivatives markets reform,[1] given the dominant role of these two markets, many other countries have waited for the EU and the US to complete their legislation and implementing measures in order to draw on these frameworks for their own regulatory activities.

a) Encouraging electronic platform trading

In spite of the availability of specialised derivatives exchange markets, the volume outstanding in OTC derivatives markets stands at USD 633 trillion and dwarfs the volume of exchange-traded derivatives, which is only USD 52 trillion. The dominance of OTC products reflects the historical origins of derivatives markets and, more importantly, the fact that users appreciate the flexibility that bespoke contracts offer, as OTC contracts can be structured tailor-made for individual users.

Notwithstanding these benefits of flexibility and client specificity, the G20 agenda puts even greater weight on the benefits of standardised derivative contracts and derivatives trading on exchange platforms. The principal benefit perceived by supporters of on-exchange trading is that organised platforms provide pre-trade transparency and, by doing so, reduce information asymmetries in the market. By publishing the trade-related information to all market participants, they should, in principle, improve the price discovery process. Moreover, this price information is automatically captured in real-time databases, which should improve users' ability to monitor and, if need be, manage derivative positions and exposures.

[1] See FSB (April 2013).

b) Improving the market infrastructure

Derivatives are used by a large number of market participants including financial institutions and non-financial corporations and provide important benefits in terms of putting users into a position to better manage their risks. Nonetheless, the financial crisis has highlighted that the infrastructure of derivatives markets itself, as it had grown in the years preceding the crisis, had become a source of systemic risk. Specifically, due to the extensive use of OTC contracts, the markets had created a highly-connected web of bilateral contractual relationships between market participants which not only limited transparency, but also created transmission channels for the propagation of shocks throughout the system.

This revealed the need for a robust financial infrastructure that limits contagion risk. The widely accepted way of achieving this is an entity which interposes itself between the counterparties of a derivative trade. It is against this background that the G20 require that all standardised derivatives be cleared through a central counterparty, or CCP, to deal with the counterparty risk and to manage the collateral requirements in a timely manner. As a result, CCPs will be the buyer and the seller of the derivative contracts traded.[2] In doing so, CCPs ensure that trades are honoured even if one of the contracting parties fails; potential losses are mutualised. Moreover, CCPs net out clearing members' trades and require clearing members to post collateral on an ongoing basis. By providing daily trading data, CCPs would also provide post-trade transparency to the OTC derivatives market.

Major CCPs in the world 2

		Contract type				
	Domicile	Interest rate	Credit	Foreign exchange	Equities	Other*
LCH Clearnet Ltd.	UK	x		x		x
ICE Clear Europe	UK		x	x		x
ICE Clear Credit	US		x			
CME Group	US	x	x	x	x	
CME Clearing Europe	UK	x				x
Eurex Clearing AG	Germany	x	x		x**	
LCH Clearnet SA	France		x			
CDCC	Canada				x	
NASDAQ OMX Stockholm	Sweden	x				x
SGX Asiaclear	Singapore	x		x		x
Japan Securities Clearing	Japan	x	x			
BM&F Bovespa	Brazil	x		x	x	x

Source: DB Research

*Other includes energy, agricultural and commodity derivatives
**Equity derivatives clearing is yet to be launched

c) Greater transparency

The financial crisis highlighted another shortcoming of the derivatives market: the limited availability of prompt and reliable information on gross and net exposures as well as on interconnections between market participants. This drawback has constrained the ability of authorities to effectively detect, control and prevent excessive risk taking. It has also restrained the ability of authorities to assess the likelihood, direction and dimension of potential contagion effects, as interlinkages between market participants had been unclear. Hence, new regulation requires the reporting of all derivatives transactions to trade registers

[2] See Chlistalla (2010) for a detailed discussion.

Glossary 3

Trading is the buying or selling of a specific derivative product such as an option, future, swap etc. Derivatives trading differs from the trading of other securities (bonds, shares) in that it creates an inter-temporal contract between the parties and hence involves higher counterparty risk.

Exchange trading denotes trading that occurs on a platform provided by a third party. In Europe, specifically, this means trading of a derivative contract on an organised trading venue as defined by Article 4(14) of Directive 2004/39/EC.

Over-the-counter trading is off-exchange trading, i.e. bilateral deals between the parties to a trade.

Clearing is the process of transmitting, reconciling and, in some cases, confirming payment or securities transfer orders prior to settlement, possibly including the netting of orders and the establishment of final positions for settlement.

Central clearing corresponds to a platform where the counterparty risk mitigation, netting and collateral posting take place. With central clearing, counterparties trade through a CCP rather than directly trading with each other. Counterparty risks are passed to the CCP and the CCP determines the margin requirements etc. on an ongoing basis.

Trade repository is an entity that centrally collects and maintains the electronic records of derivatives transaction data.

Netting is an agreed offsetting of mutual obligations by participants in a clearing or settlement system.

Sources: ECB, DB Research

Initial margin requirement of non-centrally cleared derivatives
(% of notional value) 5

Derivatives	0-2 years	2-5 years	5+ years
Credit	2	5	10
Interest rate	1	2	4
Commodity		15	
Equity		15	
Other		15	

Source: BIS (February 2013), Margin requirements for non-centrally cleared derivatives

that collect the record of the trading activity to improve market transparency and identify the potential risks posed to the broader financial system.

To achieve this target, both centrally cleared and bilaterally traded (OTC) derivatives will have to be reported to trade repositories (TRs) under the new rules. TRs will be the legal entities of centralised registry mechanisms that collect and provide data on all derivatives trades. By centralising the collection, storage, and distribution of trading data, TRs can serve as effective tools to deal with the intransparency of the derivatives market. TRs would provide data with more depth, breadth and identity to the authorities.[3] In this way, TRs would play a pivotal role in supporting regulatory authorities to carry out their market surveillance responsibilities. Moreover, the availability of reliable data would put regulators in a better position to prevent the building-up of unsustainable exposures that led to the collapse or near-collapse of some major financial institutions during the crisis.

Major trade repositories in the world 4

		Contract type				
	Domicile	Interest rate	Credit	Foreign exchange	Equities	Other*
Bank of Korea	Korea	x	x	x	x	x
BM&F Bovespa	Brazil	x		x	x	x
CETIP	Brazil	x		x	x	x
Clearing corporation of India	India	x	x	x		
CME Group	US	x	x			x
DTCC-DDR	US	x	x	x	x	x
DTCC-DDRL	UK	x	x		x	
DTCC-Data Repository	Japan	x	x	x	x	
REGIS-TR	Luxembourg	x		x	x	x
ICE Trade Vault	US		x			x

Source: FSB (April, 2013), DB Research

*Other includes energy, agricultural and commodity derivatives

d) Higher capital requirements for non-centrally cleared contracts

Even though central clearing will be mandatory for standardised contracts, a considerable fraction of the derivatives market will remain non-standard and thus would be exempt from central clearing obligations. The IMF anticipates[4] that one-quarter of the interest rate swaps (IRSs), one-third of credit default swaps (CDSs) and two-thirds of other OTC derivatives are non-standard and thus would still be traded bilaterally after the new regulations come into force.

Against this background, regulators are bent on creating higher safety buffers for potential losses from non-CCP cleared trades. Moreover, they want to set incentives for trades to move to standardised contracts by raising the costs of non-standardised contracts. This may be all the more important in light of the fact that, due to collateralisation requirements, CCP clearing may create an incentive for market participants to switch to non-standardised products. The G20 therefore decided to impose higher capital requirements for non-centrally cleared contracts (see table 5 for the most recent margin requirements proposed, but not confirmed, by regulatory authorities). The higher capital requirements are expected to create further incentives for standardisation of contracts and transfer the trading activity to exchanges and/or central clearing platforms.

[3] See BIS (April 2013).
[4] See IMF (April 2010) Chapter 3.

Technical standards for EMIR 6

On December 19, 2012 the European Commission adopted technical standards for the regulation of OTC derivatives, CCPs and TRs which came into force on March 15, 2013.

Key elements of the regulatory technical standards:

1) For OTC derivatives not cleared by a CCP: indirect clearing arrangements, clearing obligation procedure, public register, access to a trading venue, non-financial counterparties and risk mitigation techniques.

2) For CCPs: capital requirements, retained earnings and reserves as well as the format of the records to be maintained.

3) For TRs: minimum details of the data to be reported to trade repositories, details of the application for registration as a trade repository, data to be published and made available by trade repositories and operational standards for aggregating, comparing and accessing data.

Source: European Commission Press Release, December 19, 2012

Request for quotes rule for swap clearing 7

With the so-called Swap Execution Facilities (SEF) regulation, the CFTC proposed the minimum number of quotes a buyer is required to request before swap trading. The target of this specific regulation is to enhance an improved price discovery by allowing a larger number of suppliers to compete for orders. To achieve this, CFTC envisioned the request-for-quotes (RFQ) rule to be five (RFQ5) in 2011. However, market participants criticised RFQ5 as being unrealistically high for swap markets and argued that it would impair the market liquidity at the expense of all market participants. Indeed, according to a market survey conducted by SIFMA in March 2013, 84% of the respondents report that RFQ5 would result in increased transaction costs and almost 70% indicate that they would migrate to other markets if RFQ5 were accepted. Taking into account the objections and concerns, the final version of the SEF regulation eased the RFQ5 rule and in May 2013 new RFQ rules were accepted. According to the new rules, traders have to send requests for bids to two firms before a trade can be executed.

3. Description of the measures initiated

a) Derivatives market regulations

Regulations in Europe

The European Union is implementing the new rules for derivatives markets mainly through two legal instruments: the European Markets Infrastructure Regulation (EMIR) and the revised Markets in Financial Instruments Directive (MiFID 2). Consistent with the G20 proposal, EMIR introduces a reporting obligation for OTC derivatives, a clearing obligation for eligible OTC derivatives, measures to reduce counterparty credit risk and operational risk for bilaterally cleared OTC derivatives, common rules for CCPs and TRs, and rules on the establishment of interoperability between CCPs. The first MiFID legislation dates back to 2007 just before the outbreak of the financial crisis and its aim was to create a common internal market and more competition among trading platforms. Responding to the G20 agenda and the lessons learned from the crisis, the European Commission released a revised proposal in October 2011 and introduced MIFID 2 and the complementary Markets in Financial Instruments Regulation (MiFIR). MiFID 2 covers a number of additional requirements on market structure, exemptions from financial regulation, organisation and conduct of business requirements for investment firms and trading venues, powers of national authorities, sanctions and rules for non-EU firms operating through a branch. MiFIR meanwhile sets out requirements for trade transparency. As to EMIR, while the first legislative proposal of EMIR dates back to 2010, the final legislation was not passed until August 2012. Several technical implementation standards were developed subsequently (see Box 6 for an indicative list). On June 17, 2013, the European Council confirmed a general approach on MiFID 2 implementation which is due to be considered by the European Parliament at its December 9-12, 2013 plenary session. Nevertheless, the development and passing of the technical implementation rules will require a long period which holds back financial institutions from making major investment decisions in Europe.

Regulations in the US

In the US, regulation and governance of the derivatives market is addressed by the Dodd-Frank Wall Street Reform and Consumer Protection Act which was adopted in July 2010.[5] To achieve improved consumer protection and a reduction of systemic risks, the reforms cover a large range of regulatory legislation on systemic supervision, investment advisors and OTC derivatives trading. In addition to the other reasons, legislation was enacted to reduce risks, increase transparency in the derivatives market and promote market integrity within the financial system. While Title VII of the Dodd-Frank Act (DFA), establishes a comprehensive new regulatory framework for swaps and security-based swaps in the US, it leaves the important definitions and the implement-ation of rules to the Commodity Futures Trading Commission (CFTC) and the Securities and Exchange Commission (SEC). According to the DFA, swap and equity-swap agreements would be regulated by the CFTC and the SEC respectively; a market participant trading in both instruments would be under the regulation of both institutions. In the US, Title VII of the final rules defines instruments based on interest or other monetary rates as swaps, whereas instruments based on the yield or value of a single security, loan or narrow-based security index as security-based swaps. As to CDSs, there is split

[5] See Zähres (2011) for a detailed discussion.

Margining practices at CCPs 8

The primary purpose of the CCP is to reduce the counterparty risk in financial markets. In order to satisfy this pivotal role in the financial infrastructure, CCPs themselves should be financially sound institutions. As instruments to reduce risk, CCPs demand collaterals in the form of margin requirements as well as contributions to CCP insurance pools, all of which would increase the costs for the clearing members.

Without central clearing, the bilateral trading partners can decide whether collateral is demanded, negotiate on the value and quality of the collateral required and specify the frequency of the collateral payments as well as the variation of collateral requirements and margin calls. For instance, IRSs could theoretically be traded between bilateral parties without any collateral posted. However, this will be changed for CCP-cleared trades. Posting collateral will be mandatory for all clearing members and there will be additional fees to strengthen the CCPs' financial positions. Nevertheless, additional costs, clearing charges and maintenance fees could vary between CCPs and competition would help to keep these fees at a low level.

Initial margin requirements are the collaterals that parties to a trade are required to post upon the initiation of a contract.

Variation margin requirements are collaterals that parties to a derivative contract have to post in an ongoing (daily) basis in response to changes in the economic value of the contract during its lifetime.

responsibility in that the SEC regulates CDSs on single names, loans and narrow-based security indexes, whereas the CFTC regulates CDSs based on broad-based security indexes.

b) Timeline and major differences across jurisdictions

Even though EMIR and the DFA have significant commonalities in terms of implementing the G-20 commitments, notable differences can still be observed. The commonalities include the objective of achieving a more robust financial infrastructure through central clearing of standardised derivatives, a mandatory reporting requirement for derivatives trades, mandatory margin and capital requirements for non-cleared derivatives transactions, and allowing cross-border clearing by recognising non-domestic CCPs. In the US, the bulk of the legislation on swap trading has already come into force in 2013. In the EU, the rule-making process is almost completed, but implementation of the rules will only occur in 2014 (see table 9 for an indicative timeline).

Notwithstanding the broad similarities in the regulatory frameworks in the EU and the US, significant differences can be observed. The first difference is the treatment of non-financial corporations. In Europe, EMIR allows clearing exemptions for non-financial counterparties whose positions do not exceed certain clearing thresholds (see next section for the threshold values). In the US, by contrast, Dodd-Frank derivatives rules apply to all market participants and there are exemptions only for end-users that aim to hedge a commercial risk. Another notable difference is linked with the reporting requirement: Dodd-Frank requires the mandatory reporting of OTC derivatives only, whereas EMIR requires mandatory reporting of both OTC and exchange-traded derivatives. There are also differences with respect to the timing of the reporting and the reporting counterparty. As regards the timing of the reporting obligation, EMIR is more flexible and allows end-of-day reporting whereas Dodd-Frank requires real-time reporting. As to the reporting requirement, Dodd-Frank is more flexible and allows only one counterparty (reporting counterparty) to report whereas EMIR requires that both counterparties be responsible for reporting all derivatives trades. Nevertheless, EMIR allows delegation of the reporting obligation if the counterparties ensure that derivatives trades are reported without duplication (i.e. banks can report on behalf of non-financial companies).

Furthermore, there are differences with respect to the treatment of some asset pools. Within EMIR, pension funds benefit from a limited exemption to the central clearing obligation until August 2015, whereas the clearing obligation applies to all eligible trades under the Dodd-Frank Act. Considering the product scope, both physically-settled commodity derivatives and equity options are subject to central clearing within the European framework, whereas certain physically settled forward contracts and equity options are exempt from clearing in the US framework. Finally, under some specific rules, captive finance companies are not considered as financial entities within Dodd-Frank and they are eligible for end-user clearing exemptions, whereas EMIR includes captive finance groups in the clearing obligation as well.

c) Major crunch points

Standardised contracts

The new rules stipulate that only standardised or, in European parlance, eligible derivative contracts are subject to mandatory CCP clearing. Obviously, this makes the exact definition of a standardised contract particularly important. In broad terms, derivative contracts that are exchange traded and have explicitly defined uniform features which include, but are not limited to, the type of

Indicative timetable

	End 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	2014
Clearing obligation						
EU	EMIR adopted final rules on central clearing obligation in Article 4	Regulatory technical standards in force (March) and CCPs start to apply for authorisation	Initial notification of OTC derivatives for preparatory work for clearing obligation		CCPs apply for authorisation (September 15 at the latest)	National competent authorities to authorise CCPs (March 15 at the latest) and notification for clearing obligation (March 16 at the latest)
US	CFTC adopted final rules for central clearing of swaps	Clearing required for IRS and CDS transactions (March 11)	Clearing required for commodity pools and private funds of IRSs and CDSs (June 10)	Clearing required for third-party subaccounts, ERISA plans and all other IRS and CDS transactions (September 9)		
Reporting obligation						
EU	EMIR adopted final rules on reporting obligation in Article 9	TRs start sending application for registration to ESMA		Registration of a TR (June 25)	Reporting required for interest rate and credit derivatives transactions (September 23 at the earliest)	Reporting required for all other asset classes (January 1 at the earliest)
US	Under Title VII of Dodd-Frank, the CFTC & the SEC adopt rules for real-time reporting and dissemination of swap trading, price and volume data	Reporting required for financial entities for IRS and CDS transactions	Reporting required for financial entities for all asset classes transactions	Reporting required for all non-financial entities for all asset classes transactions		

Sources: ESMA, CFTC, FSB, DB Research

derivative, amount and date of delivery (as well as − for physically settled contracts − location of delivery), and maturity are considered standardised contracts.

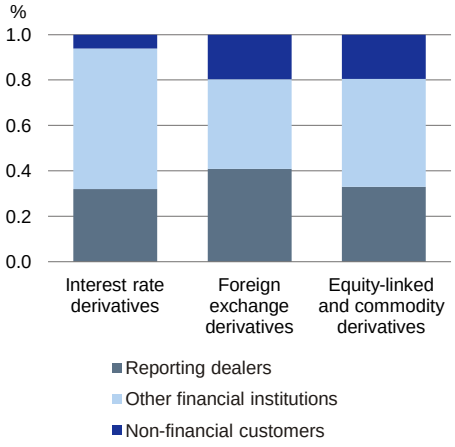
The precise definition of standardised or eligible contracts hence automatically defines the scope of mandatory CCP clearing. The definition should therefore balance the benefits of greater stability from a larger share of CCP-cleared contracts vis-à-vis the benefits that non-standardised, tailor-made derivatives offer to users in terms of greater flexibility in managing commercial risks. From a user perspective, the benefits of standardised contracts could be of little value compared to the vital importance of reducing the specific commercial risk stemming from the underlying business. And thus the overall risk for firms may increase by being forced to hedge with a standardised product or by not hedging at all. More generally, additional factors such as the frequency of trade and the flexibility of the contracts should also be taken into account in the standardisation debate.

Even though the definition of standardised contracts has a pivotal role in the new regulatory framework and even though there has been a substantial amount of regulatory and technical documentation on this issue to date, there is no straightforward definition which allows market participants to easily distinguish a standardised contract from a non-standardised one. So far, only a few fundamental cornerstones have been laid down for this distinction.

In Europe, EMIR defines two distinct approaches for the procedure to determine clearing eligibility: a bottom-up and a top-down approach. In the bottom-up approach as described in EMIR article 5(2), the determination of eligibility will be based on the classes which are already cleared by authorised or recognised CCPs. In the top-down approach, as described in EMIR article 5(3), the European Securities and Markets Authority (ESMA) will, on its own initiative, be able to identify derivatives classes for which no CCP has yet received authorisation, but which nonetheless should be subject to a clearing obligation.[6] In defining the criteria for contracts eligible for clearing[7] ESMA takes into consideration 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; and whether the operational processes of that particular class of OTC derivative contracts are subject to automated post-trade processing and lifecycle events that are managed in a common manner to a timetable which is widely agreed among counterparties. As presented in the ESMA 2013/925 discussion paper, 9 to 16 months could elapse between notification of a class of OTC derivatives by ESMA as eligible and the entry into force of the clearing obligation of this class.

In the US, the standardisation process starts with the final rules defined by the CFTC that allow a Designated Contract Market (DCM) or Swap Execution Facility (SEF) to make a swap available to trade as a standardised contract eligible for central clearing. Following this, a DCM/SEF submits its determination for voluntary approval or through self-certification under CFTC Rules 40.5 and 40.6 for a swap 1) that it lists or offers for trading; and 2) that is subject to the clearing requirement under Rule 39.5 of the CFTC's regulations.[8]

OTC derivatives by counterparty 10



Sources: BIS, DB Research

Exemptions for non-financial corporations (NFCs)

Non-financial corporations as counterparties constitute around 20% of the foreign-exchange, equity-linked, and commodity derivatives and around 6% of the IRS trading (see chart 10). Non-financial corporations in general use derivatives to hedge against risks resulting from their underlying business activities, with a view to reducing the likelihood of financial distress and ensuring a smooth earnings profile.[9] At the same time, hedging with derivatives will most likely become more expensive for non-financial users after the reforms due to the collateral requirements for CCP-cleared contracts – assuming that collateralisation was limited (or even absent) in the OTC contracts used so far. As a result, the question how non-financial firms will be affected by the regulatory reforms is of great importance for the real economy. To address some of the concerns voiced by non-financial firms, both EMIR and the DFA introduce special exemptions for non-financial end-users.

Clearing thresholds for NFCs (gross notional value) 11

Contract type	Amount EUR
Credit derivatives	1 billion
Equity derivatives	1 billion
Interest rate derivatives	3 billion
Foreign exchange derivatives	3 billion
Commodity derivatives	3 billion

Source: ESMA 2012/600

Nonetheless, activities by NFCs in derivatives markets can be substantial and some NFCs and physical commodity traders may even attain systemic relevance. Consequently, a case can be made that NFCs should be subject to the same rules as financial institutions if they constitute comparable risks. Recognising this, in Europe, EMIR imposes the clearing obligation on non-financial counterparties if their derivatives portfolio (the rolling average over 30 working days) exceeds a certain threshold (see table 11).[10] Below these thresholds, non-financial corporations must report their trades to trade

[6] See ESMA 2013/925, Section 1, Procedure for the determination of the classes of OTC derivatives to be subject to the clearing obligation.
[7] See ESMA 2012/648 chapter IV Criteria for the determination of the classes of OTC derivative contracts subject to central clearing obligation.
[8] See CFTC (December 2011).
[9] See ISDA (2009) for a detailed discussion.
[10] See ESMA (March 2013) for a detailed discussion.

Notional amounts computation as defined by ESMA 12

Notional amounts are the reference amounts from which contractual payments are determined in derivatives markets or the value of a derivative's underlying assets at the applicable price at the transaction's start for options, for contracts for difference, and for commodity derivatives which are designated in units such as barrels and tonnes.

Notional amounts should be evaluated using the price of the underlying asset at the time the calculation of the positions in OTC derivatives to be compared to the clearing thresholds is made for contracts where prices will only be available by the time of settlement,

Notional amounts to be considered for contracts with a notional amount that varies in time is the one valid at the time the calculation of the positions in OTC derivatives to be compared to the clearing thresholds is made.

Source: ESMA 2013/685

repositories and should apply risk mitigation techniques, but central clearing is not mandatory. Above these thresholds, on the other hand, non-financial corporations are subject to the same clearing obligations as financial institutions. The clearing thresholds are set to notional values (see box 12 for the computation of notional values). ESMA has announced that the thresholds will be updated on a regular basis, especially in light of the fact that the thresholds were derived on the basis on the limited set of data available up until now.

According to the final report on ESMA's technical standards, counterparties are considered as exceeding the clearing threshold when the threshold is breached in one asset class. Therefore, mandatory central clearing then applies to all asset classes and not only to those pertaining to the class of OTC derivatives where the clearing threshold is breached.[11] However, ESMA does not count all OTC derivative contracts towards the clearing threshold and the contracts which are utilised for hedging purposes are exempt from the computation. More specifically, OTC derivative contracts entered into in order to reduce risks relating to the commercial or treasury financing activity of the non-financial entity, or of non-financials of the group it belongs to, are excluded from the calculation.[12] At the same time, in accordance with article 10(3) of EMIR, in calculating whether the threshold values are exceeded, the computation is done for the entire group to which the non-financial counterparty belongs and not for a specific entity.

In the US, the exemptions for non-financial corporations are somewhat broader. In line with the DFA's "end-user exception" for clearing requirements, CFTC has issued final rules[13] outlining an exception to the mandatory clearing requirement for non-financial end-users for transactions hedging commercial risk and for financial entities with assets of USD 10 billion or less (small financial institutions). In this respect, small financial institutions that do not qualify as swap dealer or major swap dealer are also exempt from the clearing obligation in the US. Moreover, the CFTC proposed a rule to allow cooperatives that would not otherwise qualify for end-user exception, but whose members individually would qualify for the exception, to elect not to clear certain swaps entered into for the benefit of their members. As in Europe, reporting requirements apply also to entities electing the end-user exception.

Requirements for CCPs

With the envisaged reforms, CCPs will become crucial building blocks of the financial system, whose faultless functioning is essential for the stability of the system. Against this background, the International Organization of Securities Commissions (IOSCO) and the Committee on Payment and Settlement Systems (CPSS) consultative reports[14] define key principles of requirements for risk management standards for financial market infrastructure (FMI), incl. CCPs. The overarching goal of the reforms is to harmonise and strengthen the international standards for FMIs that have systemic relevance. Consequently, the reports define principles for the design of CCPs, including ones on general organisation, credit and liquidity risk management, default management, general business and operational risk management, access, efficiency and transparency. In particular, the principles envisage a risk-based effective margin system that is regularly updated to cover the credit exposures of CCP members. CCPs are required to maintain sufficient financial resources to cover stress scenarios that include the default of two participants and their affiliates.

[11] See ESMA 2012/648.
[12] See ESMA (March 2013).
[13] See CFTC (July 2012).
[14] See BIS (April 2012) and BIS (July 2012).

Moreover, CCPs are required to have rules and procedures that enable the segregation and portability of the positions and of the collateral provided to CCPs.

In the EU, taking into account the CPSS-IOSCO principles, minimum standards for CCPs are defined in the regulatory technical standards on requirements for central counterparties (ESMA regulations No. 2013/152 and 2013/153). The first regulation covers the points on capital requirements in general as well as the requirements for winding down or restructuring, for operational and legal risks, credit risk, counterparty credit risk and market risk and for business risk of CCPs. The second regulation covers points such as organisational requirements, recognition of third-country CCPs, record keeping, business continuity, margins, default fund, liquidity risk controls, default waterfall, collateral, investment policy, review of models, stress testing and back testing.

Even though the principles for CCPs drew a positive response overall, some observers noted room for improvement regarding points such as cooperation between regulatory authorities and CCPs. For instance, there is a major debate on interoperability between CCPs which, in the eyes of some observers, brings benefits such as simplified trading and a reduction in systemic risk. Indeed, ESMA finalised its guidelines on establishing consistent, efficient and effective assessments of interoperability arrangements between CCPs.

ECB liquidity to non-euro area CCPs

The waterfall of resources in case of a clearing member default 13

In case of one or more clearing members defaulting, the waterfall of resources will come into effect to close out the relevant positions of the defaulting clearing member(s). First and foremost, CCPs will use the defaulting clearing members' collateral, such as the initial and the variation margins, to cover the potential losses. Second, the default fund contribution of the defaulting clearing member will come into force. Third, the reserves and capital of the CCP will be used (usually a proportion of the reserves). Fourth, the default fund contribution of the other clearing member(s) will come into play. If the amounts are not sufficient to cover the open positions either the default fund will be replenished by the clearing members or the rest of the capital and the reserves of the CCPs will be used to close out the position. If none of these funds sufficed to close out the defaulting party's open positions, central bank liquidity would be required as a last line of defence.

Clearing participants are responsible for fulfilling their obligations and, normally, should and will be able to do so. However, if one of the clearing members fails, the CCPs will have to fulfil the obligations of the defaulting party, such as the variation margins, payments at the settlement etc., given that the CCP is then the counterparty of the non-defaulted participant.[15] As a result, in distressed circumstances when more than one clearing member fails, CCPs may be in need of considerable amounts of liquidity. To address this, one of the safeguards identified for a resilient and efficient environment for central clearing by the FSB is that, as a last line of defence, there should be appropriate liquidity arrangements for CCPs with central banks in the currencies in which they clear (see box 13 for the order of the safeguards). As a consequence, in line with FSB recommendations, EMIR recommends that CCPs should have access to central bank liquidity or to creditworthy and reliable commercial bank liquidity, or a combination of both.

However, CCP access to central bank liquidity remains a complicated issue given that the currency of the liquidity needed and the central bank where the main financial entities of the CCP are based do not necessarily have to be congruent. More specifically, local central banks could certainly provide liquidity in local currency, but in case of a foreign-currency liquidity shortage, it is unclear whether the foreign central bank would be able to intervene and provide liquidity to the relevant CCP. The problem could be even more severe if the liquidity shortage is in more than one foreign currency, meaning that more than one central bank should intervene.

The question of access to central bank liquidity for CCPs is particularly acute in Europe due to the fact that some major clearing houses clearing EUR-denominated contracts are located outside of the euro area. This has led to strong positions being taken in this debate: On the one hand, some regulators take the view that ECB liquidity should be provided only to CCPs operating in the euro area. This would mean for CCPs operating in non-euro-area countries that they would have to relocate to one of the euro-area countries to have access to ECB liquidity. On the other hand, other officials argue that to have

[15] See Heller and Vause (2011) for a detailed discussion.

clearing only take place in the country in whose currency a contract is made will lead to inefficiencies and increase the cost of clearing. All in all, to date, the issue of setting up viable arrangements for providing central bank liquidity to CCPs is still pending.

Cross-border issues

For the market participants subject to regulatory requirements in more than one country, one of the main concerns regarding the regulatory agenda is the potential regulatory overlaps, conflicts, inconsistencies and duplications which may arise between different legislative frameworks. However, identifying the potential cross-border issues requires completed regulatory frameworks and even though there has been substantial progress in meeting the G20 commitments, which originally aimed at the central clearing of OTC derivatives by the end of 2012 at the latest, several jurisdictions have finalised their legislative frameworks only recently or still have to finalise them.

To date, cross-border transactions or the treatment of products, participants and infrastructures that span two or more jurisdictions are therefore not fully specified in most countries. In the US, the CFTC requires that foreign entities which engage in swap deals with US counterparties should register with the CFTC and follow the US requirements. However, it allows for overseas affiliates of US financial counterparties to follow local regulations if they are comparably robust and comprehensive. The SEC proposed its cross-border rules in May 2013 with a comment period of 3 months. In the EU, cross-border regulation is based on the recognition of regimes as "equivalent", and non-EU CCPs and TRs can be recognised by ESMA as eligible for central clearing and trade reporting if a number of conditions are met. One of these conditions is to have cooperative arrangements between ESMA and the home supervisor of the non-EU CCPs or TRs.[16]

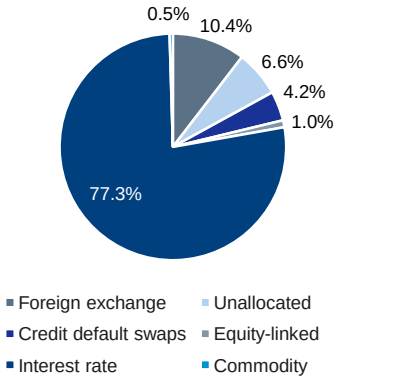
On June 11, 2013, the US and EU regulators announced, in a joint statement, that they had reached a common understanding in principle on how to approach cross-border derivatives. The statement identifies a number of issues where equivalence needs to be clarified, including the scope of US transaction level requirements, non-cleared derivatives, CCP and trading venue recognition, mandatory clearing and trade reporting. Given that EU and US rules for risk mitigation are essentially identical for bilateral uncleared swaps, the CFTC plans to grant so-called no-action relief – meaning that it will effectively tolerate if market participants operate according to EU rules. However it is important to note that no-action relief by the CFTC is a unilateral act which does not have the binding force of an international treaty; specifically, it leaves the CFTC with the ability, on its own choosing, to condition, modify, suspend, terminate or otherwise restrict the terms of the no-action relief at some stage in the future. For CCP recognition, the statement indicates that the only key material difference is initial margin coverage, and the European Commission and the CFTC will work together to reduce regulatory arbitrage opportunities. Moreover, regulators will endeavour to ensure that CCPs that have not yet been recognised or registered will be permitted to continue their business operations. On trade reporting, regulators will work to resolve remaining issues such as consistent data fields and issues related to privacy. The EU and the US have a broadly similar approach in terms of which market participants are covered by clearing requirements and have agreed to a "stricter-rule-applies" approach to cross-border transactions. More specifically, the exemptions in one jurisdiction cannot be transferred to another. For instance, small financial institutions (with assets of USD 10 billion or less) which are exempt from the clearing obligation in the US will centrally clear their trades with non-US counterparties; and the pension

[16] See FSB (April, 2013) for a detailed discussion.

funds in Europe which are temporarily exempt from clearing obligations cannot carry their exemptions to non-EU counterparty transactions. Overall, while the June 11 statement undoubtedly constitutes a major step forward, there is a large number of details on which agreement must still be reached before a workable cross-border regime for derivatives markets in the transatlantic region can be established.

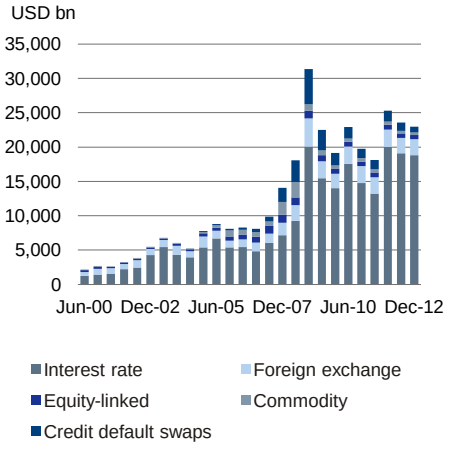
To address the cross-border issues beyond the transatlantic space, a group of OTC derivatives market regulators including but not limited to the US and the EU[17] have held meetings to make progress in resolving cross-border uncertainties. In their December 2012 announcement, they reported reaching an understanding on clearing determinations, sharing of information, and supervisory and enforcement cooperation and timing. Moreover, they agreed to further explore the scope of regulation and mutual recognition or substituted compliance for cross border activities. In their most recent meeting in April 2013, the group of OTC derivatives regulators reached an agreement on the treatment of the regulatory gaps as well. According to the agreement, if a category of counterparties or products are exempt ex ante from clearing or trading obligations in one jurisdiction but not in another, or a product is subject to a clearing or trading obligation in one jurisdiction but not in another, the stricter rules apply.

OTC derivatives by contract type 14



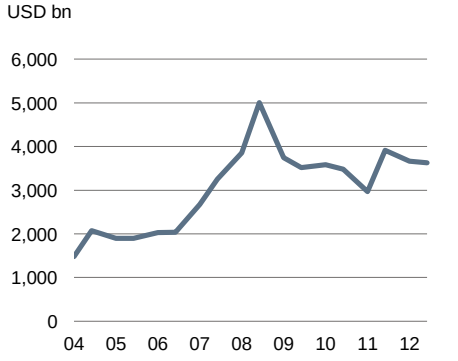
Sources: BIS, DB Research

Gross market values of OTC derivatives 15



Source: BIS

Gross credit exposure of the OTC derivatives market 16



Sources: BIS, ISDA, DB Research

4. Market changes observable

a) Current size of the derivatives market

As of end-2012, the estimated size of the OTC derivatives market stood at USD 633 trillion. By far the most common type of OTC derivative traded is interest rate contracts, followed by foreign-exchange contracts at around 77% and 10% of the overall volume, respectively (see chart 14). CDSs stood at only USD 25 trillion or 4% of the overall OTC contracts outstanding.

Since counterparties are seldom required to pay out the full value of the assets, the notional amounts outstanding are a misleading indicator in identifying an economically relevant measure of the OTC derivatives market volume. For instance, notional amounts for IRSs are inflated, since they are hardly ever actually exchanged between contracting parties. A more meaningful indicator is the gross market values which indicate how much derivative contracts would be worth if they had to be closed out and settled today. As of end-2012, with a decrease of almost 30% following the peak at end-2008, the gross market value of OTC derivatives had stood at USD 23 trillion, amounting on average to slightly more than 3.5% of notional amounts outstanding (see chart 15). Contrary to the notional amounts, the gross market values, at times, registered negative growth rates even before the crisis (e.g. in the second halves of 2003, 2005 and 2006). Of course, the higher volatility of gross market values does not really come as a surprise, given that they depend on the overall market environment – which is not the case for notionals.

Gross market values represent the absolute sum of market values for each individual market participant and hence do not allow for netting. Since there are numerous contracts which cancel out each other, netting is important for the derivatives market. Gross credit exposure, which reflects the net mark-to-market value of counterparty exposures by taking into account legally enforceable bilateral netting agreements, is a better gauge of market risk and represents the real economic exposure of participants in the derivatives market. The gross credit exposure in OTC derivatives markets stood at USD 3.6 trillion at end-

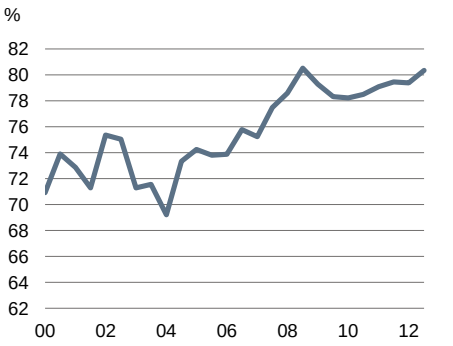
[17] Australia, Brazil, the EU, Hong Kong, Japan, Ontario, Québec, Singapore, Switzerland and the US.

2012, which is only 0.6% of the notional amounts outstanding and down from USD 5 trillion in 2008.

b) Trends in the derivatives market

As presented above, the economically relevant measures of market size suggest that the actual size and exposure of the OTC derivatives market decreased considerably following the peak in 2008 and that the market growth has contracted. There are a number of possible factors which may have led to this decrease in volumes: (i) a number of real-economy-related factors such as GDP growth; (ii) deleveraging by financial institutions and (iii) technical factors such as so-called trade compression, which has gained momentum with central clearing.

Share of financial institutions as counterparties 17



Sources: BIS, DB Research

Looking at the three potential factors, we first note that, evidently, GDP had contracted both in the US and in the EU following the financial crisis, and there is indeed a positive correlation between GDP and derivative markets' growth rates especially in the post-crisis period. This in turn may partly explain the reduction in volumes; at least the major drop in volumes in 2009. As regards the impact of deleveraging, several financial institutions have indeed exited the market due to a refocusing of their business models or due to capital shortages, and this, too, could have contributed to the stagnation of derivatives markets. However, the share of financial institutions as counterparties (see chart 17) does not present a downward trend and it remained relatively stable in the post-crisis period. This suggests that the reduction in volumes seems to exceed levels that can be explained by real-economy-related factors or the impact of deleveraging.

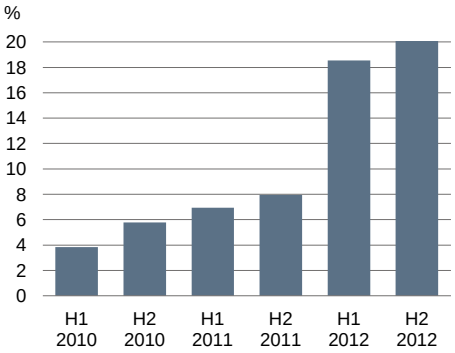
Initiated by the industry itself, trade compression, a practice which reduces the size of the market while leaving the net risk position unchanged,[18] may therefore be a major explanation for the reduction in the volumes. Even though trade compression is possible without central clearing, it admittedly becomes simpler with the CCPs. Unfortunately, limits in data availability preclude an analysis of the importance of trade compression for economically relevant measures of the size of derivatives markets, such as gross credit exposure. However, statistics from the ISDA report[19] can be used to gauge the importance of trade compression on the notional amounts. According to the report, trade compression had reduced the notional amounts by USD 25.7 trillion in the first half of 2012 and USD 48.7 trillion in 2012 as a whole, with some USD 44.6 trillion being interest rate derivatives. Moreover, the cumulative amount of compression is estimated to have been around USD 250 trillion from 2007 to 2012. Adding back the compressed transactions and correcting for double counting for cleared transactions as argued by the ISDA, the notional amount outstanding of OTC derivatives would have increased 23% from 2007 to 2012, compared to an only 8% increase indicated by the raw notional amounts. This would seem to suggest that the reductions in the size of the derivatives markets or, respectively, the relatively low growth rate of notional amounts were mainly driven by trade compression, and that the stagnation in volumes would dis-appear if the compressed volumes were added back to the original amounts.

c) Current state of central clearing

Most of the CCPs operate either in the US or Europe, where, in addition, the total number of CCPs has increased in recent years. IRS and/or CDS clearing are offered by the majority of CCPs, nevertheless there are certain CCPs clearing commodity, energy and agricultural contracts as well.

[18] See Weistroffer (2009) for a detailed discussion.
[19] See ISDA (June, 2013a).

Share of CDSs cleared by CCPs 18



Gross market values are used to compute the shares.

Sources: BIS, DB Research

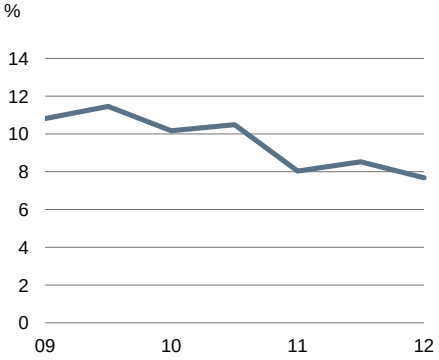
Among the cleared products, interest rate derivatives have taken the lion's share. According to the FSB (April 2013), 40-50% of the interest rate derivatives were centrally cleared in 2012, up from 35-40% in 2011. The ISDA, in its year-end 2012 OTC derivatives market analysis, presents a similar picture: 53% of the IRSs and 79% of the forward rate agreements are cleared centrally. For the credit derivatives products, there is an upward trend, too. The gross market value shares of CDSs cleared through CCPs stood at around 20% in 2012, up from 10% in 2010 according to BIS statistics. Commodity and equity derivatives clearing meanwhile is yet to develop and it is difficult to obtain aggregate figures due to limited data availability at present.

Even though the most recent figures indicate a notable shift from dealer to CCP trades for interest rate derivatives and a less remarkable shift for the credit derivatives, the actual share of products offered for clearing by CCPs and thus the actual capacity of the clearing market is much higher. The FSB (April 2013) indicates that almost 80% (versus 41% actual) of the interest rate derivatives and 40% (versus 12% actual) of the credit derivatives could have been centrally cleared. One explanation for the subdued capacity usage could be that some financial institutions refrain from going through CCPs as long as possible to save collateral. In addition, it may point out a disincentive among market participants for centrally cleared products in general.

d) Substitution between exchange-traded and OTC derivatives market

As the new regulatory rules would eliminate (and actually aim to eliminate) some of the main advantages of OTC derivatives (i.e. low cost, easy use, etc.), market participants may move to more standardised instruments. For instance, the imposition of the new rules may lead to the "futurisation of swaps", a practice that refers to the migration of OTC swaps to listed futures exchanges. In the background of this debate is the higher margin requirement, i.e. 5-day value-at-risk versus 1-day value-at-risk charge, for OTC swap transactions, as compared to futures transactions. Given that futures are identical in terms of cash flows to identically structured swaps, the higher margin requirement creates an economic disadvantage for swaps, which may create a substitution effect and push the market towards more standardised or exchange-traded future contracts.[20]

Share of exchange-traded contracts 19



Sources: BIS, DB Research

To shed light on the question of whether there is already progress in realising the policy objective of shifting business from the OTC space to exchange-based trading, it is useful to look at how the share of exchange trading to overall trading activity has developed. What the data suggest is the following: In contrast to the steady increase in the share of CCP-cleared transactions, there is little evidence that the market share of the (electronic) trading platforms has gathered steam. On the contrary, the ratio of exchange-traded derivatives to overall derivatives trading seems to have decreased slightly after 2009 (see chart 19). If exchange trading were also seen as an indicator of the degree of standardisation in the market, this would also seem to suggest that higher standardisation has, to date, remained limited. Moreover, in contrast to portfolio compression, the idea of a shift to exchange-traded contracts explaining the decrease in the volumes of the OTC derivatives market is not supported by the data.

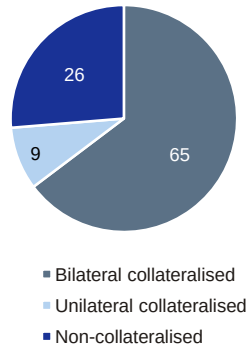
e) Changes in collateral practices in the OTC space

The stricter capital requirements of the new regulations and the higher margin requirements for non-centrally cleared transactions are expected to transfer the

[20] Some exchange houses such as Intercontinental Exchange or Chicago Mercantile Exchange already set up future contracts that mimic interest rate swaps and allow for futurisation.

Trades subject to collateral agreements 20

%



Sources: ISDA, DB Research

trading activity to central clearing platforms and/or exchanges, thereby increasing the collateralisation in derivatives trading.[21] Against this background, it is worthwhile to analyse the current collateralisation practices in the OTC framework to shed light on the share of contracts which will be affected by collateralisation in the future. Even though the exact figures are difficult to know and can only be estimated, the ISDA (June 2013b) margin survey presents the current status of collateralisation in the OTC derivatives market and illustrates the share of uncollateralised contracts. According to the survey statistics, 26% of all OTC derivatives traded currently are uncollateralised. Moreover, of those contracts which were collateralised, 9% were unilaterally collateralised only; leaving the percentage of bilaterally collateralised agreements at around 65%.

In this light, the market seems under-collateralised at first glance; there is also significant heterogeneity in collateralisation practices with respect to firm size (see table 21). The largest dealers have uniformly higher collateralisation rates for all instruments. On average, 81% of all derivatives transactions of large firms are collateralised compared to 74% for all reporters. Collateralisation differs by instrument type as well. Among the different products traded, credit derivatives have by far the highest collateralisation rate at 83%. The collateralisation rate for fixed income derivatives is around 80% for all reporters. The lowest collateralisation rates are observed for FX and commodity derivatives, which are mostly used by non-financial corporations.

The available data suggest a slight increase, around 4 percentage points, in the collateralisation practices in the market over the period from 2011 to 2013. Having said this, for the products mostly used by financial corporations, such as credit or fixed income derivatives, collateralisation rates had already been relatively high. However, the users of under-collateralised derivatives, such as commodity and FX derivatives for which the collateralisation rates have actually decreased 6 pp to 10 pp from 2011 to 2013, may find collateralisation requirements in the future costly – and since non-financial corporations use these products to a disproportionately large share, they will be affected relatively heavily.

Percent of trades subject to collateral agreements 21

	All			Large dealers		
	2013	2012	2011	2013	2012	2011
All OTC derivatives	73.7	71.4	69.8	80.7	83.7	80.2
Fixed income derivatives	79.2	78.1	78.6	89.4	89.9	87.9
Credit derivatives	83.0	93.4	93.2	96.3	96.1	95.8
FX derivatives	52.0	55.6	58.2	67.9	70.6	65.2
Equity derivatives	72.5	72.7	72.1	78.2	85.3	73.2
Commodities	48.3	56.3	59.6	54.5	63.9	62.9

Source: ISDA MARGIN SURVEY 2013

f) CCPs: Who is winning the CCP business?

In Europe, there are 19 central clearing houses listed in the ESMA-MIFID database. Whilst the majority of these have only a limited business volume, some have already reached substantial clearing volumes. UK-based LCH Clearnet's SwapClear has an aggregate notional principal amount of over USD 390 trillion IRSs. Another UK-based clearing house, ICE Clear Europe, reports more than 600,000 CDS trades cleared in 2012, up from around 200,000 contracts in 2011. Others are on their way too. EurexOTC Clear, launched in November

[21] It is important to note that, in addition to more strict capital requirements, in July 2012, IOSCO proposed initial and variation margin requirements for non-centrally cleared transactions that would apply to all financial firms and systemically important non-financial entities. See section 2.5.1 of the FSB (April 2013) for a detailed discussion.

2012, has already won a significant number of clearing members. Data from the US presents meaningful clearing volumes as well. CME Group OTC Clearing reports USD 2.3 trillion of notional amounts that have been cleared since its launch. The upward trend in cleared amounts is also observed in the open interest of CDSs which represents the sum of the net notional amount outstanding per contract. The two biggest CDS clearing houses reached amounts above EUR 500 billion.

The shares of the CCP-cleared products indicate that there are certain CCPs dominating the market which are also specialised in clearing particular products, i.e. SwapClear clears almost all IRSs. On the one hand, this is a favourable feature which shall bring netting benefits.[22] Moreover, the competition between CCPs or financial centres will help to keep the transaction costs at a low level for market participants. On the other hand, in crisis times the failure of a paramount single CCP could lead to a huge system-relevant problem, putting a large number of market participants at risk.

The major CCPs in operation were established well before the outbreak of the crisis. The already large market shares of long-established CCPs apparently constitute an entry hurdle for the new CCPs that plan to enter the clearing industry. Interestingly, the CCPs which clear the largest share of the IRSs and CDSs are not tied with exchanges either. Since there is no big shift to on-exchange trading, traditional exchanges apparently cannot use this channel to gain business in clearing either.

As mentioned in the previous sections, regulatory principles determine the requirements for CCPs, thereby defining a large proportion of their business models. This leads to the question of what exactly existing and new CCPs would compete on. Clearly, apart from the reliability of systems, the collateralisation practices and requirements will be a crucial factor for users. But from a regulatory perspective, competing on margins is undesirable as it has the potential to impair the stability of the financial infrastructure by lowering the funds available to cover a possible counterparty default. Indeed, article 41 of EMIR explicitly indicates that the margin requirements should be sufficient to cover losses that result from at least 99% of the exposures movements.[23] Moreover, from a clearing member perspective, there could be netting and cross margining benefits of utilising only one CCP, even though this particular CCP may have somewhat stricter margin requirements. Overall it is unlikely that CCPs will compete on margin requirements. What is more likely is that CCPs will compete on the scope of the products that they clear, the quality of their risk management services as well as their maintenance, membership, clearing and settlement fees. Nevertheless, it is important to mention that competing on product offers depends on the level of interoperability of CCPs and if the European Commission is successful in requiring extensive interoperability, it will become even more difficult for CCPs to compete on product offers.

5. Open issues

a) Increase in margining practices

Unlike bilateral initial margin agreements, for which longstanding trading relationships of counterparties or high creditworthiness allow flexibility, CCPs have strict rules on initial and variation margin requirements and offer much less flexibility to negotiate. On average, this clearly will lead to higher trading costs. Even though exact figures are not available, academic literature estimates could help to shed light on this issue. To compare the margining practices between

[22] See Duffie and Zhu (2011) for a detailed discussion.
[23] In a later consultation paper ESMA proposed to set the level to 99.5%.

Margining practices for OTC derivatives 22

Initial margin amount (USD bn)	Market volatility		
	Low	Medium	High
CCP	303	718	1167
Bilateral		230	

Sources: Heller and Vause (2012), BIS (2013), DB Research

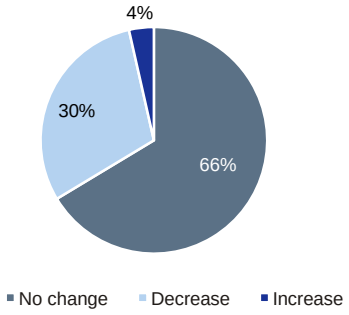
bilateral and CCP trades, we utilise the estimates from Heller and Vause (2012) on initial margin requirements for CCP clearing of OTC derivatives and from the BIS (February 2013) consultative paper on margin requirements of non-centrally cleared derivatives. Heller and Vause (2012) estimate that if all IRSs and CDSs were centrally cleared, the initial margin requirement demanded by the CCPs for IRSs and CDSs would range from USD 0.3-1.2 trillion depending on the market volatility. The BIS (February 2013) paper documents that around USD 132 billion initial margin is exchanged for non-centrally cleared derivatives. To make it comparable with Heller and Vause (2012), we adjust this amount as if all IRSs and CDSs were bilaterally traded and thus not centrally cleared.[24] With the respective adjustment the collateral requirement for non-centrally cleared IRSs and CDSs would stand at USD 230 billion (see table 22).This implies that for market conditions defined by low volatility, CCPs would demand USD 73 billion higher margins at least. This amount would jump to USD 930 billion when the markets are volatile.

Derivatives trades would also be more expensive as a result of stringent CCP margin calls which would even be intraday. The BIS (February, 2013) documents that for the bilateral contracts, variation margin calls are bi-daily (average of 2.3 days) and initial margins could be exchanged on an event-driven basis or at deal inception. More frequent margin calls in this respect would further increase the overall cost of trading in CCP-cleared derivatives.

b) Decrease in volumes traded

Our analysis on collateral needs assumed that the market participants would continue to trade in the derivatives market with the same quantities as before and thus not reduce their trading volume in the new market environment after the introduction of mandatory CCP clearing. However market viability depends not only on the mitigation of the counterparty risk but also on the ease of trading. Therefore, to complete our analysis we consider the effect of mandatory clearing on trading activity. The foregoing discussion suggests several competing factors. On the one hand, the decline in counterparty risk could lead to a perception that contracts are safer / imply lower risk – thereby increasing the inclination of market participants to trade. On the other hand, market participants may lower their engagement in the derivatives market as the cost of trading becomes higher than its economic benefit.

Change in volumes of centrally cleared CDSs 23



Sources: DTCC, DB Research

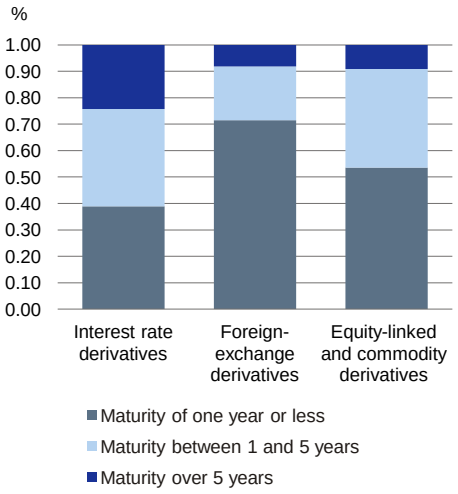
To make a comprehensive analysis on the potential quantity traded in the aftermath of mandatory central clearing, specific derivative product volume information at a reasonable frequency is required for pre- and post-clearing periods. The limits on data availability make it impossible to look at the full set of OTC derivatives; the required level of detail currently is only available for CDS contracts. Utilising the weekly net notional volumes provided by Depository Trust and Clearing Corporation (DTCC), we perform an analysis by taking a sample of 113 CDS contracts which are centrally cleared.[25] For these contracts, we perform an analysis by controlling for the impact of central clearing, serial correlation and business cycle effects. Our results indicate that for 66% of the CDS contracts that are centrally cleared, the trading volume did not change significantly in the post-clearing period. For 30%, trading volume has decreased and only for 4% has the volume of contracts traded increased.

It could be argued that CCPs lead to trade compression and trading volumes of some CDS contracts may simply have decreased as a result of this. Even though this argument holds for gross amounts outstanding, in our analysis we

[24] In doing so we adjust for the differences in volumes between 2010 (Heller and Vause (2012) sample) and 2012 (BIS (February 2013) sample). Moreover, we also adjust the statistics of the BIS (2013) to cover the whole IRS and CDS sample rather than only 75%.

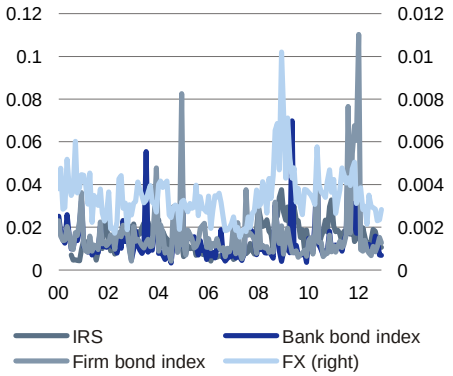
[25] Our sampling period is 2008-2012.

OTC derivatives by maturity 24



Sources: BIS, DB Research

Monthly volatility of financial products 25



EUR/USD for FX

Sources: FED, ECB, Markit, DB Research

focus on the net notional figures that are less sensitive to trade compression. As a result, based on the admittedly small sample of CDS markets, our estimates suggest greater likelihood of a decrease in trading volumes following wider use of CCPs.

c) Possible impact of financial transaction tax on derivatives trading

The European law makers envisage further regulations for derivatives trading by applying a 0.01% (0.005% for pension funds) levy as a financial transaction tax (FTT). Market participants have voiced opposition to the FTT, claiming that it would wipe out the liquidity in the market as well as the economic benefits of derivatives.

The average maturities of the derivatives traded can shed light on the liquidity of derivative products (see chart 24). Indeed a very small proportion of the foreign-exchange, equity-linked and commodity derivatives have longer maturities (over five years) whereas almost 70% of the FX derivatives have durations of less than one year. In this respect, an increase in transaction costs due to the imposition of an FTT would have detrimental effects on the volumes traded. In fact, the European Commission is fully aware of the detrimental impact of FTT on liquidity: according to its own estimates, 70-90% of the derivatives trading volume would be washed away by an FTT.

d) CCPs as a new source of systemic risk

With the new regulations, CCPs will become key building blocks of the financial infrastructure. However, it is important to note that the central clearing of OTC derivatives is not a panacea for counterparty risk and that in fact CCPs themselves may become a new source of systemic risk for financial markets. Accordingly, opponents of central clearing argue that there is a concentration of risk at the CCPs and that they are non-substitutable, highly interconnected and international as well as presumably large, thereby meeting all the essential criteria for a systemically important financial institution as defined by the FSB.[26] Indeed, even the FSB (April 2012, p.12) has noted that: “The presumption is that all CSDs, SSSs, CCPs, and TRs are systemically important.” Consequently, the Financial Stability Oversight Council has recently designated eight financial market utilities as systemically relevant. Proponents, on the other hand, claim that with effective risk management and by discouraging the accumulation of large positions, CCPs are effective tools to manage the counterparty risk.[27]

CCP failures and/or near failures of the past could provide hints about the riskiness of these institutions. According to the IMF (April, 2010),[28] all of the CCP failures of the recent past – such as the failure of French Caisse de Liquidation in 1974, Malaysian Kuala Lumpur Community Clearing House in 1983 and the bailout of Hong Kong Futures Exchanges in 1987 as well as the near-failures of Chicago Mercantile Exchange and Options Clearing Corporation in 1987 – were due to the late reaction of CCPs to increase their margin requirements in response to an increase in market volatility. Accordingly, this would seem to suggest that CCP failures could be avoided by adjusting margin requirements in a timely manner when volatility is high.

Even though updating margin requirements in a timely manner may prevent CCP failures in theory, in present market conditions forecasting or managing risks could be non-trivial in practice. Based on the normality assumption that is widely used to model financial variables a 5 standard deviation increase in daily

[26] See Weistroffer (2011) for a detailed discussion.
[27] See Acharya et al. (2009) for a detailed discussion.
[28] See IMF(April 2010) Chapter 3, Making Over-The-Counter Derivatives Safer: The Role of Central Counter Parties, Box 3.5: History of Central Counterparty Failures and Near Failures.

stock market returns[29] should take place every 4,776 years – but it has in fact happened 44 times since 1950 and six times since 2008. So, outliers and distortions in market conditions occur with considerably higher frequency than theoretical models suggest. Given that CCPs are non-substitutable, regulators should consider measures that would enhance systemic stability. These could include creating even higher safety buffers (i.e. capital requirements) for CCPs, clarifying the access to central bank liquidity, and considering a common fiscal backstop in case of a CCP failure. Otherwise, an unprepared failure would pose serious threats to the global financial system and the CCPs would be the next too-big-to-fail institutions.

6. Conclusion

In this study we have taken a closer look at the structural reforms of the derivatives market infrastructure. In broad terms, the objective of the G20 regulatory reforms is to create robust financial infrastructure and to provide timely and reliable data. Even though new rules in the US and the EU share many features, there are some differences observable. The US seems to be slightly more advanced in the process, while in Europe the majority of the clearing rules will only come into force in 2014. More importantly, there are some major issues outstanding such as the definition of standardised/eligible contracts or liquidity provisions to CCPs which need to be addressed more clearly by regulators.

Regulatory reform has already had an impact on market structures and volumes. In the aftermath of the financial crisis, the decrease in volumes of the derivatives traded could largely be explained by trade compression. Even though there is a notable shift from dealer to CCP trades for interest rate derivatives and a less remarkable shift for the credit derivatives, the actual capacity of the clearing market is much higher. This sheds light on the disincentive of market participants for central clearing. Moreover, regulatory pressure to encourage standardisation seems to have created little impetus for greater standardisation to date and the use of exchange platforms seems to remain subdued. Even though collateral practices would become more expensive for all market participants, non-financial corporations as counter-parties are, relatively speaking, more likely to be affected by collateralisation obligations in the future – which is, however, simply a reflection of the low level of collateralisation in this market segment so far. CCP concentration presents a notable development in the financial infrastructure. There are certain CCPs dominating the market which are also specialised in clearing particular products.

Especially for market conditions defined by high volatility, the increase in collateral needs such as initial margins appear to be massive in the aftermath of central clearing. On the other hand, CCP clearing seems to add little to, if not reduce, the liquidity in the derivatives market. The compound effect of an FTT on derivatives trades and stringent regulatory pressure would have devastating effects on market liquidity. Finally, even with proper capitalisation, CCPs could pose serious systemic risks in times of market upheavals and high uncertainty and thus regulators should explicitly prepare contingency plans for a potential CCP failure.

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[29] We refer to S&P returns here.

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