What does it really mean?

The impact of EMIR, REMIT and MiFID II on banks and energy companies

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Management Summary

Introduction

The financial crisis exposed the need for a safer and more transparent market place for Over-The-Counter (OTC) derivatives. The European Council responded by issuing the European Market Infrastructure Regulation (EMIR) and the Markets in Financial Instruments Directive (MiFID II). EMIR aims at reducing counterparty risk and at increasing the transparency, stability, and regulatory oversight of the financial system in general and, in particular, the OTC derivatives market. MiFID II (an addition to MiFID I) is also meant to establish a safer, sounder, more transparent and responsible European financial system by properly regulating all market and trading structures.

The derivatives market is predominantly a professional wholesale market with banks being one of the main participants [Deutsche Börse Group, 2008]. However, certain non-financial counterparties in the real economy that trade derivatives, such as energy companies, will also be affected by EMIR and MiFID II. Besides the two regulations mentioned earlier, there is another regulation that takes specific conditions of derivatives trading in the energy sector into account, namely the Regulation of Energy Market Integrity and Transparency (REMIT).

In this research, the impact of EMIR, REMIT and MiFID II on banks and energy companies is analysed. Banks have been used to complying with complex regulation for many years [Smith et al., 2013]. Energy companies, however, have not been exposed to financial services regulation before [(Sidley, 2012), (PwC and Ponton Consulting, 2012)]. Therefore it would be interesting to see how banks will handle compliance with new regulations compared to how energy companies do.

EMIR, REMIT and MiFID II share a number of common subjects (e.g. Central Clearing, Reporting and Risk Management) which, regardless implementation timelines, should not be looked at in isolation. Derivative market participants should fundamentally reconsider their trading strategy, clearing process, reporting framework and risk management techniques. The time for migration to integrated solutions for trading, clearing, risk management and (regulatory) reporting has come. Accenture offers capabilities and services that could help financial companies (such as banks) and non-financial companies (such as energy companies) in making the next step successfully by going beyond compliance towards a competitive edge.

Time is running

The indicative dates of the implementation process of EMIR, REMIT and MiFID II can be seen in Figure 1. Keep in mind that REMIT and MiFID II are still under negotiation and thus deadlines could move around.

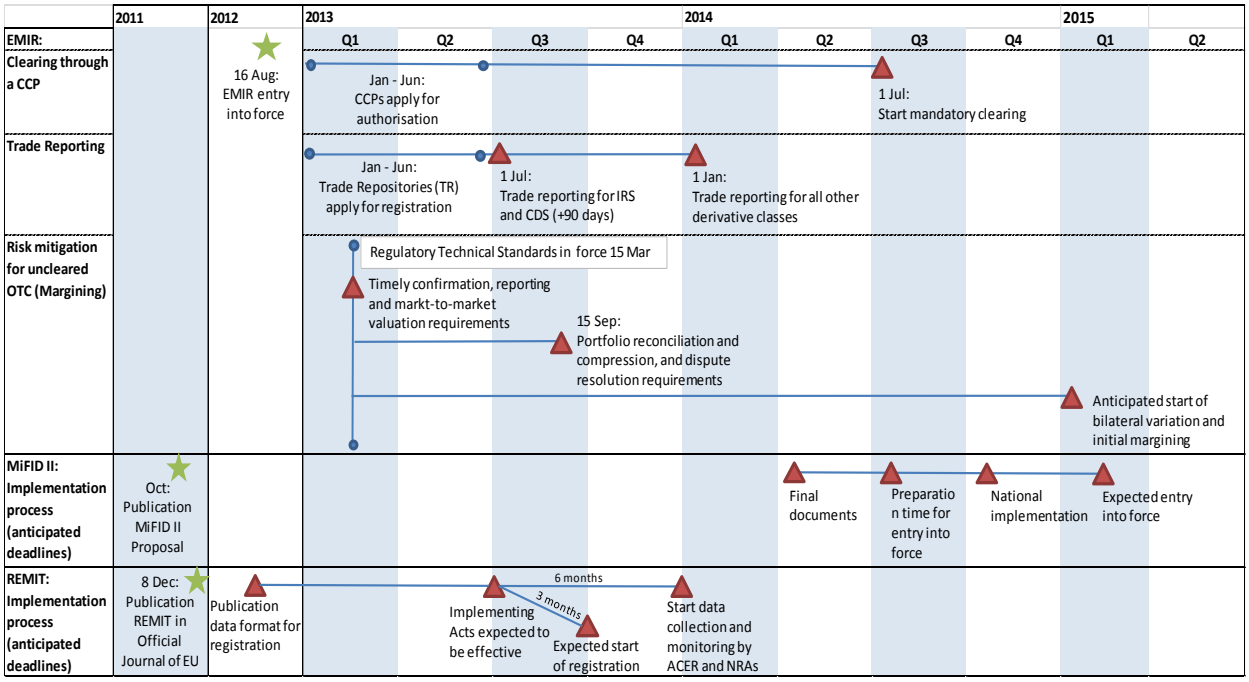


Figure 1: Provisional timeline of EMIR, REMIT and MiFID II implementation.

On 16 August 2012 EMIR entered into force and its implementation deadlines are moving closer. Financial Counterparties (FC) and non-financial counterparties (NFC) that are subject to this regulation should already be implementing it to ensure compliance [(Deloitte, 2012), (AFM, n.d.)].
MiFID II is scheduled to be adopted into national law in 2014. The European Commission issued the MiFID II proposal regulation in October 2011 [Market Structure Partners, 2013]. There are no final documents yet, so some requirements might still change. However, when being subject to EMIR and MiFID II, it is convenient to already add those requirements of MiFID II that are overlapping with EMIR to the implementation process. This can significantly reduce duplication efforts. Furthermore it is likely that the higher the quality of the EMIR implementation, the less effort will be necessary when implementing MiFID II at a later point in time.
REMIT was published in the Official Journal of the EU on 8 December 2011. The prohibitions of insider trading and market manipulation and the obligation to publish inside information entered into force 20 days after the publication of REMIT. On 26 June 2012, the Agency for the Collaboration of Energy Regulators (ACER) determined and published the registration format to be used for the establishment of the future European register of market participants. The Implementing Acts are foreseen at the earliest in mid-2013. The timing of entry into force of the remaining provisions of REMIT depends on that date. Until then, no registration will take place [ACER, 2012].

Overview of the regulation

	EMIR	REMIT	MiFIR/MiFID II
Scope	• European equivalent of U.S. Dodd-Frank • Covers OTC derivatives and exchange-traded derivatives	• Extends the Market Abuse Directive to physical gas and power • Covers wholesale energy markets (derivatives and commodity markets)	• Extends MiFID I to a wider scope of market participants, e.g. commodity firms • Covers trading of financial instruments (equity and non-equity instruments)
Goal	Increasing the transparency, stability and regulatory oversight of the financial system in general and, in particular, the OTC derivatives market	Increase transparency and integrity of European wholesale energy markets, foster competition and prevent insider trading and market abuse	Establish a safer, sounder, more transparent and responsible European financial system by proper regulation of all market and trading structures.
Building blocks	• Clearing of all standardized derivatives through a CCP (A) • Reporting of all derivatives contracts to trade repositories (B) • Operational risk management techniques for non-standard derivative instruments (C)	• Prohibition of insider trading and market manipulation (E) • Obligation to disclose inside information (E) • Obligation to report transaction data (B)	• Clearing requirements (A) • Transparency and reporting requirements for equity and non-equity instruments (B) • Risk management requirements for automated trading (C) • Shift of trading to regulated trading venues (D) • Investor protection (E)
Target group	Financial counterparties[1] and non-financial counterparties[2]	Wholesale energy market participants	Investment firms, regulated markets and data reporting service providers

[1] Financial counterparties are considered to be investment firms, credit institutions, (re)insurance firms, assurance undertakings, Undertakings for Collective Investment in Transferable Securities (UCITS) (and its management company), institutions for occupational retirement provision, and alternative investment fund managed by Alternative Investment Fund Managers (AIFMs).
[2] Non-financial counterparties are all parties not categorised as financial.

Common subjects across EMIR, REMIT and MIFID II

When implementing EMIR, REMIT and/or MIFID II, recognising common subjects and dependencies across the regulations (see Table 1will allow banks and energy companies efficient and cost-effective compliance by avoiding duplication of efforts. When being subject to several regulations, their combined impact must be considered in order to see the full regulatory impact.

	EMIR	REMIT	MiFIR/MiFID II
Trading		✓	✓
Central clearing	✓		✓
Transparency and reporting	✓	✓	✓
Risk management	✓		✓

Table 1: Common themes across EMIR, REMIT and MiFID II.

Research model and research question

The central research question is:

How can Accenture Risk Management anticipate for banks and energy companies within Gallia by exploiting upcoming business opportunities and challenges regarding the strategy, clients, products, processes, systems and people of selected companies that result from EMIR, REMIT and MiFID II?

This research question will be answered by dividing the research into several research phases and belonging sub-research questions, as can be seen in the research model in Figure 2.

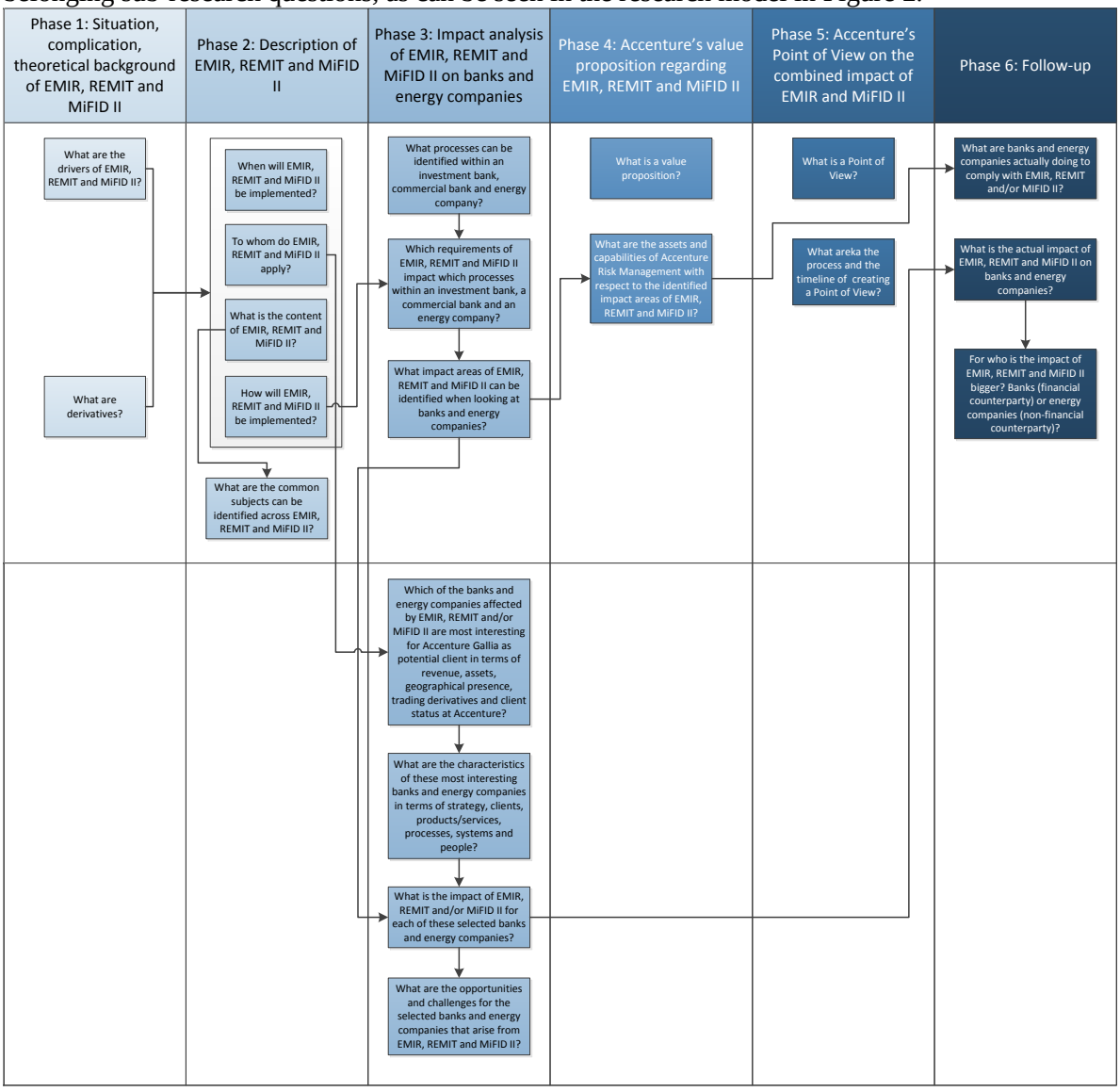


Figure 2: Research model.

What is the regulation about?

A. Clearing through a central counterparty

The financial crisis accelerated the move from bilateral clearing towards central clearing, which is the most significant overhaul of the financial services industry since the emergence of electronic trading [(Futures & Options World, 2012), (European Commission, 2012)]. It should prevent the situation where a collapse of one market participant causes the collapse of others, also called counterparty credit risk. To reduce this risk, EMIR obliges FC and NFC above the clearing threshold[3] (see Table 2) to clear all standardised OTC derivative contracts through a Central CounterParty (CCP) and to post collateral for these transactions with the respective CCP, either directly or through their clearing member (European Commission, 2010).

OTC Derivative Contract Type	Clearing threshold
Credit derivative contracts	> €1 bn.
Equity derivative contracts	> €1 bn.
Interest rate derivative contracts	> €3 bn.
Foreign exchange derivative contracts	> €3 bn.
Commodity derivative contracts	> €3 bn.
Other OTC derivative contracts	> €3 bn.

Table 2: Threshold CCP-clearing non-financial counterparties, in billion € gross notional value for OTC contracts

The CCP centralizes the risk and thereby reduces the overall risk on the financial sector and the counterparty risk for trading parties. To ensure its safety, a CCP has imposed a default waterfall that shows the order in which defaults of a clearing member will be covered and therefore ensures going concern of the CCP when a clearing member defaults (see Figure 3).

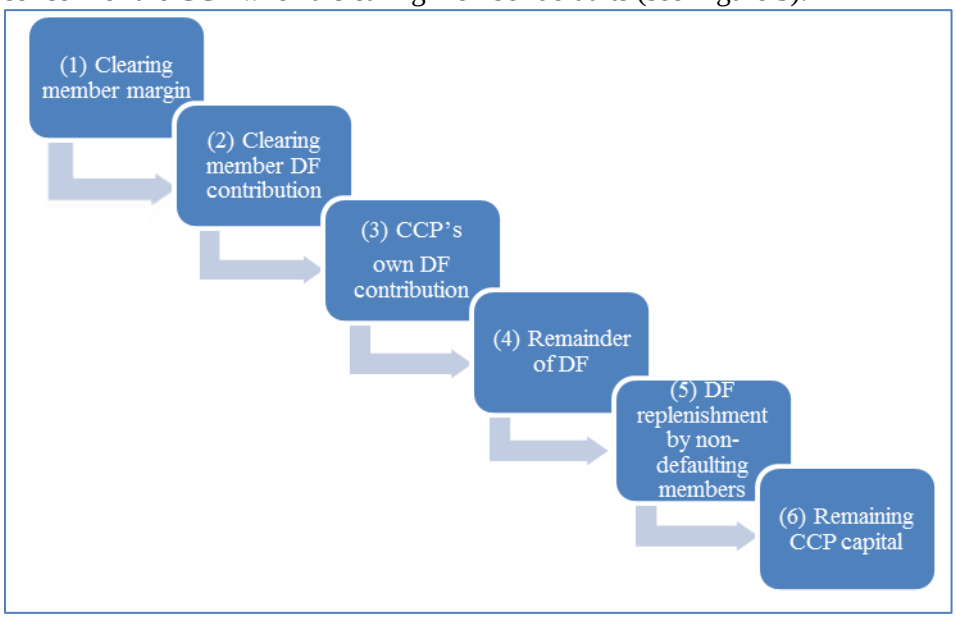


Figure 3: The default waterfall (DF = default fund). Note: The activity order may vary slightly by CCP (Accenture, 2011).

Which derivative classes are categorised as standardised is still unclear. ESMA will publish a Public Register of the standardised OTC derivative classes. Whether a derivative class will be categorised as standard will depend on the degree of standardization, volume, liquidity, and availability of reliable information of the relevant OTC derivative class.

[3] NFC are only required to clear their OTC transactions when the sum of net positions and exposures per OTC derivative contract class exceeds the threshold, excluding contracts entered to cover risks directly related to commercial or treasury activity (hedges).

Central clearing is also one of the subjects, which MiFID II addresses by introducing the obligation to clear derivative classes, which are subject to clearing under EMIR and concluded on a regulated market, through a CCP [European Commission, 2013].

B. Transparency and reporting requirements

EMIR, REMIT and MiFID II all aim at increasing transparency in the derivatives market by introducing various new reporting requirements for trading venues and investment firms.
Under EMIR, all players that are active in the derivatives market must report transactions details for all derivative contracts (OTC and exchange traded whether centrally cleared or not). Both sides of a derivatives transaction need to be separately reported to the respective Trade Repository (TR)[4]. The reported transaction details are available to ESMA and competent authorities (e.g. national supervisors and central banks) in order to identify and monitor potential problems and (concentration) risks. Figure 4 provides an overview of who is required to report, what data must be reported, how and when the data must be reported.

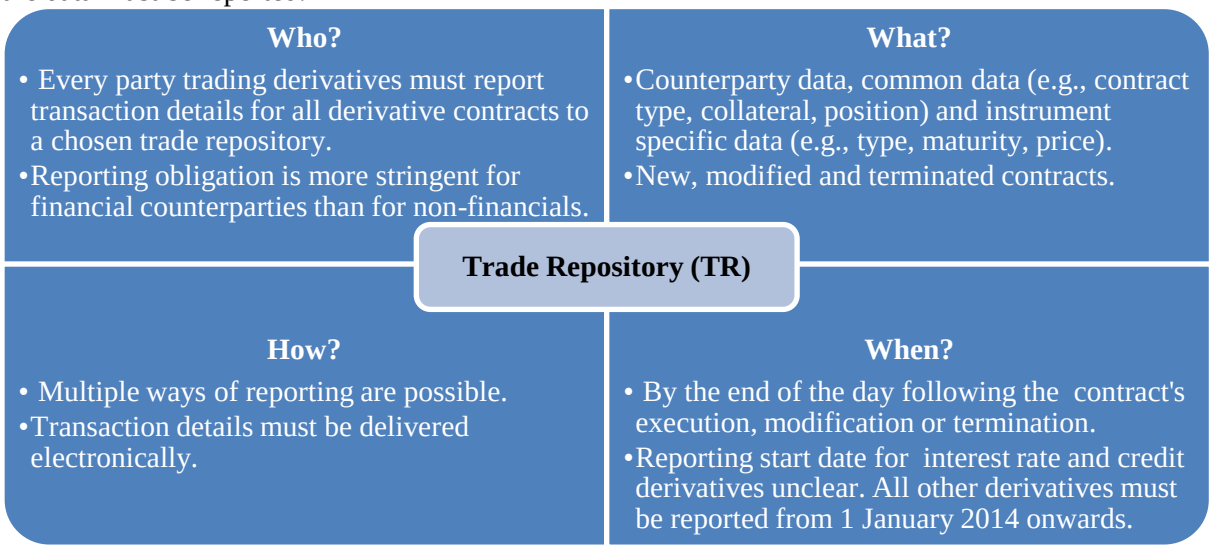
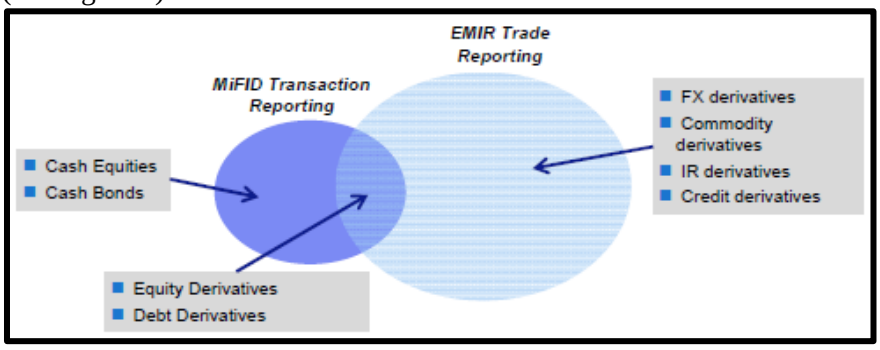


Figure 4: Summary reporting obligation EMIR (Source: ESMA).

ESMA has not confirmed yet which TRs are authorised. The registration of the first TR is unlikely to take place before August 2013. The reporting start date for interest rate and credit derivatives depends on that date and therefore is not determined yet [European Union, 2012].
Compared to EMIR, the reporting obligations under MiFID II are less substantial in scope due to differences in the reportable asset classes and the content of the trade reports [Clifford Chance, 2012] (see Figure 4).



[4] A trade repository is an electronic platform that is managed by a commercial party. ESMA will assign a limited number of commercial parties that qualify as TR, and it is responsible for their surveillance. A trade repository centrally stores the reported transaction details and publishes aggregate positions by class of derivatives with the goal of increasing derivatives market transparency.

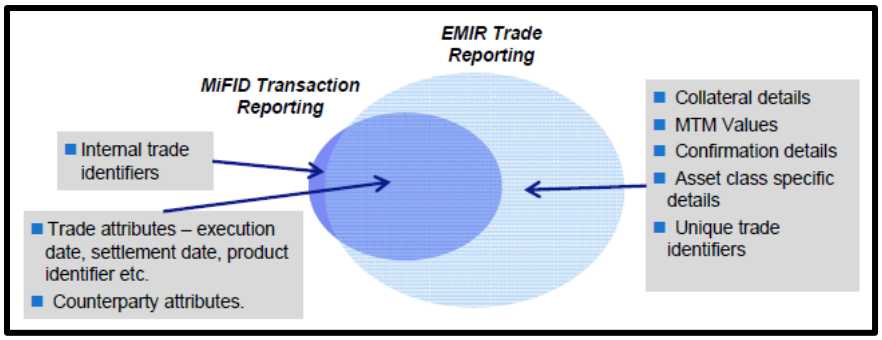


Figure 5: Comparison EMIR trade reporting and MIFID II transaction reporting (Source: Clifford Chance, 2012).

Reporting under REMIT is also different in scope than the reporting under EMIR, as REMIT also covers energy commodity contracts. REMIT obliges energy market participants to provide records of transactions (e.g. identification of products sold/bought, counterparties, price, quantity, execution date and time) to enable ACER to detect and prevent insider trading and market manipulation.

Despite the difference in scope, there are overlaps between EMIR trade reporting and MiFID II transaction reporting, as well as between MiFID II and REMIT in transaction reporting for market abuse surveillance [(KPMG, 2012), (Conforto, 2011)]. The purposes of the reporting obligations under EMIR and MiFID II – improving transparency in the derivative markets and protection against market abuse [European Commission, 2012] – are in line with the rationale for transaction reporting under REMIT [Tieben et al., 2011]. To avoid double reporting, only data not already reported to ESMA in accordance with EMIR/MiFID II would have to be reported to ACER to comply with REMIT (see Figure 6) [(ACER, 2012), (PwC and Ponton Consulting, 2012)].

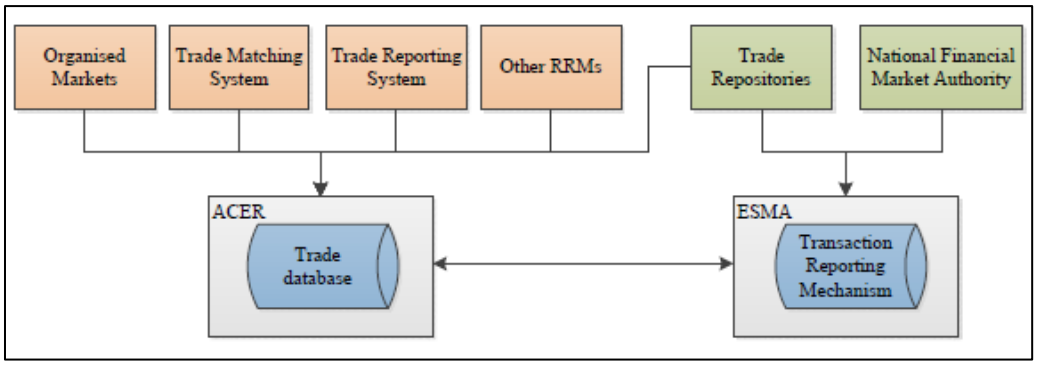


Figure 6: Avoidance of double reporting under EMIR/MiFID II and REMIT.

C. Risk management techniques

OTC derivative contracts that do not fall under the central clearing obligation may be cleared bilaterally. To ensure that these contracts have similar risk mitigation, EMIR requires FC and NFC to ensure that they have appropriate procedures and arrangements in place to measure, monitor and mitigate operational risk and counterparty credit risk for their non-CCP-cleared contracts. They must have robust, resilient and auditable processes for applying the new risk management techniques aimed at reducing operational risk (see Table 3Table 3).

Furthermore, for non-cleared OTC derivative contracts, FC must have collateral mechanisms[5] put in place, also for OTC derivative contracts which are currently traded on an unsecured basis[6]. They must also hold an amount of capital, to manage the counterparty risk not covered by appropriate exchange of collateral.

MiFID II contains risk management requirements as well, but focusing on automated trading (algorithmic and high-frequency trading). Under MiFID II, firms engaging in algorithmic trading are obliged to have effective systems and risk controls, such as trading thresholds, implemented within their trading infrastructure [European Commission, 2013].

[5] Some intragroup transactions are exempt of collateralization.
[6] For NFC: from the moment the threshold is exceeded.

Requirement for non-cleared OTC contracts of financial counterparties	Reporting frequency
Mark-to-market/model valuation of outstanding OTC derivative contracts.	Daily
Timely confirmation of the terms of non-cleared OTC derivative transactions.	Monthly
Reconciliation of portfolios with counterparties, depending on the number of contracts with the other party: FC and NFC above clearing threshold: • 500 or more • 51 – 499 • 50 or less NFC below clearing threshold: • Less than 100 • 100 or more	 Daily Weekly Quarterly Quarterly Yearly
Compression of portfolios when the number of OTC derivative contracts outstanding with one counterparty exceeds 500.	At least 2 times a year
Dispute resolution.	Within 5 business days

Table 3: EMIR risk management requirements.

D. Trading on organised trading venues

There is overlap between EMIR and MiFID II, because when an OTC derivative contract must be cleared (standardised derivative class), it must also be traded on an organised trading venues and vice versa. Organised trading venues are considered to be regulated markets (RMs), Multilateral Trading Facilities (MTFs) and Organised Trading Facilities (OTFs); all have identical pre- and post-trade transparency requirements. Bilateral OTC trading is still possible, either pure OTC or via a Systematic Internaliser (SI) (see Table 4).

	Platform trading (multilateral)			OTC trading (bilateral)	
	RM	MTF	OTF	SI	OTC
Pre-trade transparency	✓	✓	✓	✓	×
Post-trade transparency	✓	✓	✓	✓	✓
Non-discretionary execution	✓	✓	×	✓	×
Market surveillance	✓	✓	✓	×	×
Conduct of business	×	×	✓	✓	✓

Table 4: Market structures for trading of financial instruments.

E. Protection of investors and consumers

To protect final consumers of energy and to guarantee affordable energy prices in Europe, REMIT clearly prohibits behaviour which undermines the integrity of the energy market. This includes that persons are not allowed to act on inside information (e.g. insider trading) and to (or attempt to) engage in market manipulation and abuse.

One of the building blocks of MiFID II also concerns protection, but for investors in complex products, such as derivatives. Retail investors get the highest level of protection, because they are expected to have the least knowledge about financial instruments. When giving investment advice to clients, investment firms are required to obtain all the relevant information regarding the client's needs, knowledge and experience, its financial situation and investment objectives (appropriateness test), in order to execute client orders on terms that are most favourable for the client (best execution regime) [(European Commission, 2011), (European Commission, 2013), (Valiante & Lannoo, 2011)].

Requirement mapping

The impact of EMIR, REMIT and MiFID II is analysed by mapping the requirements of each regulation on process maps of an investment bank, commercial bank and energy company, to cater for the different types of counterparties to which the regulations apply. To identify which requirement belongs to which regulation, each of the identified requirements has a number and each regulation has a colour (see Table 4).

Regulation	Requirements
EMIR	1 – 16 (see Section 3.2.4)
REMIT	17 – 23 (see Section 3.3.4)
MiFID II	24 – 44 (see Section 3.4.6)

Table 5: Identification of EMIR, REMIT and MiFID II requirements.

An example of how the result of the requirement mapping looks is provided in **Error! Reference source not found.**, which shows the requirements of EMIR, REMIT and MiFID II mapped on the process map of an energy company.

The process maps are confidential and therefore cannot be provided.

After having mapped the requirements on the process maps and having assessed the impact of each requirement on a particular process within an investment bank, a commercial bank and an energy company, the following impact areas are identified: trading, clearing, reporting, risk management and protection.

Impacts of EMIR, REMIT and MiFID II on banks and energy companies

The complex framework of the regulations will challenge investment banks, commercial banks and energy companies in many different ways. The challenges that are expected to have the biggest impact and accordingly result in the highest expected cost of compliance will be discussed below. First a base case is provided, which is valid for every party trading derivative instruments. Then several specific impacts for investment banks, commercial banks and energy companies will be highlighted.

Trading

The new regulatory requirements related to trading of financial instruments, such as the shift of all organised trading to trading venues, led to an increased need for data and multi system connectivity with the market. For example, firms must be able to connect with trading venues, CCPs and TR. They must assess whether their existing infrastructure can handle the new trading requirements. If not, current systems must be adjusted, which involves additional IT investments.

Parties subject to REMIT might have to adjust their trading strategy, processes and systems as well, mainly to prevent disorderly trading and to manage position limits. At a high level, this means that firms will incur extra costs from having to apply the same risk governance structures to all their trading activities, including algorithmic and high frequency trading (e.g. best execution policy).

All impacts of trading requirements mentioned above are expected to increase infrastructure costs and therefore result in higher trading costs. The additional costs are likely to be passed on to clients.

Clearing

Parties that are subject to mandatory clearing (all FC and NFC above the clearing threshold) must decide whether to clear directly by becoming a member of a CCP or indirectly by becoming a member of a clearing member. Both involve membership fees. For cleared OTC derivative contracts, firms need high margin and collateral. This, together with membership fees, increase trading costs.

The increased margin and collateral requirements may force firms to revise their product, market and trading strategy (e.g. on the pricing of products, master and netting arrangements).

Because the margin must be paid to the CCP in form of high quality collateral (e.g., cash), firms must prepare their cash management processes to cater for an increase in margin payments. The capital used as collateral cannot be invested elsewhere.

The clearing obligation also influences a firm's systems. They must ensure that the IT infrastructure can handle the clearing. If not, investments in systems will be necessary, which would increase the costs of trading even more.

Reporting

EMIR, REMIT and MiFID II result in a significant increase of the reporting burden for FC and NFC due to an increase of the size of the reporting data set under each of the regulations. For the additional reporting and transparency requirements, both towards market participants and regulators, processes and systems must be structurally changed.

To ensure that data is submitted as quickly as possible in electronic form, firms must have effective systems and procedures in place. Enhanced trading platforms and reporting systems are needed that enable real-time processing. Firms should try to integrate the new data management and record keeping requirements into their existing IT reporting infrastructure, for example by adapting their data warehouse. If integration is not a feasible option, new system will be needed.

Enhanced systems are also needed for efficient record keeping, e.g. systems that integrate information about financial products with pre- and post-trade disclosure.

To keep operational costs at a minimum, the outsourcing of data reporting might be an option, especially for firms which might otherwise need to invest large amounts in internal processes and systems. When having sophisticated, cutting-edge IT, firms could report themselves. Here it is essential to decide who will be responsible for reporting. Additional headcount might be needed, especially when trading large amounts of OTC derivatives.

The different impact areas (trading, clearing, reporting, risk management and protection) each influence a whole framework with strategy, processes, systems and people.

Risk management

The mandatory clearing aims at reducing counterparty credit risk. For non-cleared contracts, there will be additional risk mitigation measures and higher capital charges, because the credit risk depends on the creditworthiness of the counterparties when trading bilaterally. This force firms to rethink their current risk management techniques, processes and systems for all derivative products, including their hedging strategy. Also several new requirements for operational risk management are introduced, such as dispute resolution, which must be implemented.

When engaging in automated trading, firms must establish risk controls and limits for this type of trading to comply with MiFID II.

For wholesale energy products, firms must have processes in place to govern disruptions and limit violations relating to their production, storage and transmission.

Firms must assess whether their existing risk management framework can cope with the new requirements and, if necessary, upgrade their systems.

Protection

To enhance investor protection, especially for inexperienced retail clients, under MiFID II a wider range of financial products is categorised as “complex”. The compliance burden for these products increases and their trading and investment advice strategies must be revised in order to continue meeting client’s needs.

To facilitate the detection and prevention of insider trading and market manipulation to protect wholesale energy market participants, energy trading firms must adjust their planning, production and logistical processes.

Investment banks

Large investment banks are well advanced in their preparation and already clear the majority of their standardised OTC derivative trades. They have made progress towards reporting to trade repositories, for some asset classes. Their trading and risk management systems are sophisticated and additional IT investments are unlikely to be needed.

Due to their large derivatives portfolio, investment banks must deposit large amounts of margin capital in the form of highly liquid collateral at CCPs for their cleared trades. It is also likely that they need additional headcount for the compliance and advisory functions. The latter involves the banks wide range of complex products and services, such as financial advisory and portfolio management, which are directly related to MiFID II requirements regarding investor protection.

The new regulations may tighten the possibility of investment banks to create and sell specialized, tailored OTC contracts.

Commercial banks

Commercial banks focus on retail clients, who receive the highest level of protection under MIFID II. For this client group the most stringent requirements in terms of communication, disclosure and transparency are imposed. Therefore they must revise all client classifications and master agreements, which costs a lot of money and time, but is necessary to avoid selling unsuitable products to clients. To act in their clients' best interest, commercial banks have to be more prudent towards them when providing investment advice, especially with non-professional retail clients.

Many commercial banks have already outsourced the order execution and therefore some of the proposed regulatory changes, such as the shift of organized trading to trading venues, are expected to have limited impact.

Energy companies

The impact for many energy companies will be enormously, in particular, because they have not been exposed to financial services regulation before.

Under REMIT, energy trading companies must be able to monitor possible incidents of insider trading and market manipulation regarding planning, production and logistics.

Regarding EMIR, they have to monitor their derivative positions actively to ensure that they stay below the clearing threshold, or that they are aware when exceeding it.

Subject to EMIR and/or MiFID II, energy companies need to review existing processes like trade valuation, collateral management, confirmations and margining, and if necessary adjusting them.

The biggest challenge for energy companies will be IT. The majority of firms will need to update or even renew their existing IT systems to be able to meet regulatory requirements, in particular for reporting. The latter requires firms to gather, store, disseminate and report all relevant information to authorities.

For both investment and commercial banks, some business might get lost to organised trading venues (e.g. derivatives trading moves to regulated markets, MTFs and OTFs) and to CCPs (e.g. management of risk exposure of derivative transactions). However, additional services can be offered as well, such as collateral management, data collection and clearing services.

Discussion

There are multiple points of discussion regarding the introduction of EMIR, REMIT and MiFID II. The points below are those banks and energy companies worry most about.

Work in progress

Each of the three regulations is still work in progress [ABN AMRO Clearing, 2013]. Definitions are not finalised yet and currently leave too much room for interpretation [Carr, 2012]. Examples are the definition of the term 'inside information' under REMIT and 'financial instrument' under MiFID II. Banks, energy companies and other service providers cannot wait forever with implementing the

regulations. They need to start implementing requirements and adapt solutions for trading, clearing, reporting, risk management and/or investor/market participant protection now [ABN AMRO Clearing, 2013], and by doing that taking the risk of re-work in the case that requirements will be changed.

Alignment of implementation projects

To avoid duplication of efforts when being subject to more than one regulation, implementation projects should be aligned. This is especially important with regard to reporting requirements. In particular among wholesale energy market participants there is a lot of concern about the burdensome consequence of double reporting. They advise regulators to consider joint procedures and reporting formats between REMIT (ACER) and EMIR/MiFID II (ESMA) for required data fields and reporting deadlines. Not aligning regulations is likely to cause an extra burden on market participants and could fragment trading [PwC and Ponton Consulting, 2012].

Regulations' scope

Non-financial companies, such as commodity and energy traders, are forced to comply with provisions designed for financial instruments and institutions [Conforto, 2011], because EMIR captures non-financial companies trading derivatives and MiFID II is extended to commodity derivatives. According to Conforto (2011), some argue that this extension of regulatory scope is disproportionate, in particular the high collateral and capital requirements, when becoming subject to mandatory clearing.

Freedman (2013) states that, regarding the inclusion of energy trading companies, the industry line is that there is no systemic risk in the energy market and therefore energy companies do not require the same extent of regulation as banks. The European Commission objects that the fact that there has never been a crisis does not mean that there is no risk. According to Pierret (2012), there is no consensus on the existence or the importance of systemic risk in the energy market.

New 'too big to fail'

The EMIR obligation to trade standardised OTC derivative contracts through CCPs intends to reduce credit risk through multilateral netting, margins and collateral and a well-defined default management procedure [Finaxium Consulting, 2013]. However, the credit risk of the entire market is then concentrated on a few highly systematically important CCPs. Despite the default waterfall and stringent requirements for CCPs, the question remains what happens if a CCP defaults. One likely scenario is that CCPs become the new 'too big to fail' and that government would intervene in the case of a default.

Table of contents

Preface

This research is completed as graduation requirement for my Master's degree in Industrial Engineering and Management at the University of Twente in Enschede, the Netherlands. It is executed during the period March – August 2013 within Accenture Risk Management in Amsterdam. The research topic is the impact of EMIR, REMIT and MiFID II on banks and energy companies.

My first word of thank goes to Wilgert Opraus, manager at Accenture Risk Management, for helping me determining the scope of my research and for investing time and effort supervising me.

A second word of thank goes to my supervisors from the University of Twente, Henk Kroon and Reinoud Joosten. Before becoming my supervisor, Mr Kroon helped me getting in touch with companies in order to find a graduation internship. Without him this research would not exist. He gave me a lot of trust and flexibility throughout the project. It was very pleasant working with him. I would also like to express my gratitude to Reinoud Joosten for giving me useful feedback regarding style and spelling.

No words can confer adequately how much I thank Don for always cheering me up and for not giving up on me.

Last but not least I thank my parents for supporting me in every decision I have made.

It would be great if this research will somehow be used within Accenture.

Karen Pöttker

Enschede, August 2013

List of tables

List of figures

Abbreviations

ACER	Agency for the Cooperation of Energy Regulators
APA	Approved Publication Arrangement
ARM	Approved Reporting Mechanism
BIC	Bank Identification Codes
BIS	Bank of International Settlements
CB	Commercial Bank
CCP	Central CounterParty
CDS	Credit Default Swap
CRD	Capital Requirements Directive
CTP	Consolidated Tape Provider
EC	European Commission
EIC	Energy Identification Codes
EMIR	European Market Infrastructure Regulation
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ETRM	Energy Trading Risk Management
EU	European Union
FS	Financial Services
FSI	Financial Services Industry
HFT	High Frequency trading
IB	Investment Bank
IRS	Interest Rate Swap
LEI	Legal Entity identifier
LNG	Liquefied Natural Gas
MAD	Market Abuse Directive
MiFID	Markets in Financial Instruments Directive
MiFIR	Markets in Financial Instruments Regulation
MTF	Multilateral Trading Facility
NRA	National Regulatory Authority
OTC	Over-The-Counter derivative instruments
OTF	Organised Trading Facility
REMIT	Regulation on Energy Market Integrity and Transparency
RIS	Regulated Information Services
RM	Regulated Market
RRM	Registered Reporting Mechanism
SEC	Securities Exchange Commission
SI	Systematic Internaliser
SME	Small and Medium Enterprises
TRM	Trading Risk Management
TSO	Transmission System Operator
UCTIS	Undertakings for Collective Investment in Transferable Securities
UPI	Unique Product Identifier

1. Introduction

1.1 Practical problem and its background

Accenture is a global management consulting, technology services and outsourcing company, active in more than 120 countries all over the world. It has many clients, many of them being the world's most successful companies, of all sizes and in different industries. By combining industry knowledge, service expertise, outsourcing experience and technology capabilities across all industries and business functions, the company wants to help their clients becoming high-performance businesses. The focus is on long-term relationships with clients and the creation of sustainable value. Accenture's core values are stewardship, best people, client value creation, one global network, respect for the individual and integrity. Its organizational structure is illustrated in Figure 7. The global operating group is divided into five operating groups, each of them consisting of several industry groups [Accenture, 2013]. This research is conducted within the Risk Management taskforce of the Accenture Management Consulting Financial Services group, as highlighted in the figure below, in the geographic area Gallia (Belgium, France, Luxemburg and The Netherlands).

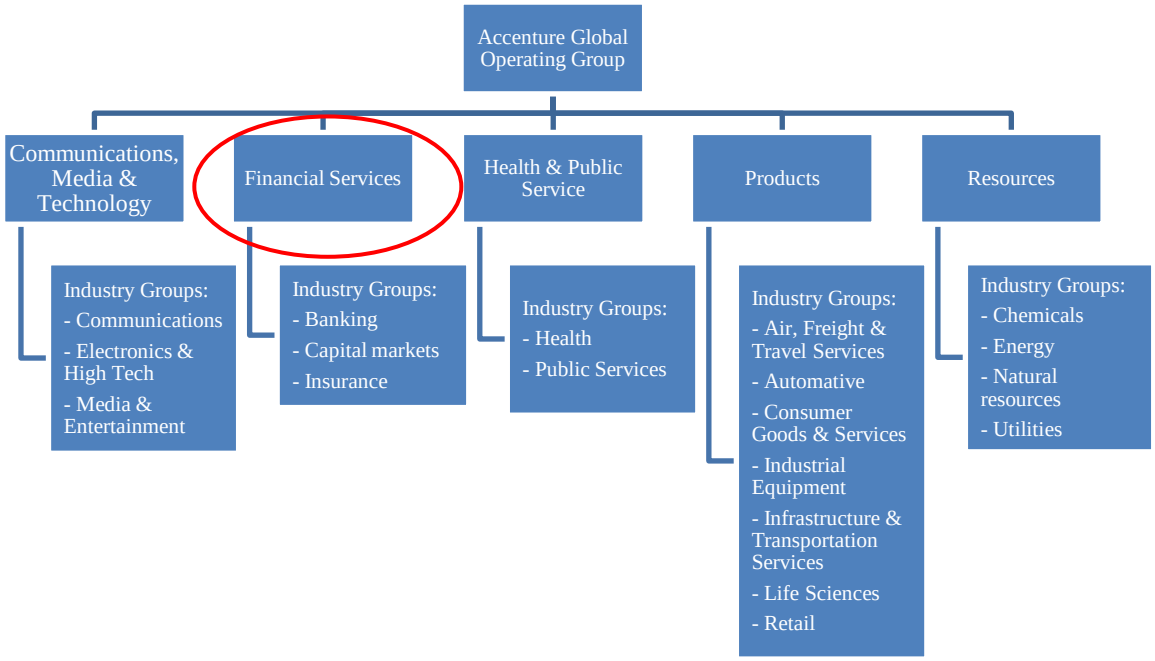


Figure 7: Organizational structure Accenture.

The financial services industry (FSI), in particular the banking sector, has been through tumultuous times recently and is transforming rapidly [Bin et al., 2012]. The financial crisis has exposed weaknesses in the regulation of some financial instruments and markets. According to Duffie et al (2010), many people think that the weaknesses in the infrastructure of derivatives markets did exacerbate the crisis, which brought the derivatives market and especially over-the-counter (OTC) derivatives to the forefront of regulatory attention. International governments and other institutions ask for tighter regulation of these markets.

This need for tighter regulation of the derivatives market and especially OTC derivatives was the starting point of the European Market Infrastructure Regulation (EMIR) regulation. Its goal is to increase the transparency and stability of the financial system in general and in particular the OTC derivatives market. EMIR applies to any firm that trades derivatives, and therefore affects financial institutions, such as investment banks and asset managers, as well as non-financial institutions; especially energy markets participants [Financial Services Authority, 2013].

In order to capture all derivative trades, the European Commission designed a new regulation that takes specific conditions of derivatives trading in the energy sector into account. It is called the Regulation of Energy Market Integrity and Transparency (REMIT) and is intended to foster competition in wholesale energy markets for the benefit of final energy consumers. These markets

provide price signals that affect the choices of consumers and producers, as well as investment decisions. Increased competition should ensure that prices set are fair and no profits can be made from market abuse. This is especially important, because energy markets are interlinked, which means that market abuse in one Member State of the European Union, affects electricity and gas prices across national borders.
Besides harmonizing energy prices across the Member States of the European Union, also financial markets regulations should be harmonised. The Markets in Financial Instruments Directive (MiFID I), established in 2004, should improve the integration, competitiveness, and efficiency of European financial markets. Because developments in financial markets and technology have outpaced various provisions of MiFID I, it is currently being revised [European Union Committee, 2012] and its successor, MiFID II, is in draft. It is meant to establish a safer, sounder, more transparent and responsible European financial system by properly regulating all market and trading structures. In parallel MiFIR (Markets in Financial Instruments Regulation) is being developed with the goal of improving the functioning of the internal market for financial instruments. MiFIR and MiFID II should be read together, because the two legal instruments form one inter-related framework governing the different regulatory requirements.
Companies must undertake their own review of compliance with EMIR, REMIT and MiFID II. This self-identification process creates business opportunity for consulting, and thus for Accenture. In order to continue serving their clients in the best possible way, Accenture must have comprehensive knowledge about the different industries and companies to which the regulations apply, and must have the capabilities to help their clients with regulatory compliance.
Accenture's Risk Management taskforce is responsible for mapping regulatory changes and their impact. This has a technical and a business aspect. The technical aspect considers, for example, portfolio effects on consolidated bases resulting from the new and changing regulations (i.e., capital requirements). However, regulatory changes also affect business in a more strategic way. Therefore the risk management taskforce also has to get insights in how the new and changing financial regulations influence the current strategy and operations of its clients.

1.2 Research design

In this research, the approach of Verschuren and Doorewaard (2007) is used to derive the research model. This approach is to first formulate the research objective(s), then design the research model and finally formulate research questions.

1.2.1 Research objectives

The overall goal of this research is to analyse the impact of EMIR, REMIT and MiFID II on financial and non-financial companies and how Accenture can anticipate for resulting opportunities and challenges for these companies. This research goal is divided in several objectives, which are:

- Translating the EMIR, REMIT and MiFID II regulation into a for Accenture Risk Management practical setting.
- Identifying common subjects across EMIR, REMIT and MiFID II.
- Identifying general impact areas of EMIR, REMIT and MiFID II.
- Identifying characteristics of several selected financial and non-financial companies (e.g., banks and energy companies) within Gallia.
- Identifying company specific impacts, e.g., opportunities and challenges, for each of the selected (non-)financial companies, resulting from EMIR, REMIT and MiFID II with regard to derivatives.
- Identifying Accenture Risk Management assets and capabilities regarding EMIR, REMIT and MiFID II.
- Sharing the obtained knowledge about the regulations, their impact and the resulting opportunities and challenges for Gallian financial and non-financial companies with the Accenture Risk Management taskforce and other stakeholders in a presentable tool. This tool quickly gives insight in the upcoming regulatory changes, highlights specific opportunities and challenges for financial and non-financial companies, and emphasizes why these companies should chose Accenture to help them complying with the regulations. The

presentable tool is a so-called Point of View, which will be discussed later, and a Power Point Presentation.

- Distribute the Point of View to the selected Gallian financial and non-financial companies in order to exploit the identified opportunities and challenges resulting from EMIR, REMIT and MiFID II.

1.2.2 Research framework

In this section the research framework is described. When looking at the research objectives in the previous section, several research phases can be identified. These research phases and connected actions are described below and can be found in Figure 8. The logical structuring of the research phases is presented in Table 6 on page 31.

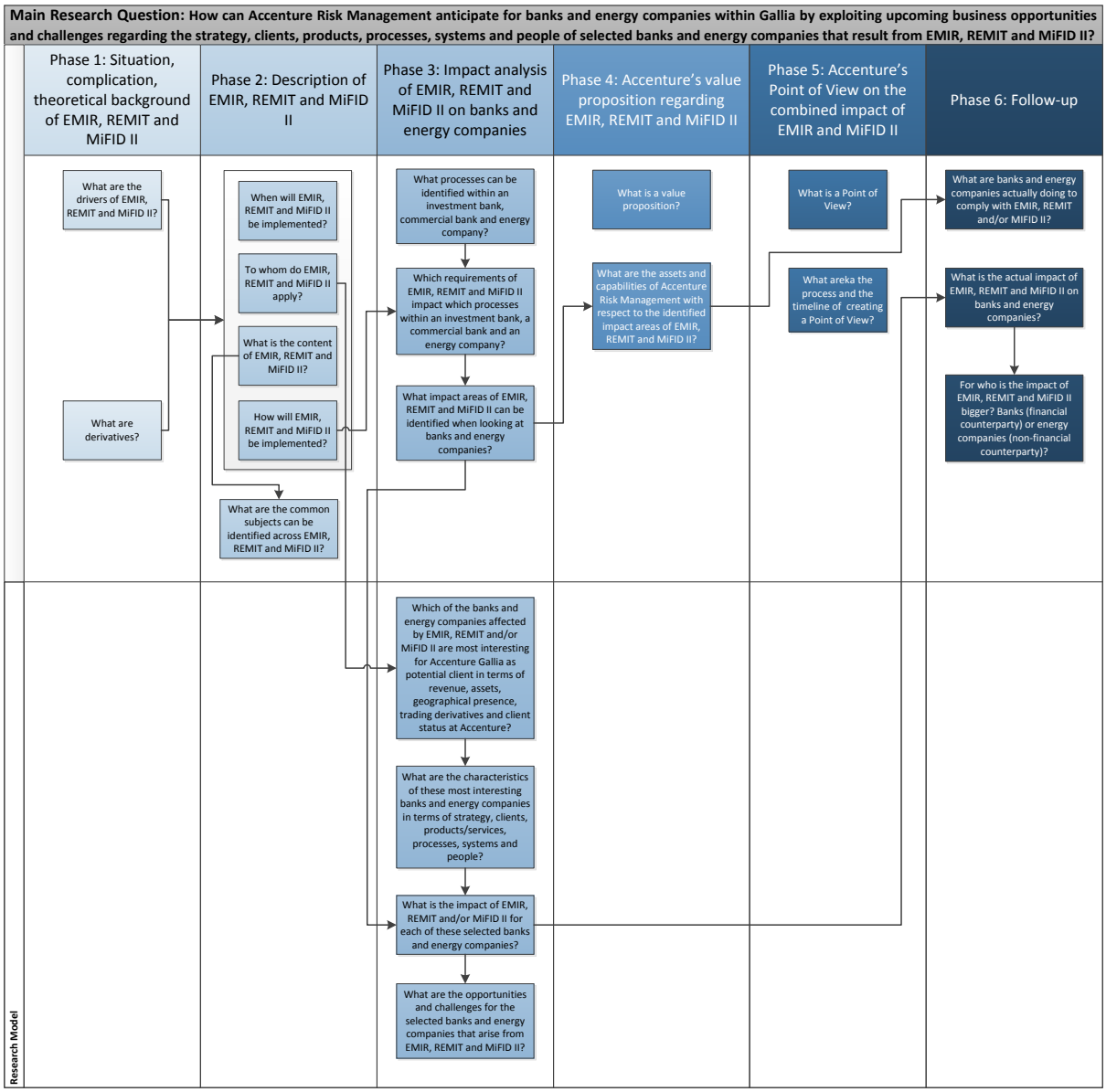


Figure 8: Research model.

Phase 1: Situation, complication and theoretical background of EMIR, REMIT and MiFID II

Before EMIR, REMIT and MiFID II can be translated into a, for Accenture Risk Management practical setting, it is necessary to explain the background of each regulation and theoretical concepts behind it. Therefore a literature research on the drivers of the regulations, derivatives markets,

derivatives instruments and risk types will be done. The output of this research phase – background knowledge on the regulations – is used as input for the second research phase.

Phase 2: Description of EMIR, REMIT and MiFID II

Using the output of the previous research phase, the three regulations are examined. Literature research will be done on these regulations in order to give a detailed description of their implementation timeline, target group, content and requirements. Next to this, common subjects across EMIR, REMIT and MiFID II are identified. In order to avoid duplication of efforts when implementing the regulation(s), it is essential to know whether there are other regulations that share common subjects and what subjects these are.

Phase 3: Analysis of the impact of EMIR, REMIT and/or MiFID II on banks and energy companies

Due to the scope of this research, not all types of companies that will be affected by EMIR, REMIT and/or MiFID II can be analysed. The focus of this research will be on banks and energy companies.
EMIR and MIFID II address the derivatives market, which is predominantly a professional wholesale market with banks being one of the main participants [Deutsche Börse Group, 2008]. However, certain non-financial counterparties in the real economy that trade derivatives are also affected by EMIR and MIFID II. The impact for these non-financials will be enormous, in particular, because they have not been exposed to financial services regulation before [(Sidley, 2012), (PwC and Ponton Consulting, 2012)]. They are being swamped by compliance in terms of workflow and implementation. There is one type of non-financial company that is likely to be affected by both EMIR and MiFID II, as well as by REMIT, namely energy companies. Therefore these companies are added to the research population in addition to banks. Banks have been used to "big compliance" for many years [Smith et a., 2013] and it is interesting to see how banks handle compliance with EMIR and MiFID II compared to how energy companies handle compliance with EMIR, REMIT and/or MiFID II.

Therefore, in the third research phase, the impact of EMIR, REMIT and MiFID II on banks and energy companies is analysed. This is done first for banks and energy companies in general and then specifically for several selected banks and energy companies. The steps of this impact assessment are explained below.

1. In order to illustrate how banks and energy companies are structured, a map of their processes is given. A separate process map is given for investment banks and commercial banks, because their core processes differ significantly.
2. The requirements of EMIR, REMIT and MiFID II, which were identified in the second research phase, are mapped on the process map of an investment bank, a commercial bank and an energy company. This requirement mapping shows which requirements have impact on which specific processes within an investment bank, a commercial banks and an energy trader.
3. For each requirement mapped on a particular process, the expected impact will be given. To provide a better overview, these impacts then are clustered into impact areas.
4. Then six banks and six energy companies are selected, based on net income, total assets, geographical presence, amount of derivatives hold and client status at Accenture (e.g., current client of Accenture, previous client of Accenture, potentially new client for Accenture). The selected banks and energy companies are described in terms of their strategy, clients, products and services, processes, systems and people, with respect to the use of derivatives.
5. For each selected bank and energy company, the specific impact of EMIR, REMIT and/or MiFID II is analysed.
6. Based on Step 5, the opportunities and challenges that result from EMIR, REMIT and MiFID II are identified for each of the selected banks and energy companies.

The (company specific) impact assessment of EMIR, REMIT and MiFID II and the opportunities challenges that result from the regulations are inputs for the following research phase. In order to analyse what role Accenture can play for the selected banks and energy companies in terms of regulatory compliance, the consequences of EMIR, REMIT and MiFID II for each company must be known first. The identified opportunities and challenges of the banks and energy companies might be business opportunities for Accenture.

Phase 4: Accenture's value proposition regarding EMIR, REMIT and MiFID II

In order to analyse how Accenture can anticipate for business opportunities and challenges resulting from EMIR, REMIT and MiFID II, it is necessary to first identify Accenture's value proposition regarding the regulations and their impact areas (identified in research phase three). A value proposition is an aggregate bundle of a company's services and capabilities that create value for a specific customer segment by solving a customer problem or satisfying a customer need [Osterwalder and Pigneur, 2010]. To illustrate the services and capabilities of Accenture's Risk Management taskforce, some examples of projects regarding derivatives regulation are given, also called credentials. In this research phase, information will be generated by literature and internet research as well as by expert interviews.

Phase 5: Accenture's Point of View on the combined impact of EMIR and MiFID II

The output of both research phases three and four are used as input for research phase five. In this research phase, Accenture's Point of View (PoV) on the (combined) impact of EMIR and MiFID II on financial and non-financial companies that are subject to the regulations is provided.[7] This PoV can be seen as a presentable tool for a client, which quickly gives insight in the upcoming regulatory changes and highlights specific challenges and opportunities for banks and energy companies that are affected by EMIR and MiFID II. It should emphasize that they are required to comply when subject to EMIR and/or MiFID II and that doing nothing is no option. Next to this, the PoV should illustrate why financial and non-financial companies should choose Accenture as a qualified partner to help them achieve regulatory compliance. The intention is to send the PoV to several financial and non-financial companies by e-mail. Before this can be done, it must be determined to whom the PoV should be sent, and the contact data of these companies must be figured out. In addition to the PoV, a Power Point Presentation that contains a summary of the impact assessment of this research is delivered to Accenture.

Phase 6: Follow-up

After having sent the PoV, follow-up calls must be done with the goal of planning meetings with the company that respond positively to the PoV in order to discuss possible collaboration in the field of regulatory compliance. The information provided in the PoV can be used as a starting point for discussing potential projects.

During these meetings, Accenture need to determine what the company wants regarding EMIR, REMIT and/or MiFID II, what it already has been done to comply with the regulation(s), and what it is planning to do the coming years. The outcome of this phase cannot be foreseen and depends heavily on how the different companies respond to the PoV. The time scope of this research is only six months. Therefore the follow-up research phase does not fit within the scope of this research; further research will be needed (see Section 9.3).

1.2.3 Research questions

The research model with the different research phases (Figure 8) is used to identify research questions. The main question covers the entire research model and is supported by sub questions for each part of the model.

The main research question is:

> How can Accenture Risk Management anticipate for banks and energy companies within Gallia by exploiting upcoming business opportunities and challenges regarding the strategy, clients, products, processes, systems and people of selected companies that result from EMIR, REMIT and MiFID II?

[7] Originally, the target group of the Point of View was financial institutions. Therefore it only addresses EMIR and MiFID II, and excludes REMIT.

Research phase 1: Situation, complication and theoretical clarification of EMIR, REMIT and MiFID II

(1) What are the drivers of EMIR, REMIT and MiFID II?
(2) What are derivatives?
    a. What derivatives markets are there?
    b. What different derivative types are there?
    c. What are the different types of underlying assets?
    d. What risks arise from derivatives?

Research phase 2: Description of EMIR, REMIT and MIFID II

(3) What is EMIR/REMIT/MiFID II?
    a. When will the regulation be implemented?
    b. To whom does the regulation apply?
    c. What is the content of the regulation?
    d. How will the regulation be implemented?
(4) What common subjects can be identified across EMIR, REMIT and MiFID II?

Research phase 3: Analysis of the impact of EMIR, REMIT and MIFID II on banks and energy companies

(5) What processes can be identified within a bank (investment bank and commercial bank) and an energy company?
(6) Which requirements of EMIR, REMIT and MiFID II impact which processes within an investment bank, a commercial bank and an energy company, and what is the impact?
(7) What impact areas can be identified when looking at the impact of EMIR, REMIT and MiFID II on banks and energy companies?
(8) Which of the banks and energy companies affected by EMIR, REMIT and/or MiFID II are most interesting potential clients for the Gallian Accenture Risk Management taskforce in terms of revenue, assets, geographical presence, amount of trading derivatives and client status at Accenture?
(9) What are the characteristics of the selected banks and energy companies in terms of strategy, clients, products/services, processes, systems and people?
(10) What is the impact of EMIR, REMIT and/or MiFID II on each of the selected banks and energy companies?
(11) What are the opportunities and challenges for the selected banks and energy companies that arise from EMIR, REMIT and MIFID II?

Research phase 4: Value proposition of Accenture Risk Management in terms of the impact areas of EMIR, REMIT and MiFID II

(12) What is a value proposition?
(13) What are the assets and capabilities of Accenture Risk Management with respect to the impact of EMIR, REMIT and MiFID II on banks and energy companies and the opportunities and challenges resulting from the regulations?

Research phase 5: Accenture's Point of View on the combined impact of EMIR and MiFID II on financial and non-financial companies

(14) What is a Point of View?
(15) What are the process and the timeline of creating a Point of View?
(16) What is Accenture's Point of View on the combined impact of EMIR and MiFID II on financial and non-financial companies that are subject to the regulations?

1.3 Activities and planning

The activities, that are necessary to finish this research and come to valuable results for both Accenture and the University of Twente, are shown in Appendix A. They are derived from the research model (see Figure 8). The governance of this research can also be found there.

1.4 Deliverables

The results of this research will be used as material within Accenture Risk Management to gain more insight in the impact of EMIR, REMIT and MiFID II on banks and energy companies and the opportunities and challenges that result from the regulation. The Point of View will be shared with other stakeholders, such as clients, for acquisition purposes.
The deliverables are:

- An overview of the implementation timeline, target group and content of EMIR, REMIT and MiFID II.
- A list of the requirements of EMIR, REMIT and MiFID II, which is the result of translating the technical regulatory requirements into a comprehensive understandable overview.
- A list of banks and energy companies within the Gallia region, that are (likely to be) subject to EMIR, REMIT and/or MiFID II and are interesting potential clients for Accenture Risk Management in terms of revenue, total assets, amount of derivatives, geographical presence and client status at Accenture.
- An overview of characteristics of the selected banks and energy companies, regarding the company's strategy, clients, products and services, processes, systems and people.
- An overview of the general impact of EMIR, REMIT and MIFID II on banks and energy companies in the form of mapped requirements on process maps of an investment bank, a commercial bank and an energy company.
- An overview of the specific impact of EMIR, REMIT and MiFID II on the selected banks and energy companies.
- An overview of specific opportunities and challenges for each selected bank and energy company, following from the requirements introduced by EMIR, REMIT and MiFID II and their impact.
- An Accenture Point of View on the combined impact of EMIR and MiFID II for financial and non-financial companies that are subject to the regulations.

1.5 Outline of thesis

Table 6 shows the outline of this research and the belonging research phase and research questions for each section.

Section	Research objective	Research phase	Research questions
1. Intro	-	-	-
2. Theoretical framework	Translating the EMIR, REMIT and MiFID II regulation into a for Accenture Risk Management practical setting.	1	1, 2
3. Description of EMIR, REMIT and MiFID II	" Identifying common subjects across EMIR, REMIT and MiFID II.	2	3, 4
4. General impact assessment EMIR, REMIT and MIFID II	Identifying general impact areas of EMIR, REMIT and MiFID II.	3	5, 6, 7
5. Characteristics of selected banks and energy companies	Identifying characteristics of several selected financial and non-financial companies (e.g., banks and energy companies) within Gallia.	3	8, 9
6. Company specific impact assessment of EMIR, REMIT and MiFID II	Identifying company specific impacts, e.g., opportunities and challenges, for each of the selected (non-)financial companies, resulting from EMIR, REMIT and MiFID II with regard to derivatives.	3	10, 11
7. Accenture's value	Identifying Accenture Risk Management	4	12, 13

proposition for EMIR, REMIT and MiFID II	assets and capabilities regarding EMIR, REMIT and MiFID II.		
8. Accenture Point of View about the combined impact of EMIR and MiFID II	Sharing the obtained knowledge about the regulations, their impact and the resulting opportunities and challenges for Gallian financial and non-financial companies with the Accenture Risk Management taskforce and other stakeholders in a presentable tool.	5, 6	14, 15, 16
9. Discussion, conclusion and limitations	Overall goal: Analyse the impact of EMIR, REMIT and MiFID II on financial and non-financial companies and how Accenture can anticipate for resulting opportunities and challenges for these companies.	All	Central research question

Table 6: Outline of the research.

2. Theoretical framework

This chapter is structured around the theoretical background needed to understand the EMIR, REMIT and MiFID II regulations and their impact fully.
First the drivers of EMIR, REMIT and MiFID II will be discussed to show which factors led to the implementation of the regulations. Because derivatives are a financial instrument that all three regulations address, it is explained what derivatives are, on which markets they are traded, what different types of derivatives exist and what types of underlying assets. Then the risks arising from derivatives trading will be described.

2.1 Drivers of the derivatives regulation

1. What are the drivers of EMIR, REMIT and MiFID II?

Since the financial crisis in 2008, financial market infrastructure has become one of the priorities of the European Union, which is addressed by EMIR. The drivers for EMIR are [(European Commission, 2013), (European Commission, 2010)]:

- The **financial crisis and the impact of single failures** made clear that the risks of OTC markets were not sufficiently mitigated and more stability of these markets is needed.
- **Need for transparency** in financial markets, especially OTC markets. The non-transparency of the financial market was a risk to financial stability and caused lack of clarity among regulators and policy makers about the market situation.
- **Increasing complexity of products** brought to investors. Investors traded highly structured products without any or incomplete information about it (Hull, 2012). The little information that was available was usually only known by the contracting parties. This created a complex web of interdependences, making the identification of the nature and level of risk of these complex products very difficult.

The drivers for REMIT, which targets the wholesale energy market, are [Accenture Research, 2012]:

- **Need for transparency and avoidance of market abuse.** The integrity and transparency of wholesale energy markets must be increased, which should benefit end users of energy. These markets need a price setting mechanisms that reflects a fair and competitive interplay between supply and demand, so that no profits can be made from market abuse.
- **No sector specific directions.** Other energy regulations do not take into account sector-specific conditions, which are essential for the completion of a fully functioning, interconnected, and integrated energy market.
- **Harmonisation across European countries and markets.** To date, energy monitoring practices are done by member states by different authorities, which may result in lack of clarity. For example, the definition of insider trading and market manipulation should be compatible between derivatives and commodity markets in different European countries.

The drivers of MiFID II are [European Commission, 2011]:

- **Lack of level playing field between markets and participants.** The structure of financial markets across Europe changed significantly the last years, among others due to technological developments, such as the growth of automated trading. The latter represents a significant proportion of equity trading in the EU (13 to 40 per cent) and in the United States (US) (70 per cent) [TABB Group, 2009]**.**
  The changed trading and market structures stimulated competition between market participants, but distorted it at the same time. Reasons for the distortion are the fragmentation of trading venues, the lack of coordination between different venues and inconsistency of regulatory requirements across different requirements. Therefore MiFID II introduces the obligation to move the trading of standardised OTC derivatives to exchanges or electronic trading platforms.
- **Difficulties for smaller and medium sized enterprises (SMEs) to access financial markets.** Currently it is difficult for SMEs to assess financial markets and thus capital. Therefore MiFID II introduces a new category of trading facility for SME issuers.

- **Lack of sufficient transparency for market participants.** The lack of uniform requirements regarding transparency becomes clear when looking at the percentage of dark trading.[8] For example in Europe, dark trading accounted for about 10.3 per cent of all equities trading in 2013 [Puaar, 2013]. Investors should be provided with access to market information (such as trading activity) in order to identify a more accurate market price by, for example, comparing prices across different trading venues. This should also help firms providing best execution to their clients. When setting up the new transparency requirements, the interest of the wider market and the interest of individual parties are balanced by allowing for waivers from transparency in certain circumstances. For example, the 'large in scale' waiver[9] is essential in striking the right balance between market transparency and protecting legitimate interests of market participants who are essential contributors to the liquidity of markets. Currently transparency requirements only apply to equity instruments admitted to trading on a regulated market. MiFID II extends the transparency regime to non-equity instruments, MTFs and other organised trading facilities.
- **Deficiencies in terms of investor protection**. Under MiFID I, there was uncertainty around execution only services[10] and around the classification of clients (retail, professional and eligible) and services (complex or non-complex). The level of investor protection depends on this classification. Under MiFID II, the scope of services related to non-complex financial instruments that are excluded from the requirements is narrowed in order to increase investor protection for non-advised services.
- **Shortcomings in the organisation processes and risk controls of investment firms.** The financial crisis has shown that the management involvement and the role of internal control functions are not always strong enough [European Commission, 2010]. MiFID defines requirements regarding the management of investment firms, the organization and the establishment and operation of internal control functions, such as a compliance function, risk a management function and an internal audit function.

A detailed description of EMIR, REMIT and MiFID II is given in Section 3.

2.2 Derivatives

2. What are derivatives?

Derivatives are financial contracts between a buyer and a seller entered into today, regarding a transaction to be fulfilled at a future point in time. The contract's value derives from the future value of the underlyer to which it refers [(European Commission, 2012), (Dodd, 2002), (Luenberger, 2009)]. For example, a stock option is a derivative, whose value depends on the price of a stock [Hull, 2010]. Derivatives come in many varieties and can be differentiated by their product type, by their underlying asset and by how they are traded. The markets, on which derivatives are traded, the different product types and underlying assets of derivatives will be described in the next subsections.

2.2.1 Derivative markets

2a. What derivatives markets are there?

The markets to trade derivatives are the exchange-traded derivatives (ETD) markets and over-the-counter (OTC) markets [Hull, 2010]. The different forms of market organisation for derivatives can also be found in Appendix B.

8 Dark trading means trading that takes place outside regulated venues between financial institutions or via broker crossing networks.

[9] The large in scale waiver was designed to accommodate the need of wholesale market participants to execute large orders without having a too large price impact.

[10] Execution only services consist of the execution and/or the reception ad transmission of client orders.

2.2.1.1 *Exchange-traded derivative markets*

Exchanges have been used to trade financial products for many years. In exchange-traded derivative (ETD) markets, individual's trade fully standardized contracts that have been defined by the exchange [(Deutsche Börse Group, 2008), (Hull, 2012)]. By defining standardized contracts, the exchange can organize the trading in a way that market participants can be sure that the trades they agree to will be honoured. Exchanges have organized themselves so that credit risk is almost completely eliminated, by introducing an intermediary to all related transactions. This intermediary is called a central counterparty [Hull, 2010], or central clearing house (see Figure 9; Source: TABB Group).

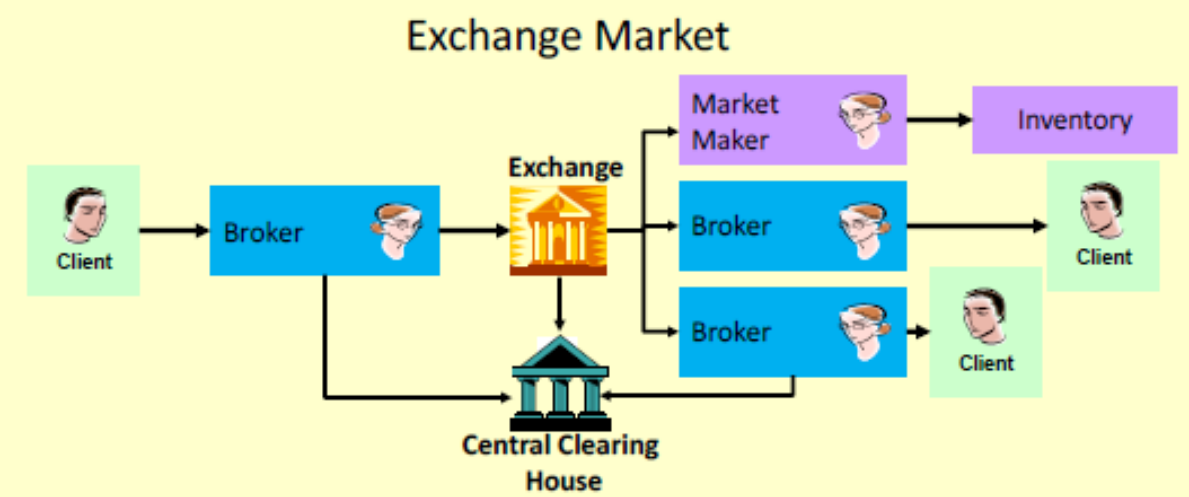


Figure 9: The exchange-based market.

The figure above illustrates how trades are executed in an exchange-based market. The prices in such a market are firm, compared to the indicative prices in the OTC market (see Section 2.2.1.2). Another difference is that in an exchange-based market finding a buyer is relatively easy, because there is abundant supply of active buyers and sellers for each product [Healey, 2012].

The central clearing house (see Figure 9) is, as already mentioned, called central counterparty (CCP). A CCP is "an entity that legally interposes itself between the counterparties to the contracts traded within one or more financial markets, becoming the buyer to every seller and the seller to every buyer and which is responsible for the operation of a clearing system" [European Commission, 2010, p. 21]. Clearing is "the process of establishing settlement positions, including the calculation of net positions, and the process of checking that financial instruments, cash or both are available to secure the exposures arising from a transaction" [European Commission, 2010, p.22].

In a centralised clearing process, all trades are reassigned to a CCP. It intermediates between buyer and seller and uses margins from both sides as a guarantee in order to mitigate credit exposure. These margins depend on the volatility of the underlying asset. A volatile underlyer, for example, requires a higher margin, since the probability of unsecured credit exposure is greater [Banks, 2003]. Mitigating credit exposure means reducing counterparty credit risk and thus insulating counterparties from each other's default and from the CCP's own default. To actually mitigate counterparty risk, the CCP must be credit-worthy [Duffie and Zhu, 2011] so that it can always fulfil its obligations [(Deutsche Börse Group, 2008), (European Commission, 2012), (Bank for International Settlements, 2009), (European Commission, 2010)].

2.2.1.2 *OTC derivatives markets*

The exchange-based trading just described has been facing increasing competition from the over-the-counter (OTC) market [(Kroszner, 1999), (Stulz, 2004)], that will be discussed below.

An OTC contract is defined as a contract "whose execution does not take place on a regulated market" [European Commission, 2010, p.22]. OTC contracts are traded privately between two parties, without the involvement of any intermediary (see Figure 10; Source: TABB Group). Non-standardised products, such as swaps and exotic derivatives, are often traded OTC. The contract terms of an OTC contract do not have to be those specified by an exchange [(Hull, 2012), (Hull, 2010)]. Compared to ETDs, OTC derivative contracts are mostly customised [Deutsche Börse Group, 2008] because market

participants are free to negotiate. A derivative contract can be based on almost everything, as long as there are two parties which are willing to trade risks and do agree on a price.

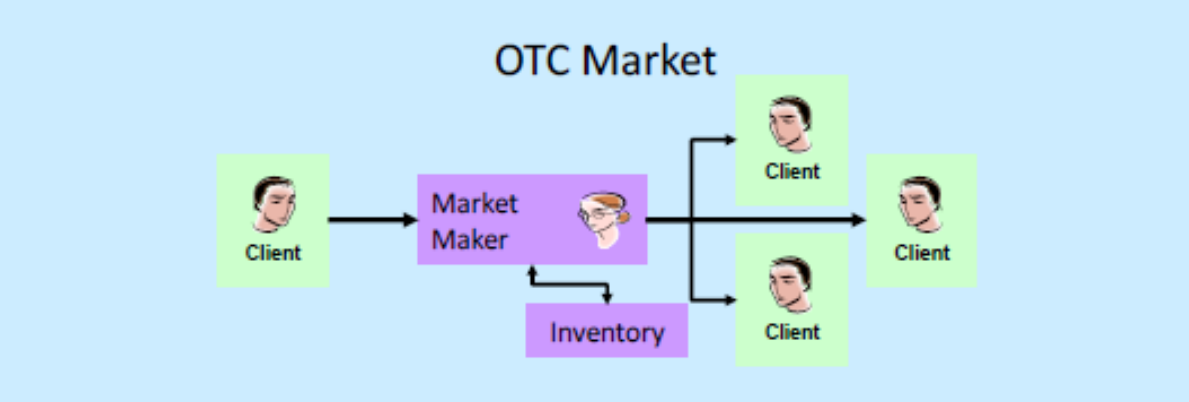


Figure 10: The over-the-counter market.

As can be seen in Figure 10, an investor contacts the market maker (dealer) when he wants to trade. The dealer then provides a tailored indicative price quote that the investor can either accept or reject. This indicative price is not a price that can be dealt against, it is only an indication. Multiple factors are used to determine the price of such a product and additional factors can impact the pricing of a trade, e.g., the market makers position, size of the trade and settlement risk. To bridge the time between products from one client and selling it to another, market maker's hold inventory [Healey, 2012].

Compared to the exchange-based market, the OTC market is much larger [Hull, 2012], as can be seen in Figure 11 [The Economist Newspaper, 2009], although the two markets are not exactly comparable.

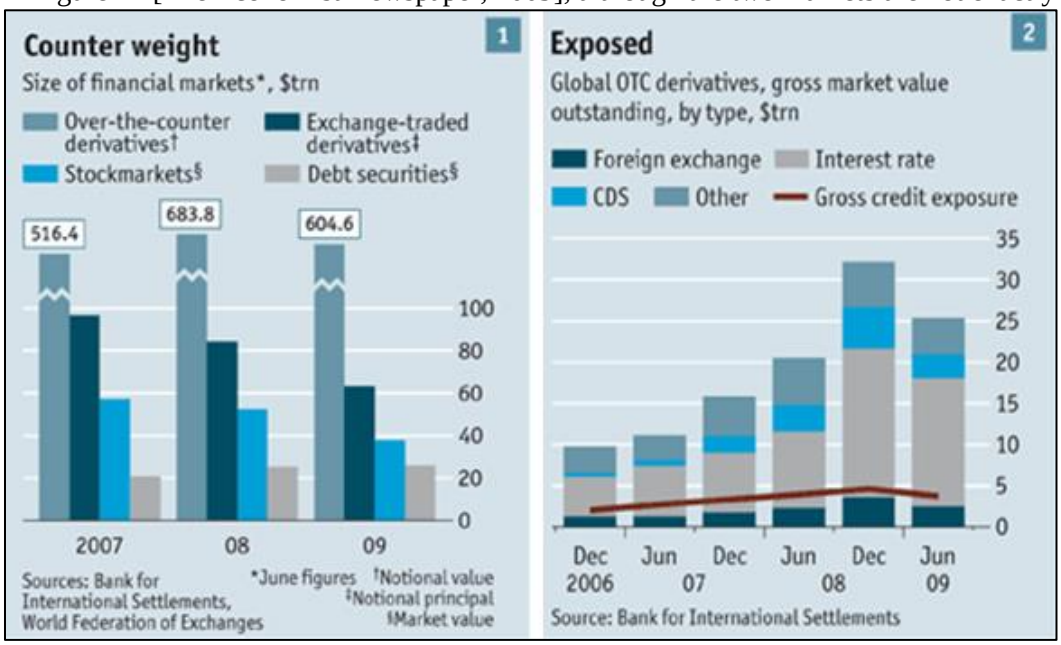


Figure 11: OTC market dwarfs exchange trading.

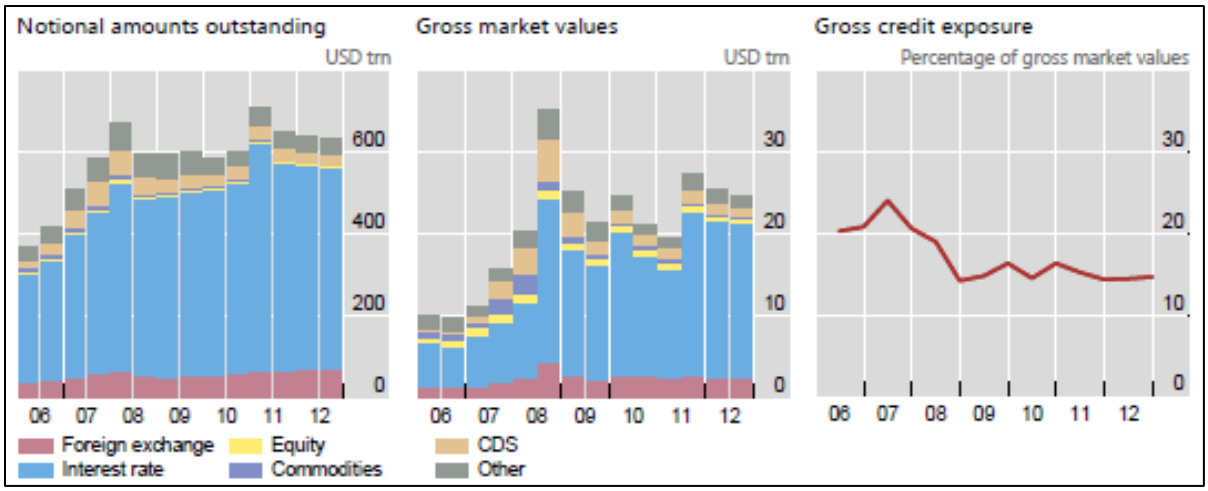


Figure 12: Notional amounts outstanding, gross market values and gross credit exposure of global OTC derivatives market.

The figures above illustrate the enormous size of the OTC market. The Bank for International Settlements estimates the notional 'value' of the OTC market in 2009 at $604.6 trillion and at end-December 2012 already at $633 trillion [Bank for International Settlements, 2013]. Notional values are the gross notional values of all contracts concluded and not settled yet on the time of reporting. These values do provide a measure of market size, but are also quite misleading, because the amounts are generally not those truly at risk. This means that the principal underlying an OTC transaction is not the same as its value [Bank for International Settlements, 2013]. An example to illustrate this is an OTC contract that agrees to buy €10 million with US dollars at a predetermined exchange rate in 1 year. The total principal amount underlying this transaction is €10 million. However, the value of the contract might be only €1 million. The gross market value of a contract provides a more accurate and realistic measure of the scale of financial risk transfer. It is the cost of replacing all open contracts at the market prices prevailing on the reporting date [Bank for International Settlements, 2013].
These huge amounts demand caution and highlight the importance of regulating this, so far largely unregulated, market with respect to disclosure and information between parties. Regulators are especially concerned about the credit risk that is usually involved in OTC transactions (see Subsection 2.4.2) [(Hull, 2012), (Hull, 2010)]. In the attempt to reduce the credit risk, credit rating agencies play an important monitoring role, but, compared to CCPs, they neither provide guarantee nor have any financial stake in the transactions [Kroszner, 1999]. That is why OTC traders must enhance their own credibility to compete with other agents [(Darby & Karni, 1973), (Klein, 1997), (Kroszner & Rajan, 1997)].

2.2.2 Type of derivative

2b. What different derivative types are there?

In this subsection, the main product types will be discussed, namely forwards and futures, options, swaps and non-traditional derivatives. They differ in terms of their dependence on the price of the underlying [Deutsche Börse Group, 2008].

2.2.2.1 Forwards and futures

A forward contract is an obligation to buy or sell a specified quantity of some underlying asset at a specified future time (delivery date) for a fixed price (exercise price or forward price). The buyer has a long position and the seller has a short position [Hull, 2010), (Luenberger, 2009)]. The payments are related to the difference between the agreed price and the prevailing market price at the time of settlement. The buyer will receive (or pay to) the seller the difference between the futures price on the delivery date and the previous day, whenever this price change is positive (negative) [Ramaswamy & Sundaresan, 1985]. If held until the delivery day, the contract must be exercised [Jarrow & Oldfield,

1981]. In general, forward contracts are not traded on organised exchanges and their contractual terms are not standardised [Bank for International Settlements, 2013].
An example of a forward contract is the following. A heating oil distribution company, A, plans to deliver one million gallons of heating oil to its retail customers next January. The company worries about high heating-oil prices next winter and wants to lock in the cost of buying its supply. Another company, B, is in the opposite position. It wants to buy heating-oil next winter, but does not know what the oil can be sold for. The two firms strike a deal: A agrees in September to buy 1 million gallons from company B at $1.50 per gallon, to be paid on delivery in January. B agrees to sell and deliver one million gallons to A in January at $1.50 per gallon [Brealey et al., 2008].
Like a forward contract, a futures contract is an agreement between two parties to buy or sell an asset at a certain time in the future for a certain price. Unlike forwards, future contracts make interim payments during its life. This means that the contract price of futures is rewritten every day, compared to a forward where it stays fixed for the life of the contract [(Black, 1976), (Jarrow & Oldfield, 1981)]. The distinction between futures and forwards is not the contract itself, but the way it is traded.

2.2.2.2 Options

An option is the right, but not the obligation, to buy from (call option) or sell to (put option) the issuer of the option (option writer) a financial instrument (the underlying) at a specified date (expiration date or maturity) for a specified price (exercise or strike price) [Bank for International Settlements, 2013] [Ramaswamy & Sundaresan, 1985]. European options can be exercised only on the expiration date itself. American options can be exercised at any time up to the expiration date [(Hull, 2012), (Brealey et al., 2008), (Luenberger, 2009)].
What distinguishes options from forwards (and futures) is that they give the holder the right to exercise the option, but the holder is not obliged to do so. That is why there are costs associated with entering an option, which is not the case with a forward (or future) contract. The buyer of an option pays a premium (option price) for the commitment of the option writer to sell or to buy the specified amount of the underlying instrument [Hull, 2012]. Furthermore, options are tradable OTC.

2.2.2.3 Swaps

What is special about swaps is that they are often tailored for a specific situation. A swap is a contractual agreement between two parties to exchange cash flows in the future [Luenberger, 2009] for the mutual benefit of the exchangers with the purpose of for example changing the maturity (bonds) or the quality of issues (stocks or bonds) [(Investopedia, 2013), (Smith et al., 1992)]. The agreement defines the dates when the cash flows are to be paid and the way in which they are to be calculated. This calculation of cash flow usually involves the future value of an interest rate, exchange rate, or some other market variable [Hull, 2012]. Common types of swaps are interest rate swaps (IRS) and foreign exchange swaps.

2.2.2.4 Non-traditional derivatives

In this research not only financial counterparties trading OTC derivatives are analysed, but also non-financial counterparties with large derivative positions. The latter often trade non-traditional derivatives such as oil, natural gas and electricity derivatives.
Oil derivatives. Crude oil is one of the most important commodities in the world, with global demand amounting to about 80 million barrels a day. Since many years, oil derivative contracts are common products in the OTC market. A typical oil derivative is s swap, where oil at a fixed price is exchanged for oil at a floating price [Hull, 2010].
Natural Gas derivatives. The natural gas industry has been going through a period of deregulation and the elimination of government monopolies. Before, the supplier of natural gas was often also the producer of the gas. This is changed now and suppliers face the problem of meeting daily demand of customers throughout the world. A typical natural gas OTC derivative contract is a contract for delivering a specified amount of natural gas at a uniform rate over a one-month period [Hull, 2010]..
Electricity derivatives. What makes electricity an unusual commodity is that it cannot be stored. The electricity sector also is been deregulated and privatized last years, which resulted in the development of an electricity derivatives market. A typical electricity derivatives contract allows one party to

receive a specified number of megawatt-hours for a specified price, at a specified location, and for a particular period [Hull, 2010].

2.2.3 Types of underlying assets

2c. What are the different types of underlying assets?

Now that the derivative types and the way they are traded are described, the different types of underlying assets can be explained, which reflect the purpose of the derivative. Underlyer's can be financial instruments themselves, physical assets, or any measurable risk factor. The Bank of International Settlement distinguishes the following types of underlying assets: interest rate (fixed-income), foreign exchange, credit, equity-linked and commodity derivatives.
Figure 13 and 8 [Bank for International Settlements, 2013] show the relative notional amounts outstanding and the gross market values in each of the major underlying asset classes, respectively.

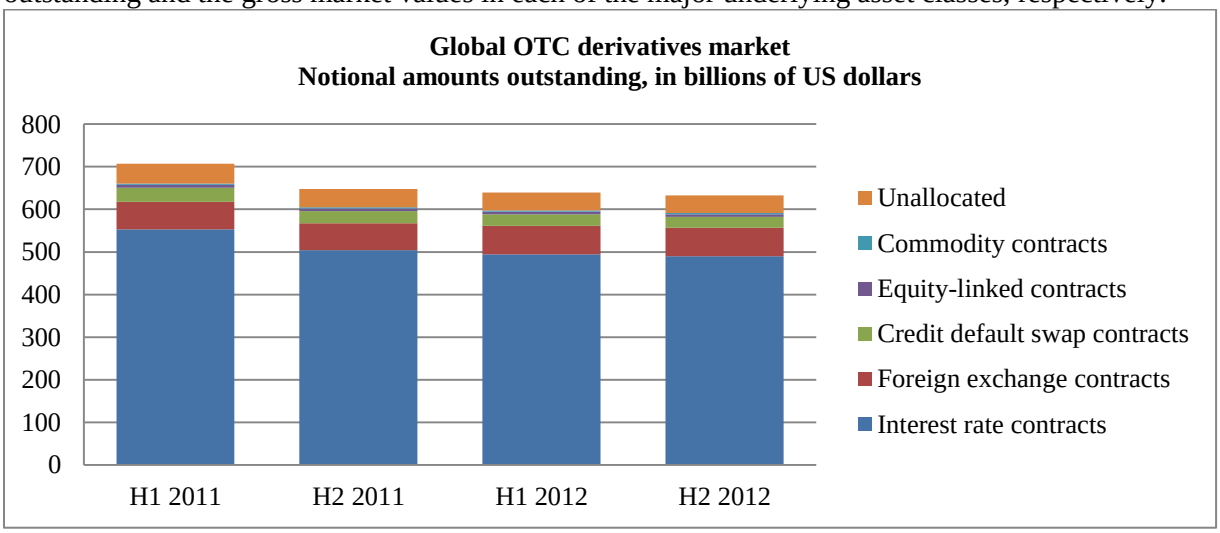


Figure 13: Notional amounts outstanding, in billions of US dollars.

Of the total notional amount outstanding ($633 trillion) at end-2012, 77.4 per cent are interest rate contracts, 10.6 per cent are foreign exchange contracts, 4 per cent are credit default swaps (CDS), 1 per cent are equity-linked contracts, 0.4 per cent are commodity contracts, and 6.6 per cent are other [Bank for International Settlements, 2013].

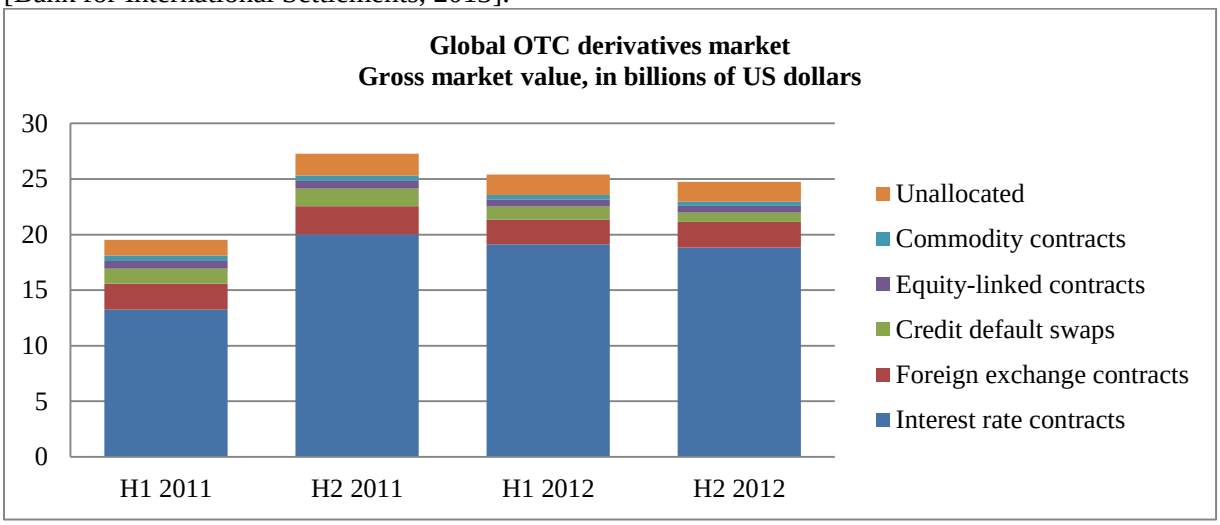


Figure 14: Gross market value, in billions of US dollars.

Of the total gross market value ($24.7 trillion) at end-2012, 76.1 per cent are interest rate contracts, 9.3 per cent are foreign exchange contracts, 3.4 per cent are CDS, 2.4 per cent are equity-linked contracts, 1.4 per cent are commodity contracts, and 7.2 per cent are other [Bank for International Settlements, 2013].

2.2.3.1 Interest rate derivatives

Interest rate derivative contracts are contracts that are related to an interest-bearing financial instrument whose cash flows are determined by referencing interest rates or another interest rate contract (e.g., an option on a futures contract to purchase a Treasury bill). Banks use this type of derivative contracts to hedge interest fluctuations and to hedge large amounts of fixed rate deposits and mortgages.

Interest rate contracts include IRS, forward rate agreements and interest rate options, such as caps, floors, swaptions and bond options. Contracts involving the exchange of one or more foreign currencies (e.g., cross-currency swaps and currency options) and other contracts involving foreign exchange risk (e.g., foreign exchange contracts) are excluded from the interest rate derivative category [Bank for International Settlements, 2011].

The following table [Bank for International Settlements, 2013] gives more detailed information of the notional amount outstanding and gross market value of the global OTC derivatives market (see Figure 13 and 8) with respect to interest rate contracts.

	Notional amounts outstanding		Gross market values	
	H1 2012	H2 2012	H1 2012	H2 2012
Total	**639,4**	**632,6**	**25,4**	**24,7**
Interest rate contacts	***494,4***	***489,7***	***19,1***	***18,8***
FRAs	64,7	71,4	51,0	0,0
Swaps	379,4	370,0	17,2	17,1
Options	50,3	48,4	1,8	1,7

Table 7: Notional amounts outstanding and gross market value of interest rate contracts.

Interest rate derivatives are the largest segment of the OTC derivatives market, with a total notional amount of $489.7 trillion and a gross market value of $18.8 trillion at end-2012. The notional amounts outstanding are 75 per cent swaps ($370 trillion), 15 per cent forward rate agreements ($71 trillion) and 10 per cent options ($48 trillion). The total gross market value consists of 91 per cent swaps ($17 trillion), 9 per cent options ($1,7 trillion) and 0,2 per cent forward rate agreements ($47 billion) [Bank for International Settlements, 2013].

The overall figure was more or less unchanged for the first and second half-year of 2012, but there were offset movements. The notional amount of interest rate swaps declined from $380 trillion at end-June 2012 to $370 trillion at end-December 2012, partly due to the compression of trades through CCPs. This decrease was offset by an increase in the notional amount outstanding of FRAs from $65 trillion at end-June 2012 to $71 trillion at end-December 2012 [Bank for International Settlements, 2013].

	Notional amounts outstanding		Gross market values	
	H1 2012	H2 2012	H1 2012	H2 2012
Total	**639,4**	**632,6**	**25,4**	**24,7**
Interest rate contracts	***494,4***	***489,7***	***19,1***	***18,8***
With reporting dealers	139,1	116,9	6,6	6,0
With other financial institutions	316,9	338,1	11,5	11,7
With non-financial customers	38,4	34,7	1,1	1,1

Table 8: Notional amounts outstanding and gross market value of interest rate contracts with different counterparties.

Contracts between reporting dealers decreased by 16 per cent; from $139 trillion to $117 trillion. Those with other financial institutions increased with almost 7 per cent. The number of contracts with non-financial customers is constant in 2012 [Bank for International Settlements, 2013].

2.2.3.2 *Foreign-exchange derivatives contracts*

Foreign-exchange derivative contracts include all deals involving the exchange of currencies in the forward market, which implies the involvement of exposure to more than one currency. This definition covers outright forwards, foreign exchange swaps, currency swaps and currency options.

Foreign exchange contract data is broken down based on a single-currency. This means that the notional amount outstanding and the gross market value of each contract will be reported twice, according to the two currencies of the contract. The total of the amounts reported for individual currencies will thus add up to 200% of total amounts outstanding. For example, a reporting institution entering into a forward contract to purchase Euro in exchange for US dollars with a notional principal amount of €100 million would report €100 million in the Euro column, another €100 million in the US dollar column, and $100 million in the "Total" column [Bank for International Settlements, 2011].

The following table [Bank for International Settlements, 2013] gives more detailed information of the notional amount outstanding and gross market value of the global OTC derivatives market (see Figure 13 and 8) with respect to forward-exchange contracts.

	Notional amounts		Gross market	
	H1 2012	H2 2012	H1 2012	H2 2012
Total	**639,4**	**632,6**	**25,4**	**24,7**
Forward-exchange contacts	***66,645***	***67,358***	***2,217***	***2,304***
Outright forwards and forex swaps	31,395	31,718	771	0,803
Currency swaps	24,156	25,42	1,184	1,247
Options	11,094	10,22	262	0,254

Table 9: Notional amounts outstanding and gross market value of forward-exchange contracts.

Forward exchange contracts are the second largest segment of the OTC derivatives market, with a total notional amount of $67 trillion and a gross market value of $2.3 trillion at end-2012. The notional amounts outstanding are 47 per cent outright forwards and forex swaps ($32 trillion), 38 per cent currency swaps ($25 trillion) and 15 per cent options ($10 trillion) [Bank for International Settlements, 2013]. The total gross market value consists of 54 per cent currency swaps ($1.2 trillion), 35 per cent outright forwards and forex swaps ($0.8 trillion) and 11 per cent options ($0.25 trillion) [Bank for International Settlements, 2013]. The overall figure of forward-exchange contracts for the first and second half-year of 2012 is quite consistent. The small increase of one per cent can mainly be attributed to an increase in currency swaps from $24.2 trillion to $25.4 trillion (plus 5 per cent). [Bank for International Settlements, 2013] Consistency was also observed for the types of counterparties of forward-exchange contracts (see Table 10) [Bank for International Settlements, 2013]. The number of contracts with reporting dealers slightly decreased (-2.5 per cent, from $29.5 trillion to $28.8 trillion) and the number of contracts with other financial institutions slightly increased (plus 5 per cent, from $27.5 trillion to $28.8 trillion) [Bank for International Settlements, 2013].

	Notional amounts		Gross market	
	H1 2012	H2 2012	H1 2012	H2 2012
Total	**639,4**	**632,6**	**25,4**	**24,7**
Forward exchange contracts	**66,645**	**67,358**	**2,217**	**2,304**
With reporting dealers	29,484	28,834	0,876	0,942
With other financial institutions	27,538	28,831	0,884	0,909
With non-financial customers	9,623	9,693	0,457	0,453

Table 10: Notional amounts outstanding and gross market value of forward-exchange contracts with different counterparties.

2.2.3.3 *Credit derivatives*

A credit derivative contract covers the risk that a specified entity will default. A special form of such a contract is the Credit Default Swap (CDS). Following a defined default event, the protection buyer receives a payment from the protection seller to compensate for credit losses. In return, the protection buyer pays a premium to the protection seller until maturity or a default event, whichever comes first [Bank for International Settlements, 2009]. CDSs are often used to hedge large positions in sovereign or corporate debt securities.

A distinction can be made between a single-name CDS (a credit derivative where the reference entity is a single name) and a multi-name CDS (a derivative contract where the reference entity is more than one name, as in portfolio or basket CDS). A basket CDS is a CDS where the credit event is the default of some combination of credits in a specified basket of credits [Bank for International Settlements, 2013].
The following tables [Bank for International Settlements, 2013] give more detailed information of the notional amount outstanding and gross market value of the global OTC derivatives market (see Figure 13 and 8) with respect to credit derivatives, in particular CDS.

	Notional amounts outstanding		Gross market values	
	H1 2012	H2 2012	H1 2012	H2 2012
Total	**639,4**	**632,6**	**25,4**	**24,7**
Credit default swaps	***26,931***	***25,069***	***1,187***	***0,848***
Single-name instruments	15,566	14,309	0,715	0,527
Multi-name instruments	11,364	10,76	0,472	0,321

Table 11: Notional amounts outstanding and gross market value of CDS.

CDS represent 4 per cent of the total OTC derivatives market, with a notional amount of $25 trillion and a gross market value of $0.8 trillion at end-2012. The notional amounts outstanding consist for 57 per cent of single-name CDS ($14.3 trillion) and 43 per cent of multi-name CDS ($10.7 trillion). The total gross market value is formed of 62 per cent single-name CDS ($0.5 trillion) and 38 per cent multi-name CDS ($0.3 trillion) [Bank for International Settlements, 2013]. The overall figure of the notional amounts outstanding slightly increased between the first and second half-year of 2012. More pronounced was the decline in the gross market values of more than 28 per cent [Bank for International Settlements, 2013].
Table 12 shows that contracts between reporting dealers decrease by almost 10 per cent from $15.7 trillion to $14.2 trillion, while those with non-financial customers increased with more than 5 per cent from $0.19 trillion to $0.2 trillion. Financial institutions include for example CCPs, banks, insurance firms and hedge funds. The sectorial share of CDS counterparties was divided mainly between reporting dealers (56 per cent) and other financial institutions (43 per cent), while non-financial customers continued to be almost entirely absent (1 per cent) [Bank for International Settlements, 2013]

	Notional amounts outstanding						Gross market values	
	H1 2012			H2 2012			H1 2012	H2 2012
	Bought	Sold	Total	Bought	Sold	Total		
Total CDS contracts	**21,619**	**21,059**	**26,931**	**19,844**	**19,373**	**25,069**	**1,187**	**0,848**
With reporting dealers	15,712	15,783	15,747	14,1	14,197	14,149	0,767	0,529
With other financial institutions	5,783	5,214	10,997	5,612	5,108	10,72	0,407	0,309
With non-financial customers	0,125	0,62	0,187	0,132	0,68	0,2	0,13	0,1

Table 12: Notional amounts outstanding and gross market value of CDS with different counterparties.

2.2.3.4 Equity-linked derivatives

Equity derivatives contracts are contracts that have a (portion of their) return linked to the price of a certain equity or to an index of equity prices. This type of contracts is categorized according to the country where the instrument is being traded. However, the categorization should rather be based on the nationality of the user of the underlyer. Equity-linked contracts include among others equity swaps, repurchase agreements, and stock options and (turbo) warrants [Bank for International Settlements, 2011].
The following tables give more detailed information of the notional amount outstanding and gross market value of the global OTC derivatives market (see Figure 13 and 8) with respect to equity-linked derivative contracts.

	Notional amounts outstanding		Gross market values	
	H1 2012	H2 2012	H1 2012	H2 2012
Total	**639,4**	**632,6**	**25,4**	**24,7**
Equity-linked contacts	***6,313***	***6,251***	***0,645***	***0,605***
Forwards and swaps	1,88	2,045	0,147	0,157
Options	4,434	4,207	0,497	0,448

Table 13: Notional amounts outstanding and gross market value of equity-linked derivative contracts.

With a total notional amount of $6.2 trillion and a gross market value of $0.6 trillion at end-2012, equity-linked contracts represent only 1 per cent of the global OTC derivatives market. The notional amounts outstanding consist for 33 per cent of forwards and swaps ($2 trillion) and for 67 per cent of options ($4.2 trillion). The total gross market value is represented for 26 per cent by forwards and swaps ($0.2 trillion) and for 74 per cent by options ($0.4 trillion). The overall figure of forward-exchange contracts for the first and second half-year of 2012 were almost unchanged [Bank for International Settlements, 2013].

2.2.3.5 Commodity derivatives

A commodity derivative contract is a contract that has a (portion of its) return linked to the price of, or to a price index of, a commodity such as a precious metal (other than gold), petroleum, lumber or agricultural products [Bank for International Settlements, 2011]. This derivative class is often used by agricultural and corporate banks that focus on energy and resources, because they can also be used to hedge large amounts of natural resources.

The following table [Bank for International Settlements, 2013] gives more detailed information of the notional amount outstanding and gross market value of the global OTC derivatives market (see Figure 13 and 8) with respect to commodity derivatives.

	Notional amounts outstanding		Gross market values	
	H1 2012	H2 2012	H1 2012	H2 2012
Total	**639,4**	**632,6**	**25,4**	**24,7**
Commodity contacts	***2,994***	***2,587***	***0,39***	***0,358***
Gold	0,523	0,486	0,062	0,053
Forward, swaps and options	2,471	2,102	0,328	0,306

Table 14: Notional amounts outstanding and gross market value of commodity derivative contracts.

With a total notional amount of $2.6 trillion and a gross market value of $1.8 trillion at end-2012, commodity derivative contracts represent the smaller part of the global OTC derivatives market (only 0.4 per cent). The notional amounts outstanding contain 19 per cent gold options ($0.5 trillion) and 81 per cent commodity forwards, commodity swaps and commodity options other than gold ($2.1 trillion). The total gross market value consists for 15 per cent of gold options ($53 billion) and for 85 per cent of commodity forwards, commodity swaps and commodity options other than gold ($0.3 trillion) [Bank for International Settlements, 2013].

The total notional amount of outstanding commodity derivative contracts decreased with more than 13 per cent, from $3 trillion at end-June 2012 to $2.6 trillion at end-December 2012. In the second-half year of 2012, notional amounts outstanding on gold declined to $486 billion and those of commodity forwards, swaps and other options to $2.1 trillion. The gross market values on gold and other commodity contracts also decreased in the second half-year of 2012 by 15 per cent, respectively 7 per cent [Bank for International Settlements, 2013].

2.3 Risks arising from derivatives trading

2d. What risks arise from derivatives?

Trading with derivatives involves several types of risks that will be described in this section. Before categorising different types of risk, a distinction between systematic and unsystematic risk can be made. Systematic risk is macro in nature, because it arises from general market factors, for example a political event. Therefore, organisations can neither control it, nor protect themselves against it by diversification. Systematic risk affects the entire industry and a large number of assets in the portfolio of a specific company. Unsystematic risk, on the other hand, is controllable by organisations, micro in nature and affects only a very small number of assets. Organisations can eliminate unsystematic risk by diversification [Investopedia, 2013].
In the following subsections, the, for this research relevant financial and non-financial risk types will be described, namely market, credit, operational and liquidity risk. A summary of this description is given in Table 15.

Risk type	Definition	Measurement models
Market risk	Market risk is the risk that relates to the possibility that a company's financial instruments will decline in value. Market risk cannot be avoided (systemic risk). Subtypes of market risk are for example interest rate risk and foreign exchange/currency risk.	Value-at-Risk (VaR) and Expected Shortfall, using a time horizon of ten days [Hull, 2010].
Credit risk	Credit risk occurs when the market value of the firm's assets changes unexpectedly, which affects the market value of the firm and that generates market risk [Jarrow & Turnbull, 2000]. It can be avoided (unsystemitc risk). Counterparty credit risk is "the risk that the counterparty to a transaction defaults before the final settlement" [European Commission, 2010, p. 22].	Netting, collateralization and downgrade triggers. The time horizon for considering losses from credit risk is one year [Hull, 2010].
Operational risk	Operational risk is the risk that losses are caused due to internal systems or processes fail to work as intended or because of external events [Hull, 2010].	Risk analysis, key risk indicators, issue management, internal audit and dashboards. The time horizon for operational risk is also one year [Hull, 2010].
Liquidity risk	Liquidity risk can be seen as kind of the consequence of the risk types previously described. It reflects how easy or difficult it is to buy or sell an asset [European Commission, 2011].	Scenario analysis, stress testing.

Table 15: Summary risk types.

2.3.1 Market risk

Market risk is the risk relating to the possibility that a company's financial instruments will decline in value. It arises primarily from a company's trading operations and thus cannot be avoided in the normal course of business (systemic risk). Market risk reflects the day-to-day fluctuations in the price of a financial instrument, thus its volatility. Volatility is a measure of risk because it refers to the behaviour of an investment. It is essential for returns because market movement is the reason why people can make money from stocks. The more unstable the investment, the higher the change of large movements in either direction and therefore the greater the potential return [(Investopedia, 2013), (Hull, 2010)].
Market risk cannot be avoided, but can be managed using various techniques. The popularst models to measure market risk are the Value-at-Risk (VaR) and Expected Shortfall measurement models. The time horizon for considering losses from market risk is ten days [Hull, 2010]. The VaR model, for

example, uses historical movements to calculate a forecasted volatility for each scenario using an exponentially weighted moving average (EWMA) methodology. EWMA assigns heavier weights to more recent observations in order to capture current market conditions better. The model then uses the forecasted volatilities to calculate expected returns for each asset over a particular time horizon, e.g., five days (5-day VaR). The margin is selected as the maximum loss using a confidence interval from the generated profit/loss distribution [Futures & Options World, 2013].
In order to indicate how financial instruments can decline in value, the different types of market risk will be described as well.

- Interest rate risk is the risk that the value of a security will change as a result of a change in interest rates. This risk affects the value of bonds more directly than stocks [Investopedia, 2013].
- Currency risk; Foreign exchange risk arises because of the fluctuations in the currency exchange rates. Companies may be exposed to the foreign exchange risk in their normal course of business because of the unhedged positions or because on of imperfect hedges [Finance Train, 2010]. When investing in foreign countries you must consider the fact that currency exchange rates can change the price of the asset as well. As an example of foreign exchange risk is if a company is resident in the Netherlands and invest in some Canadian stock in Canadian dollars, even if the share value appreciates, the company may lose money if the Canadian dollar depreciates in relation to the Euro [Investopedia, 2013].
- Commodity price risk refers to the risk of unexpected changes in a commodity price, for example the gas price [Finance Train, 2010].

2.3.2 Credit risk

The just described market risk is intrinsically related, but not separable of credit risk. The latter is generated when the market value of the firm's assets changes unexpectedly, which affects the market value of the firm and that generates market risk [Jarrow & Turnbull, 2000].
Counterparty credit risk is "the risk that the counterparty to a transaction defaults before the final settlement" [European Commission, 2010, p. 22]. This means the potential that a company or individual will be unable to meet its obligation in accordance with agreed terms [Finance Train, 2010] [Investopedia, 2013]. This risk type can be avoided and therefore can be categorised as unsystemic risk. To mitigate credit risk, the following methods can be used: netting, collateralization and downgrade triggers. But unlike market risk, the time horizon for considering losses from credit risk is one year [Hull, 2010].
Counterparty credit risk has always been a feature of OTC markets. Regulators are concerned about this type of risk, because a default by one bank creates losses by other banks that have traded with it. In an attempt to reduce counterparty credit risk, OTC market's currently adopt some of the procedures used by exchanges [(Hull, 2012), (Hull, 2010)], such as the use of a CCP.
Credit risk is also the greatest risk that banks face and to which usually the largest part of regulatory capital can be attributed. Sources of credit risk for banks are for example loans, foreign exchange transaction, futures, swaps, options, equities and bonds.When evaluating credit risk the creditworthiness of counterparties and portfolio concentrations must be taken into account. Banks have to manage the credit risk in individual transactions (transaction risk) as well as in the entire portfolio (concentration risk) [Finance Train, 2010]. To find hidden concentration in portfolios, common factors that affect the well-being of firms can be analysed, such as industry sensitivity to commodity prices and interest rates. This understanding of portfolio concentration will help portfolio managers to better identify pockets of concentration and opportunities to diversification better [Finance Train, 2010].

2.3.3 Operational risk

Operational risk is the risk that losses are caused due to internal systems or processes fail to work as intended or because of external events. The time horizon for considering losses from operational risk is one year. Most banks have always had some framework in place for managing operational risk. However, the prospect of new capital requirements has led them to increase greatly the resources they devote to measuring and monitoring operational risk [Hull, 2010]. Reputational risk is often a consequence of operational loss events, and can have a huge impact on a firm's competitive advantage.

Although operational risks apply to any organisation in business, this way of framing risk management is of particular relevance to the banking regime where regulators are responsible for establishing safeguards to protect against systemic failure of the banking system and the economy. The responsibility for mitigating operational risk typically rests with business managers. Internal auditors are charged with identifying operational risk issues in reviewing business activities [Finance Train, 2010].

2.3.4 Liquidity risk

Liquidity risk can be seen as kind of the consequence of the risk types previously described. It reflects how easy or difficult it is to buy or sell an asset. Liquidity is a function of both volume (positively correlated) and volatility (negatively correlated). For example, a stock is said to be liquid if an investor can move a high volume in the market or out of it, without materially moving its price. Liquidity risk also manifests when a counterparty does not settle its full obligations when due, or defaults on its payments [(European Commission, 2011), (Accenture, 2011)].
There are two types of liquidity risk; structural and cyclical liquidity risk. Structural (long-term) liquidity risk refers to the mismatch between loans and customer deposits following from the business models of banks. Their funding mix reflects structural developments of retail and wholesale funding market [Van den End, 2013].

3. Description of EMIR, REMIT and MiFIR/MiFID II

In this section, a detailed description of EMIR, REMIT and MiFID II will be given, focusing on the implementation timeline, target group, content and regulatory requirements.

3.1 Implementation timeline EMIR, REMIT and MiFIR/MiFID II

An important issue regarding EMIR, REMIT and MiFID II is the timescale. It is not only one regulation, but a series of regulations that are coming into force at the same time (Futures & Options World, 2012). In Europe, questions remain about whether counterparties will be able to get ready on time to meet all regulatory requirements at once [Futures & Options World, 2013].

3a. When will EMIR, REMIT and MiFID II be implemented?

The (stipulated) dates of the implementation process of EMIR, REMIT and MiFID II are brought together in Figure 15. It must be kept in mind that REMIT and MiFID II are still under negotiation and dates can move around. Some deadlines will need to be extended due to external dependencies. For example, the start of reporting of interest and credit derivatives to trade repositories already has been postponed from July to November 2013, because no trade repository was authorised by end of July [(Deloitte, 2012), (AFM, n.d.), (Market Structure Partners, 2013), (ACER, 2012), (ACER, 2012) (Clifford Chance, 2012)].

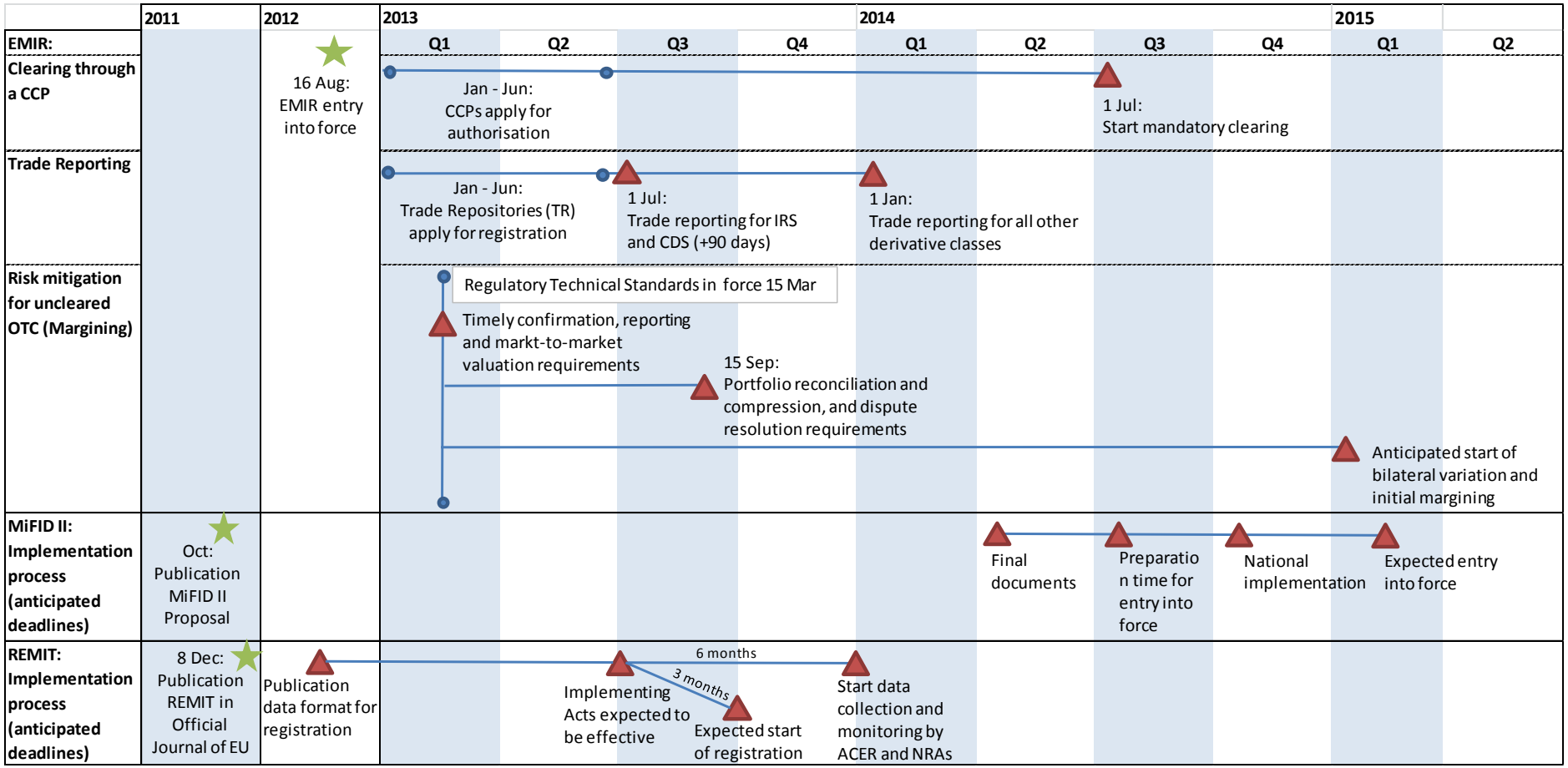


Figure 15: Provisional timeline of the EMIR, REMIT and MiFID II implementation.

3.2 European Market Infrastructure Regulation (EMIR)

The European Market Infrastructure Regulation (EMIR) is a new European regulation targeting on the OTC derivatives market. So far, the OTC derivatives market has not been very transparent. Little reliable information about prices, market participants, underlying assets and trading volume was available. EMIR aims at improving stability, transparency, and regulatory oversight of OTC derivatives market by introducing a multitude of reporting requirements [(European Commission, 2012), (European Commission, 2010)]. Furthermore, EMIR aims at reducing counterparty credit risk by introducing an obligation to clear all standardised derivative contracts through a CCP and at reducing operational risk by setting new risk mitigation standards for non-CCP-cleared contracts.

3b. To whom does EMIR apply?

EMIR applies to any party that trades derivatives, whether on an exchange or OTC, whether regulated or not and whether within the EU or outside. Thus, unlike other laws and regulation enacted as a reaction to the financial crisis, EMIR addresses not only the banking and financial services sector, but also companies in the real economy [(Litten & Schwenk, 2012), (Norton Rose Fulbright, 2012)]. The reason is that non-financial counterparties are active participants in the derivatives market as well and often transact with financial counterparties [European Commission, 2010].

A distinction is made between financial and non-financial counterparties. Financial counterparties include investment firms, credit institutions, (re)insurance firms, assurance undertakings, credit institutions, UCITS (Undertaking for Collective Investment in Transferable Securities) (and its management company), institutions for occupational retirement provision, and alternative investment fund managed by AIFMs [European Commission, 2010]. All counterparties that are not classified as financial are non-financial, for example energy companies having large positions in OTC derivatives [(European Commission, 2012), (Financial Services Authority, 2013)].

The regulations are more stringent for financial counterparties. The reporting obligation applies to all counterparties in the European Union (financial and non-financial) that trade OTC and/or exchange-traded derivatives [London Stock Exhange, 2012]. The clearing obligation and risk management requirements, however, apply to all financial counterparties (FC) but for non-financial counterparties (NFC) only to those which total traded position has exceeded the threshold (NFC+) and not to those below the threshold (NFC-) for a particular derivatives class (see Table 16) [AFM, 2012].

	FC	NFC+	NFC-
Central clearing	✓	✓	×
Register with TR	✓	✓	✓
Timely confirmation, portfolio reconciliation and dispute resolution for non-cleared trades	✓	✓	✓
Contract valuation (mark-to-market) and portfolio compression	✓	✓	×
Extra collateral requirements	✓	×	×

Table 16: Overview EMIR Requirements.

Counterparties can also be exempt from EMIR.

- A total exemption is available for members of the European System of Central Banks (ESCB), certain other EU and national bodies, and the Bank for International Settlements (BIS).
- NFC- are exempt from the clearing obligation.
- A partial exemption from EMIR is available for certain public sector entities owned by central governments with explicit guarantee arrangements provided by central governments.
- Certain pension scheme arrangements and contracts that are objectively measurable as reducing risks directly related to the financial solvency are exempt from the clearing obligation for three years (until 15 August 2015). After three years, the European Commission will review whether they still carve out, when no technical solutions for the transfer of non-cash collateral as variation margin have been made and when there is still an adverse effect of CCP clearing derivatives on the retirement benefits of future pensioners [Norton Rose Fulbright, 2012].

- Intragroup exemptions from the clearing obligation may be available under certain circumstances. Intra-group transactions are transactions that are "entered into with another counterparty which is part of the same group where the counterparties are included in the same consolidation on a full basis, are subject to appropriate centralised risk procedures and are established in the EU or third country which the Commission has found to impose equivalent obligations" [Norton Rose Fulbright, 2012]. FC and NFC have an intra-group exemption from clearing if [Clifford Chance, 2012]:
    - Their counterparty is part of the same group and included in the same (qualifying) accounting/regulatory consolidation on full basis;
    - Both parties are subject to appropriate centralised risk management procedures; and
    - The (non-) financial counterparty is established in the EU or in jurisdiction declared "equivalent" by the EU Commission.

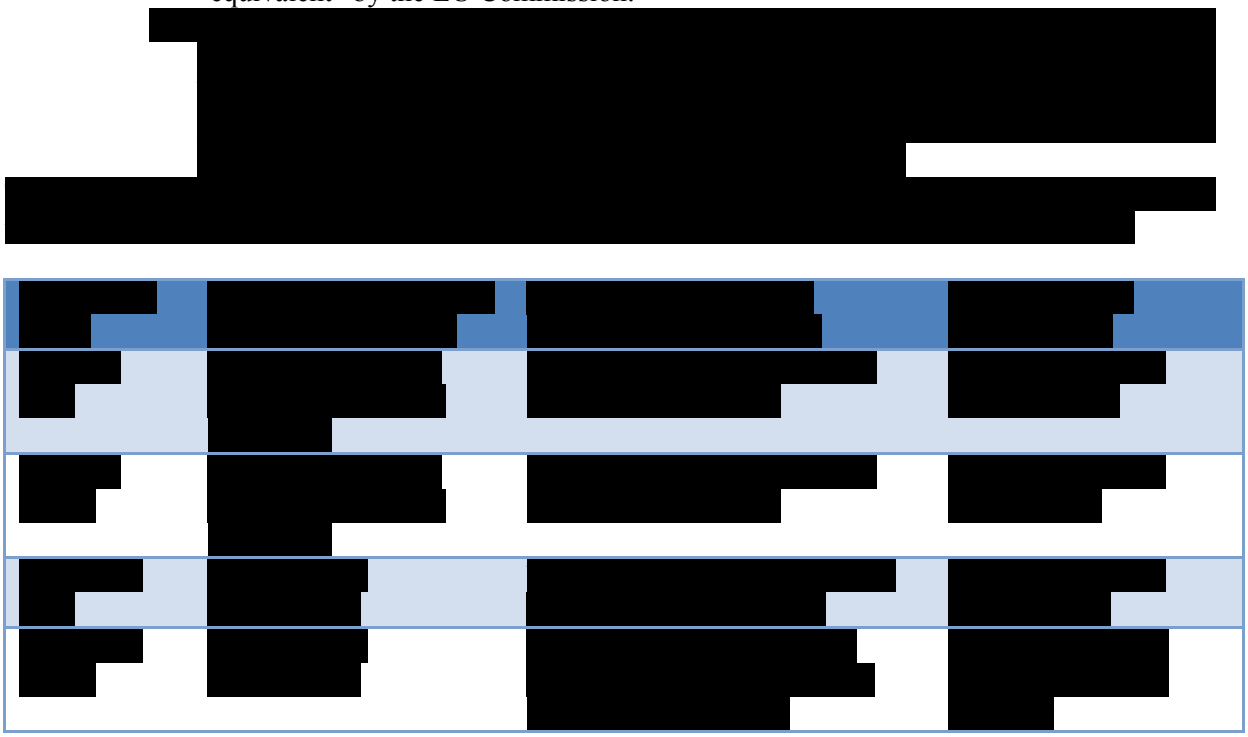


Table 17: Possibilities intra-group exemption.

3c. What is the content of EMIR?

EMIR has three building blocks:

1. Mandatory clearing,
2. Trade reporting, and
3. Risk management.

These building blocks and the belonging regulatory requirements will be described in the next subsections.

3.2.1 Mandatory clearing

The financial crisis accelerated the move from bilateral clearing towards central clearing (see Figure 16) [Financial Technologies Forum LLC, 2012], which is the most significant overhaul of the financial services industry since the emergence of electronic trading. The collapse of Lehman Brothers revealed

[11] Exemption may only be available if group counterparty prudentially regulated financial entity or a non-financial counterparty (i.e., an entity established in the EU as well as outside the EU).

[12] Exemption also available for transactions between non-financial counterparty and a financial counterparty established in different Member States, but only financial party needs prior authorization by competent authority (which gives notice to other competent authority).

the separation of the FSI in terms of bilateral and central cleared instruments. The latter had been closed out within a few days resulting in minimal market disruption. Bilaterally traded instruments, on the other hand, lead to severe losses. Therefore it is not surprising that regulators currently try to replicate the central clearing model in the OTC market to prevent situations with high counterparty credit risk, where a collapse of one market participant causes the collapse of others [(Futures & Options World, 2012), (European Commission, 2012)].

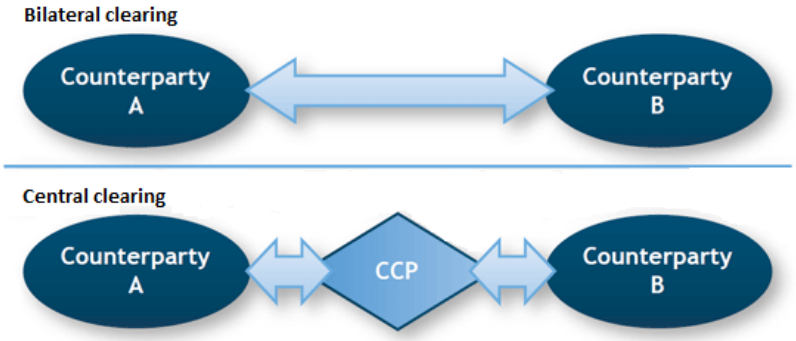


Figure 16: Bilateral versus central clearing

Clearing threshold

To reduce counterparty credit risk, EMIR obliges all FC and NFC, which exceed at least one of the thresholds shown in Table 18, to clear all standardised OTC derivatives through a CCP [European Commission, 2010].

OTC Derivative Contract Type	Clearing threshold
Credit derivative contracts	> €1 bn.
Equity derivative contracts	> €1 bn.
Interest rate derivative contracts	> €3 bn.
Foreign exchange derivative contracts	> €3 bn.
Commodity derivative contracts	> €3 bn.
Other OTC derivative contracts	> €3 bn.

Table 18: Threshold CCP-clearing non-financial counterparties, in billion € gross notional value for OTC contracts

The clearing threshold for NFC is calculated including all group positions, but excluding financial entities and all OTC derivative contracts entered with the purpose of covering the risks directly related to commercial or treasury financing activity (hedges) (see Figure 17) [Clifford Chance, 2012]. When determining the latter, the NFC's overall hedging and risk mitigation strategy as well as the economic appropriateness of the OTC derivative contract (e.g., purpose of use, size of the exposure) is taken into account. Any contract qualifying as hedge under the IFRS rules is automatically deemed outside the clearing threshold calculation [Clifford Chance, 2012]. This might be, for example, an energy supplier selling future production or an airline fixing the price of the future fuel purchases [European Commission, 2010]. Moreover, some OTC derivative contracts may qualify as a hedge for EMIR purposes, e.g., proxy hedging and macro or portfolio hedging, although they do not qualify as a hedge under IFRS [ESMA, 2013]. Contracts entered into for the purposes of speculation, investment or trading must be included [Clifford Chance, 2012].

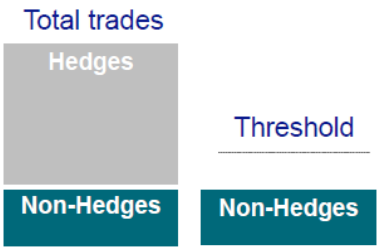


Figure 17: Calculation clearing threshold non-financial counterparties.

If the total traded position per OTC derivative contract type exceeds the thresholds shown in Table 18 for over thirty working days, the NFC is treated the same way a FC and thus is subject to the clearing obligation [European Union, 2012]. This clearing obligation begins to apply four months after the threshold breached and covers all current and future OTC derivative contracts [Clifford Chance, 2012].

Standardised OTC derivative classes

ESMA will publish an on-line Public Register of the OTC derivative classes, which are considered to be standardised and thus must be cleared centrally. In determining whether an OTC derivative class is standard or not, ESMA will take into account the degree of standardisation of a product's contractual terms and operational processes; the volume; the liquidity of the market for the product in question; and the availability of fair, reliable and generally accepted pricing information of the relevant class of OTC derivative contract [(European Union, 2012), (Futures & Options World, 2012)]. For assessing these criteria, EMIR introduces a top down and bottom up approach (see Appendix C).

- In the top down approach (Figure 35), the regulator has the power to identify OTC derivative contracts eligible for clearing irrespective of whether a CCP has proposed to clear them. The problem with this approach is that CCP's should be able to decide what they can and cannot clear [Futures & Options World, 2012].
- With the bottom up approach (Figure 36) on the other hand, a CCP approaches a regulator with a product it wants to clear and therefore must be centrally cleared. Unlike the top down approach, this approach encourages CCP's to develop clearing models for as many products as possible, in line with market demand [Futures & Options World, 2012].

Default Waterfall

In centrally cleared contracts, the CCP becomes the buyer to every seller and the seller to every buyer and thus constitutes an essential post-trading infrastructure. From out of its central position, the CCP must manage the risk in the OTC market. Therefore regulators must ensure that CCP's are regulated properly and on a consistent basis. For this purpose, EMIR introduces an initial authorisation requirement and a framework of common requirements for CCPs regarding their systems and resources.

The mandatory central clearing of standardised OTC derivative contracts should reduce counterparty credit risk, because CCPs are considered to be safer than straight bilateral trading due to the imposed so-called default waterfall. The default waterfall is a safety net of assets and should ensure the going concern of a CCP when a clearing member defaults. It shows the order in which any defaults of a clearing member will be covered (see **Error! Reference source not found.**) [Source: Accenture Research].

Figure 19 contains confidential information and therefore cannot be shown.

Error! Reference source not found. shows the different elements of the default waterfall that will be described below:

[redacted]

The default and the CCP's financial resources together must cover at least the default of the two clearing members with the largest exposures (during extreme but plausible scenarios).

Collateral and Margining

Under EMIR, an initial margin is required in the form of low risk, highly liquid assets that are held by the CCP to be used in case of default [Futures & Options World, 2012]. These assets are called collateral. Suppose two companies, A and B, entered into an OTC derivatives transaction. When the transaction value to company A decreases by €1, company B must make a collateral payment of €1 to company A.

Margins are calculated daily, based on the actual net risk of the client's portfolio, rather than on each individual position. This allows firms with offsetting risks to offset their margin as well. When having large offsetting risks, the margin savings can be substantial [Futures & Options World, 2013], as illustrated in the following example for swap spread positions. Figure 18 [Futures & Options World, 2013] shows the initial margins for swap spread trades under three different scenarios. Each scenario has a short position of 1000 10-year CBOT Treasury Futures and a DV01 equivalent receive fixed swap (or long Deliverable Swap Futures) position. The figure illustrates that the savings due to initial margin offsetting can be substantial (here: 57 per cent to even 73 per cent).

Separate Margining at a Competing Clearinghouse	*CME Group* IRS Portfolio Margining	*CME Group* Deliverable Swap Futures
Treasury Futures Leg Margin $1,100,000	Cleared IRS and Treasury Futures margined together	Deliverable Swap Futures and Treasury Futures with Spread Credits
Swap Leg Margin $3,299,395		
Combined Margin **$4,399,395**	CME Margin **$1,905,332**	CME Margin **$1,181,900**
	Savings: $2,494,063 (57%)	**Savings: $3,217,495 (73%)**

Figure 18: Initial Margin Example for Swap Spread Positions.

[13] The CCP's main risks are operational risk, legal risk, non-covered credit risk, counterparty credit risk and market risk.

Collateral information of a particular contract is essential to ensure the proper monitoring of exposures. Therefore counterparties that collateralise their transactions should report all details of collateral posted to competent authorities. NFC- are not required to report collateral.

Figure 21 contains confidential information and therefore cannot be shown.

Figure 19: Example position netting (1) and exposure netting (2).

Central CounterParties

The margin that will be applied varies with the CCP and derivative class. A list of all currently existing CCPs can be found in Appendix D. Counting the different CCP's owned by the same owner as separate entities (e.g., ICE Trust and ICE Clear Europe), there are currently fifteen CCP's in the U.S. and Europe. In the future, the clearing market is likely to consolidate; market participants need choice, but not so much that it has negative effects on liquidity. The key factors in sustaining a competitive advantage over other CCPs will be offering margin offsets between different but related instruments (cross-margining), assuming that the risk can be managed, and offering multiple asset classes. In this context, it is important for a CCP to think carefully about what to accept as margins/collateral [Futures & Options World, 2012]. The biggest CCP's are LCH Clearnet, CME Group, ICE Trust/ICE Clear Europe and Eurex Clearing AG. A summary of their product coverage, cleared notional amount, margin methodology and margin segregation is given in Table 19 [PwC, 2012].

	LCH Clearnet	CME Group	ICE Trust/ICE Clear Europe	Eurex Clearing AG
Product coverage	IRS 4 currencies	CDS, IRS 4 currencies	CDS Index and single-name EUR, USD	IRS CDS
Cleared notional amount	$267 trillion in IRS (40% market share)	$140 billion in IRS	$16.6 trillion (65% share of CDS market)	-
Initial margin methodology	SPAN algorithm; Portfolio approach to interest rate scenarios ('PAIRS'); Equity risk analysis for EquityClear	Historical Value at Risk (VaR) Model	ICE Trust/Clear SPAN algorithm	Prisma methodology for IRS ('Portfolio Risk Management Methodology')
Client margin segregation	Each CCP segregates customer margins from house margins.			

Table 19: Summary of the largest CCPs.

Initial margin methodology
The 'initial margin methodology' is the methodology a CCP uses to calculate its margin requirements. CME uses a historical VaR model to calculate margin methodology. As already mentioned in section 2.3.1, VaR measures the potential loss in value of an individual asset or portfolio over a defined period for a given confidence interval. Eurex Clearing AG designed the Prisma methodology that is based on the VaR and takes into account cross-margining efficiencies by determining the margin requirement on a portfolio level. LCH Clearnet uses a Portfolio Approach to Interest Rate Scenarios ('PAIRS') margin methodology; a VaR model based on historical simulation incorporating volatility scaling. The latter means that historical market data is used to stimulate changes in the portfolio value, from which an estimate of potential loss is calculated. The effects of volatility clustering in interest rate markets are addressed by scaling historical scenarios to reflect prevailing market conditions. The volatility scaling is based on an Exponential Weighted Moving Average (EWMA) model with a decay factor of 0,97 [Futures & Options World, 2013].

Segregation and portability
A CCP must clearly separate the assets and position held for the account of one clearing member from the assets and positions held for any other clearing member and from the CCP's own assets.
A clearing member must offer its client at least the choice between the following two client segregation models:

- Under the *omnibus client segregation* model, the CCP must segregate the assets[14] and positions of a particular clearing member (broker house funds) from those held for the accounts of its clients (client funds), but can margin finance within the omnibus pool.
- The *individual client segregation* requires complete segregation of the assets and positions of clients by the counterparty and does not allow for any margin financing across clients. Excess collateral needs to be posted with the CCP. It requires to financing of client margin positions by clearing members.

Clearing members must make public the levels of segregation and the associated costs that they provide. It is unclear which level of segregation becomes the industry standard (e.g., CCP or clearing member level) and whether many firms would want a complete individual segregation due to the operational costs of that model.

Indirect clearing arrangements
When a clearing member facilitates indirect clearing, any client of that clearing member can provide indirect clearing services to one or more of its own clients, but only when the client of the clearing member is an authorised credit institution, investment firm or an equivalent third country credit institution or investment firm. The clearing member requests indirect clearing at the CCP, which then maintains separate records and accounts to enable distinction between the assets and positions of the client from those if the indirect clients of the client. The client must hold separate records and accounts as well, that enable it to distinguish between its own assets and positions and those held for the account of its indirect clients. Possible operating models for banks under EMIR mandatory clearing are illustrated in Figure 20 [Accenture Research, 2011].
Figure 22 contains confidential information and therefore cannot be shown.
Figure 20: Operating model options for banks under mandatory clearing.

3.2.2 Trade reporting

As mentioned before, one of the key aims of EMIR is to increase transparency in the OTC market. To achieve this goal, various new reporting requirements for trading venues and investment firms were introduced. The main difference between the mandatory clearing, described in the previous section, and the trade reporting requirement is that latter will apply to all derivatives and not only eligible OTC derivatives.
Figure 21 provides an overview of who is required to report, what data must be reported, when and how it must be reported [European Union, 2012].

[14] Assets refer to the collateral held to cover positions.

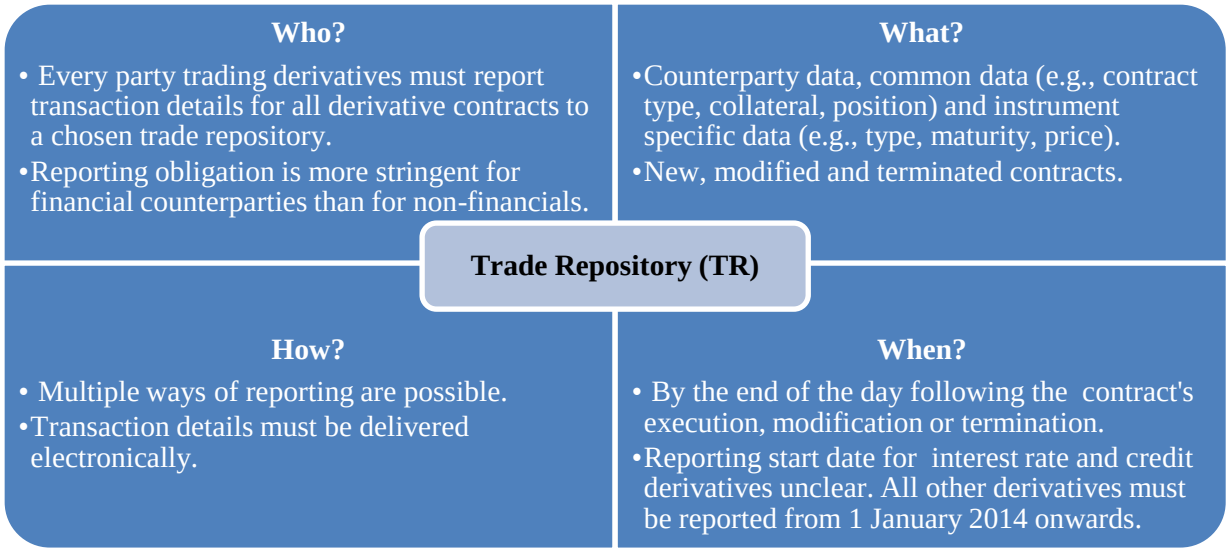


Figure 21: Summary trade reporting obligation EMIR.

A Trade Repository (TR) is "an entity that centrally collects and maintains the records of OTC derivatives" [European Commission, 2010, p. 21]. It is an electronic platform, run by a commercial party, that centrally stores the reported information [European Union, 2012].

Who? The EMIR rules oblige every party that is trading derivatives to report detailed information on their derivative contracts to a Trade Repository (TR) or, if that is not possible, directly to regulators. This reporting obligation is more stringent for financial counterparties than for non-financials. NFC- are not required to report collateral and mark-to-market/model valuations of their derivative contracts [European Union, 2012]. These risk management techniques are explained in Section 3.2.3.

What? In order to assess systemic risk, the reporting requirement applies regardless whether the contract is CCP-cleared or not, and regardless whether the contract is traded on a stock exchange, a MTF or OTC. The data that must be reported are the parties of a derivative contract and characteristics of the contract such as type, collateral details (at least at portfolio level), maturity, price and settlement date (European Union, 2012). To identify trade attributes such as the counterparty and product type special identifiers are needed. These are Unique Product Identifiers (UPIs) and Legal Entity Identifiers (LEIs) [Clifford Chance, 2012].
TRs publish aggregate positions by class of derivative [European Commission, 2012] and make it accessible to supervisory authorities and market participants in the European Union [Duffie et al., 2010]. Regulators get insight in data, which they need in order to monitor global trading activity. Due this increased transparency, they can identify risk concentrations, detect potential problems in the OTC derivatives markets earlier and, if necessary, take action [(Futures & Options World, 2013), (European Union, 2012)].

How? Every party is free to choose a TR, to which it wants to report. Both parties of a transaction are obliged to report separately to the TR, but can delegate the reporting. The possible ways of reporting are: each counterparty can report individually to a TR; one counterparty can cover both reporting obligations; the reporting can be outsourced to a third party. When delegating, the responsibility for the accuracy and completeness of the reporting will remain with the counterparties. Despite the way of reporting, transaction details must be delivered electronically [(European Commission, 2012), (Clifford Chance, 2012)].

When? The information must be reported no later than the working day following the conclusion, modification or termination of the contract. All counterparties subject to the reporting requirements will have to start archiving data based on the EMIR draft technical standards from 16 August 2012

onwards. These transactions will be back reported once suitable TRs go live, including contracts that were live as on that date [European Union, 2012].
ESMA has not confirmed yet which TRs are authorised[15]. The registration of the first TR is unlikely to take place before August 2013. The reporting start date for Interest Rate and Credit Derivatives depends on this registration date and is therefore not determined yet. All other derivatives must be reported from 1 January 2014 onwards [European Union, 2012].
As a result, information on the risks of derivatives trading will be centrally stored at the TRs and easily accessible for regulators [European Union, 2012].

3.2.3 Risk management, processes and controls

The third key area of the EMIR regulation is the strengthening of operational and risk-management practices [Duffie et al., 2010]. OTC derivative contracts that do not fall under the central clearing obligation may be cleared bilaterally. An example of a situation where the contract is cleared bilaterally is when a FC trades derivatives with a NFC- [European Union, 2012]. To ensure that these contracts have equivalent risk mitigation as cleared contracts in a default scenario, EMIR requires FC and NFC to ensure, exercising due diligence, that they have appropriate procedures and arrangements in place to measure, monitor and mitigate operational risk and counterparty credit risk for their non-CCP-cleared contracts.
Counterparties must have a robust risk control framework that enables them to manage margin calls (end-of-day and intra-day), to make better decisions and to optimise their collateral and client data management. The client data latter should lead to more accurately calculated exposures, pricing and reduced risks (regulatory, operational, credit and reputational)[Accenture Research, 2011]. The new risk management procedures are given below [European Union, 2012].

Requirement for non-cleared OTC contracts of financial counterparties	Reporting frequency
(1) Mark-to-market/model the value of outstanding OTC derivative contracts.	Daily
(2) Report the number of unconfirmed OTC contracts outstanding more than 5 business days.	Monthly
(3) Reconciliation of portfolios with counterparties, depending on the number of contracts with the other party.	Daily/weekly/ monthly/yearly
(4) Compression of portfolios when the number of OTC derivative contracts outstanding with one counterparty exceeds 500.	At least two times a year
(5) Disputes shall be resolved. For disputes that are not resolved within five business days, specific dispute resolution mechanisms are needed.	Monthly

Table 20: EMIR risk mitigation requirements.

The risk mitigation requirements from Table 20 will be described in more detail in the following sections.

(1) Mark-to-market valuation
With the purpose if monitoring systemic risk, FC and NFC+ are required to report their exposures. Therefore they have to mark-to-market (MTM) the value of outstanding non-cleared OTC derivative contracts on a daily basis [(European Union, 2012), (European Union, 2013)].
MTM, also known as fair value accounting, is a method of determining the value of a position held in a financial instrument based on the current fair market price of that instrument or a similar instrument. The current market value is the price someone would currently realize in the open market. The MTM methodology assumes that all open positions and transactions are settled at the end of each day and new positions are opened the next day [(Interactive Brokers, n.d.), (Liu, 2009)].

[15] Entities that have publicly announced their intention to seek authorization as a TR from ESMA are Capital Track, CME, DTCC Derivatives Repository Limited (DDRL), ICE Trade Vault Europe Limited, KDPW (Central Securities Depository of Poland), Regis TR and UnaVista (London Stock Exchange). They deliver automated regulatory reporting solutions for cleared and non-cleared OTC derivatives contracts within multiple product classes to financial and non-financial institutions (ABN AMRO Clearing, 2013).

Where market conditions prevent marking-to-market (e.g., inactive market, range of reasonable fair estimates is significant, possibilities of various estimates cannot reasonably be assessed), reliable and prudent marking-to-model shall be used [(European Union, 2012), (European Union, 2013)].

(2) Timely confirmation

FC and NFC+ must have risk-management procedures that require the timely, accurate and appropriately segregated exchange of collateral with respect to OTC derivative contracts that are entered into on or after 16 August 2012, respectively the clearing threshold is exceeded. It is essential that they confirm the terms of their relevant non-cleared OTC derivative transactions as soon as possible, following the execution of the transaction, especially when the transaction is electronically executed or processed. Therefore when a FC and NFC+ is not confirming on time, it has to report the number of unconfirmed OTC derivative contracts outstanding more than five business days on a monthly basis [(European Union, 2012), (European Union, 2013)].

The specific meaning of 'on time' depends on the type of derivative and the execution date of the trade. The timely confirmation deadlines for non-cleared OTC derivative transactions concluded between FC and NFC+ can be seen in Table 21 and the deadlines for non-cleared OTC derivative transactions concluded, where at least one party is NFC- in Table 22, where T is the execution date [(TaylorWessing, 2013), (European Commission, 2013)].

Derivative type	Date trade is executed	Confirmation deadline
Credit default swaps and Interest rate swaps	15 March 2013 – 28 February 2014	T+2
Credit default swaps and Interest rate swaps	1 March 2014 onwards	T+1
Other (e.g., equity swaps, FX swaps, commodity swaps)	15 March 2013 – 31 August 2013	T+3
Other	1 September 2013 – 31 August 2014	T+2
Other	1 September 2014 onwards	T+1

Table 21: Confirmation deadlines for non-cleared OTC contracts between FC and NFC^{+}.

Derivative type	Date trade is executed	Confirmation deadline
Credit default swaps and Interest rate swaps	15 March 2013 – 31 August 2013	T+5
Credit default swaps and Interest rate swaps	1 September 2013 – 31 August 2014	T+3
Credit default swaps and Interest rate swaps	1 September 2014 onwards	T+2
Other (e.g., equity swaps, FX swaps, commodity swaps)	15 March 2013 – 31 August 2013	T+7
Other	31 August 2013 – 31 August 2014	T+4
Other	1 September 2014 onwards	T+2

Table 22: Confirmation deadlines for non-cleared OTC contracts between FC/NFC^{+} and NFC^{-}.

(3) Portfolio reconciliation

Portfolio reconciliation means analysing whether all internal positions (e.g., front-/back office systems) match external positions (e.g., positions available at a CCP or TR). It enables counterparties to undertake a comprehensive review of their transaction portfolio as seen by its counterparty in order to identify any misunderstanding of key transaction terms, such as payment or settlement dates, notional value, currency, underlying instrument and position of counterparty. Before entering into a contract, the parties of a trade must agree on the arrangements under which portfolios will be reconciled [(European Union, 2012), (European Union, 2013)].

For non-cleared contracts, FC and NFC must reconcile portfolios with counterparties, depending on the nature of the counterparty and the size of the portfolio (e.g., the number of contracts with the other party) [European Securities and Market Authority, 2012]:

Number of contracts with other party	Reconciliation of portfolio
FC and NFC+:	
• 500 < x	Daily
• 51 < x < 499	Weekly
• 50 > x	Quarterly
NFC-:	
• 100 < x	Quarterly
• 100 ≥ x	Yearly

Table 23: Number of contracts with other party and belonging reconciliation frequency.

(4) Portfolio compression

Portfolio compression is the reduction of the total number of contracts to a more manageable number by merging existing ones, and thus decreasing the notional,[16] in order to reduce bilateral risk. The effectiveness of this technique for risk mitigation purposes depends on, for example, the size of a portfolio with a counterparty, the maturity and the degree of standardisation of OTC derivative contracts. FC and NFC that have more than 500 non-cleared OTC derivative contracts outstanding with a counterparty, must analyse whether they can compress their portfolio at least twice a year [(European Union, 2012), (European Union, 2013)].

(5) Dispute resolution

Counterparties must have proper procedures and processes in place to identify, record and monitor disputes. The resolution of disputes aims at mitigating risks stemming from contracts that are not centrally cleared. When entering into OTC derivative transactions with one another, counterparties must agree on how to resolve any related dispute that may arise, for example third part arbitration or market polling mechanism. The intention is to avoid unresolved disputes escalating and exposing counterparties to additional risks [(European Union, 2012), (European Union, 2013)].

When disputes are not resolved within five business days, specific dispute resolution mechanisms are needed. Any disputes between counterparties that relate to an OTC derivatives contract, its valuation or the exchange of collateral for an amount or a value higher than €15 million and outstanding for at least 15 business days, must be reported to competent authorities [(European Union, 2012), (European Union, 2013)].

3.2.4 Requirements EMIR

3b. How will EMIR be implemented?

FC (such as banks) and NFC (such as energy companies) that are subject to EMIR must comply with the regulation by implementing several requirements. These requirements are given below [(European Union, 2010), (European Union, 2012), (European Union, 2013)], for each of the three regulatory building blocks. In Section 4, the impact of these requirements on banks and energy companies will be assessed. The numbering and colouring of the requirements is not random, but is important in that section to distinguish which requirements belong to which regulation.

The requirements are considered to be confidential and therefore cannot be provided.

[16] Investment firms, that provide portfolio compression, will not be subject to the best execution and transparency obligations under MiFIR/MiFID II. They publish the volumes of transactions that are subject to portfolio compressions, and the time they were concluded as close to real-time as possible. They also will have to keep records of all portfolio compressions [European Commission, 2013].

Mandatory clearing

4.

Trade reporting

8.

Risk management

16.

3.3 Regulation of Energy Market Integrity and Transparency (REMIT)

The Regulation on Energy Market Integrity and Transparency (REMIT) came into force in the EU in December 2011 [Carr, 2012]. Prior to REMIT, energy market monitoring practices were sector specific and different in Member States [European Commission, 2012]. It extends the concept of the Market Abuse Directive (MAD)[18] to physical gas and power. The definitions within REMIT are consistent between derivatives and commodity markets, because as already mentioned both are used

[17] For NFC from the moment the threshold was exceeded. Some intragroup exposures are exempt from collateralization.

[18] The Market Abuse Directive (MAD) was adopted in early 2003 and addresses the prohibition of insider dealing and market manipulation practices and thereby aims at increasing investor confidence and market integrity (European Commission, 2011) (European Parliament and the Council of the European Union, 2003).

together on wholesale energy markets [European Union, 2011]. They are also in line with MAD, but adapted for wholesale energy markets. MAD already covers wholesale energy products structured as financial derivatives, and thus continues to apply for these products [European Commission, 2012].

REMIT **aims** to create a harmonised framework for European wholesale energy markets to help these markets function properly, reflecting market fundamentals, and to help ensure that market outcomes are not distorted by insider trading and market abuse [(European Commission, 2012), (Carr, 2012), (European Union, 2011), (London Stock Exchange Group, 2013)]. Therefore, REMIT enforces national regulators to levy penalties on firms that break the rules. This will be supported by a new body called Agency for the Cooperation of Energy Regulators (ACER), which will oversight European firms by monitoring data and alerting regulators to any suspicious behaviour [Carr, 2012]. Wholesale energy market participants are required to report wholesale energy contracts to this Agency [London Stock Exchange Group, 2013].

The **wholesale energy market** is defined as any market within the EU on which wholesale energy products are traded. A distinction can be made between energy commodity contracts (supply) and capacity contracts (transportation) of electricity or natural gas in the EU.
Wholesale energy products[19] are defined as derivatives and contracts relating to electricity or natural gas produced, traded or delivered in the EU; in particular [European Union, 2011]:

- Contracts for supply of electricity or natural gas where delivery takes place in the EU,
- Derivatives relating to electricity or natural gas produced, traded or delivered in the EU,
- Contracts relating to the transportation of electricity or natural gas in the EU,
- Derivatives relating to the transportation of electricity or natural gas in the EU.

Oil contracts are out of scope of the REMIT regulation, as well as contracts less than 600 GWh per year. When exceeding this threshold, supply contracts for large energy users are treated as wholesale

3b. To whom does REMIT apply?

energy products, and must comply with REMIT.
REMIT applies to any participant trading in the wholesale energy markets [London Stock Exchange Group, 2013] and to information relating to wholesale energy contracts and energy derivatives. It has a profound effect on how firms, holding information about wholesale energy products, use and disclose that information [Pinsent Masons, 2012]. Parties affected by REMIT are energy producers, energy suppliers, Transmission System Operators (TSOs), but also financial intermediaries such as energy trader, brokers and large consumers [(Investopedia, 2013), (European Union, 2011)]. TSOs are exempt from REMITs insider trading requirements, when purchasing electricity or natural gas in order to

3a. What is the content of REMIT?

ensure the safe and secure operation of the system.
REMIT consists of three pillars:

- Prohibition of insider trading and the obligation to disclose insider information [European Union, 2011].
- Prohibition of market manipulation and market abuse practices by establishing a framework for monitoring wholesale energy markets at a European level [PwC and Ponton Consulting, 2012].
- Transactional data reporting obligations for standardised and OTC products [Conforto, 2011].

These pillars and the belonging regulatory requirements will be described in the following subsections.

[19] A list of wholesale energy contracts can be found in Appendix E.

3.3.1 Prohibition of insider trading and obligation to disclose insider information

Prior to REMIT, behaviour which undermines the integrity of energy market was not clearly prohibited. However, prohibiting such behaviour is essential to protect end consumers and to guarantee affordable energy prices for European citizens [European Union, 2011], and is therefore introduced under REMIT.

REMIT prohibits persons, who possess inside information related to a wholesale energy product, to use, disclose or recommend that information [(European Commission, 2012), (PwC and Ponton Consulting, 2012)]. Persons are also not allowed to trade based on that information (insider trading), neither on one's own account nor on the account of a third party.

Inside information is defined as information of a precise nature which has not been made public, relates (in)directly to one or more wholesale energy products and, if made public, would be likely to significantly affect the prices of those wholesale energy products (European Union, 2011). This includes the capacity and use of facilities for production, storage, consumption and transmission of electricity or natural gas related to the capacity and use of liquid natural gas (LNG) facilities, including planned or unplanned unavailability of these facilities [European Union, 2011].

Information regarding the market participant's trading plans and strategies is not considered as inside information. Some transactions are exempt from the prohibition of insider trading, such as transactions concluded before a person possessed inside information and transactions entered into by electricity and natural gas producers, operators of natural gas storage facilities or operators of LNG import facilities with the purpose of covering the immediate physical loss resulting from unplanned outages, when otherwise not able to meet existing obligation [European Union, 2011].

When possessing inside information, market participants are required to publicly disclose it in an effective and timely manner [European Commission, 2012]. Market participants are defined as persons, including transaction system operators (TSOs), who enter into transactions, including the placing of orders to trade, in the wholesale energy market [PwC and Ponton Consulting, 2012].

3.3.2 Prohibition of market manipulation and abuse

Next to the prohibition of insider trading, REMIT prohibits any (attempted) engagement in market manipulation and abuse on wholesale energy markets [European Union, 2011]. Market manipulation means entering into any transaction or issuing any order to trade in wholesale energy products, which **[**(ACER, 2013), (European Union, 2011)]:

- (Is likely to) give false or misleading signals about the supply/demand/price;
- Secure the price at an artificial level;
- Involve fictitious devices or any other form of deception which gives false or misleading signals regarding the supply/demand/price;
- The dissemination of information through the media, which (is likely to) give false or misleading signals.

Manipulation may occur across borders, between electricity and gas markets and across financial and commodity markets, including emission allowances markets.

To identify market abuse and to ensure an efficient monitoring and transparency of wholesale energy markets, ACER must work closely with national energy regulators [European Union, 2011]. Efficient market monitoring requires regular and timely access to transaction records and to structural data on capacity and use of facilities for production, storage, consumption or transmission of electricity and natural gas. Therefore market participants must register with one national regulatory authority (NRA) before entering into a transaction using a registration format. They have to submit detailed information on energy transactions to ACER, which should uniquely identify the market participants involved in a transaction [ACER, 2012]. The latter should be achieved either through the use of the 'ACER code' for registration, through the use of one of the codes already existing and used for trading (e.g., Energy Identification Codes; EIC) or through the new international code currently under discussion (LEI).

3.3.3 Transaction data reporting framework

As mentioned in the previous subsection, REMIT requires market participants to provide records of transactions, including orders to trade, in wholesale energy markets to ACER. ACER collects the data

and uses it for monitoring and assessing wholesale energy markets to detect and prevent trading based on inside information and market manipulation.
The reporting of transaction data can be delegated to a third party, such as organized markets, brokers or trade matching systems. The reporting requirement arises when a wholesale energy market transaction is conducted and depends on whether or not the transaction took place at a wholesale energy market, which include among others regulated markets, MTFs, OTC transactions and bilateral contracts, conducted either direct or through brokers [European Commission, 2012].
Reporting under REMIT is different in scope than the reporting under EMIR (and MiFID II). The divergences flow from a difference in the product scope under the regulations, as REMIT also covers energy commodity contracts. Other differences are the mandate of ACER and ESMA under REMIT and EMIR (monitoring of market abuse versus monitoring of systemic risks) and the different competences applying to ACER and ESMA (recommendations versus draft technical and regulatory standards). These differences make it not easy to ensure a harmonised approach to reporting under REMIT and EMIR, which is nevertheless highly advisable [Glowacki Law Firm, 2013]. The regulatory framework for energy market participants can be seen in Figure 17 [Conforto, 2011], which emphasizes the needed coordination and harmonisation between ACER (REMIT) and ESMA (EMIR and MiFID II).

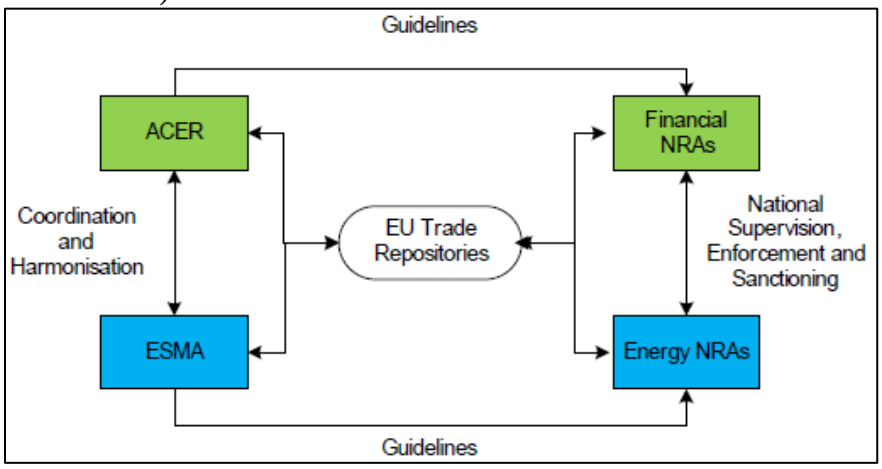


Figure 22: The EU regulatory framework for energy trading

Market participants, who have already reported transactions to TRs in accordance with EMIR or MiFID II, are not be subject to double reporting obligations relating to those transactions [European Commission, 2012], as can be seen in Figure 17.

Parties required to report
Both counterparties of a transaction, i.e., buyer and seller, are subject to the reporting obligation. For transactions using a central or common counterparty (e.g., an exchange or TSO) it might be beneficial to let the central counterparty report on behalf of both parties to the transaction [PwC and Ponton Consulting, 2012].

Relevant data for reporting obligation
Energy market participants will be required to report a wide range of information about their trades, including lifecycle information (e.g., trade settlements, cancellations and modifications) as well as orders that are placed but not executed [Carr, 2012]. The relevant data for the REMIT reporting obligations can be divided into two categories: trade data and fundamental data [European Commission, 2012].
Trade data are records of wholesale energy market transactions, including orders to trade. This refers to data relating to individual gas and electricity commodity transactions (both primary energy products and derivatives), data related to capacity bookings and use at an individual shipper/trader level, data on secondary traded capacity and data on commodity transactions undertaken by TSOs for network balancing [PwC and Ponton Consulting, 2012].

Fundamental data relate to the capacity and use of facilities for production, storage, consumption or transmission of electricity or natural gas as well as LNG facilities, including (un-)planned unavailability of these facilities. The information to be reported includes [European Union, 2011]:

- Precise identification of the wholesale energy products bought and sold;
- Parties to the transactions;
- Price and quantity agreed;
- Dates and times of execution;
- Beneficiaries of the transaction; and
- Any other relevant information.

ACER will draw up a list of the contracts and derivatives that shall be reported [ACER, 2012]. This list should be consistent with EMIR and MiFID II [(European Commission, 2012), (PwC and Ponton Consulting, 2012)]. It is therefore recommended, concerning derivatives, to use the list of financial instruments as set out in MiFID II, Section C of Annex I, points (4) to (10) [ACER, 2012].
For market participants not trading at organized market places, ACER will set up a threshold for the reporting of transactions [ACER, 2012]. The exact threshold is not determined yet.
A distinction can be made between the reporting of transactions in standardised contracts and in non-standardised contracts. Standardised contracts are related to products that are traded on organised market places. These contracts can be reported by filling in the REMIT reporting format and submitting it to ACER. Non-standard contracts, on the other hand, are complex long term arrangements on a bilateral basis and therefore are not traded on an organised market place. For these transactions, the mandatory fields and as many additional fields as possible should be filled in the reporting form. Any change in price and quantities should be reported as a new transaction [ACER, 2012].
The reporting of both transactions, standard and non-standard, should at least include information about the lifecycle on the post-trade stage of the transaction, such as confirmations, amendments, cancellations and information on the physical/financial settlement. Information about the physical settlement is important in understanding physical flows between markets as well as within markets and providing an overview on overall transaction activity of market participants [ACER, 2012].

Reporting procedure and mechanisms
The required information must be delivered by both parties of a transaction, in an electronic form. ACER collects and reports transaction data of market participants through so-called registered reporting mechanisms[20] (RRMs). A RRM can be an organised market (regulated market or MTF), trade reporting system, trade-matching system, in accordance with EMIR registered TR, or other dedicated thirds parties (see Figure 23) [ACER, 2012]. Insider information is recommended to be reported to ACER through so-called regulated information services (RISs). A RIS is likely to be run by intermediary parties such as exchanges, TSOs and other third parties [Risk.net, 2013]. Since TSOs are considered market participants, they will already be registered under REMIT. Other entities would have to register as RISs [(PwC and Ponton Consulting, 2012), (ACER, 2012), (European Commission, 2012)]. Fundamental data reporting and collection should be undertaken via existing sources if possible. These sources can be transparency platforms from TSOs, organised market places or regional-European platform operators.

[20] RRMs means a person registered by ACER to provide the service of reporting details of records of transactions to ACER on behalf of market participants [ACER, 2012].

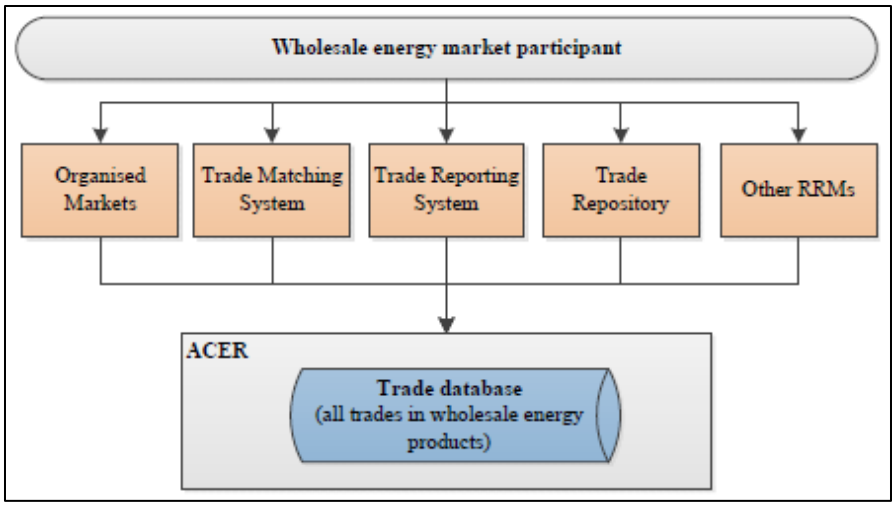


Figure 23: Reporting through Registered Reporting Mechanisms (RRMs).

After the information has been reported, ACER makes it accessible for relevant authorities, such as ESMA [European Union, 2011]. NRAs will establish a national register that contains information about market participants. Based on the national registers, ACER will establish a European register of market participants to enhance the overall transparency and integrity of wholesale energy markets [European Union, 2011].

Reporting timeframe/frequency

The reporting frequency is not determined yet, but industry experts made recommendations based on the REMIT proposal. To ensure the timeliness and effectiveness of the monitoring of wholesale energy markets, it is proposed to report transactions in standardized contracts as quickly as possible, and no later than the close of the following working day following the execution, modification or termination of the transaction [ACER, 2012]. Daily reporting of transactions should be achievable for market participants as this reflects existing processes [European Commission, 2012[. Weekly or monthly reporting should only be considered for non-standardised contracts, not traded on liquid markets, because this reporting frequency does not allow ACER to actively monitor energy markets [(European Commission, 2012), (ACER, 2012)].

3.3.4 Requirements REMIT

3b. How will REMIT be implemented?

Wholesale energy market participants are subject to REMIT and must comply with the regulation by implementing several regulatory requirements, which are given below for each of the three regulatory building blocks [(European Commission, 2012), (ACER, 2012)]. In Section 4, the impact of these requirements on energy companies will be assessed. The numbering and colouring of the requirements is not random, but is important in that section to distinguish which requirements belong to which regulation.

The requirements are considered to be confidential and therefore cannot be provided.

Prohibition of insider trading

19. [redacted]

Prohibition of market manipulation

20. [redacted]

Transaction reporting obligation

[redacted]

23. [redacted]

3.4 Markets in Financial Instruments Directive (MiFID II) and Regulation (MiFIR)

MiFID I (Markets in Financial Instruments Directive) is a cornerstone regulation of the European financial services sector. It had broad implications for many institutions across sectors, including investment firms, trading venues and regulatory authorities. MiFID I has promoted the creation of a new harmonised framework of rules across Europe (e.g., a pre- and post-trade transparency regime) and it has improved the competitiveness of financial markets across Europe, in the provision of investment services to investors as well as between trading venues [(Valiante & Lannoo, 2011), (European Commission, 2011)].

However, a lot has changed since MiFID I was put into effect in 2007. Several market and technological factors, such as the evoluation of automated trading, have outpaced various provisions of MiFID I and called for an extensive **review of the Directive** [Valiante & Lannoo, 2011]. Its successor, MiFID II, is currently in draft and is expected to become effective in mid-year 2014 [European Commission, 2013]. MiFID II **aims** at establishing a safer, sounder, more transparent and more responsible European financial system by properly regulating all market and trading structures themes [(Valiante & Lannoo, 2011), (European Commission, 2011)]. The financial stability should be strengthened by ensuring maximum transparency in markets and robust levels of investor protection [KPMG, 2012]. The MiFID review should also solve the problem that there is still an uneven playing field among market participants, because implementation and supervisory controls have not been uniform across Member States.

In parallel to MiFID II, MiFIR (Markets in Financial Instruments Regulation) is being developed with the goal of improving the functioning of the internal market for financial instruments. MiFIR and MiFID II should be read together, because the two legal instruments form one inter-related framework governing the different regulatory requirements.

3b. To whom do MiFIR/MiFID II apply?

MiFID II will apply to investment firms, regulated markets, data reporting service providers and third country firms that provide investment services and/or perform investment activities on a professional basis, eventually through the establishment of a branch in the EU [Conforto, 2011), (European Commission, 2011)].

Investment services cover various activities, such as reception of orders, portfolio management and underwriting or operation of MTFs. The list of investment services and activities can be seen in Appendix F, as well as the list of financial instruments.

Due to the expansion of the definition of financial instruments, the amount of contracts in electric power or gas to be reported will increase. Therefore numerous participants in the energy market who are active in financial markets (e.g., energy traders) qualify as investment firm under MiFID II and hence will be subject to reporting requirements [PwC and Ponton Consulting, 2012]. However, there are still some parties that are out of the scope of MiFID II, namely spot currency transactions, (re)insurance forms, subsidiaries undertaking investment activities, non-professionals, persons dealing on own account in financial instruments, and central banks or other national bodies.

In the following subsections, the development from MiFID I to MiFIR and MiFID II, the main building blocks of MiFIR/MiFID II and the regulations requirements will be described.

3.4.1 Review of MiFID I: MiFIR and MiFID II

MiFIR and MiFID II are designed and will be implemented with a legislative process, named 'Lamfalussy procedure' (see Figure 24). This procedure consists of several levels representing a combination of regulatory (level 1 and 2), supervisory (level 3), and enforcement (level 4) actions. It involves consultations with industry and experts committees, and cooperation between national authorities.

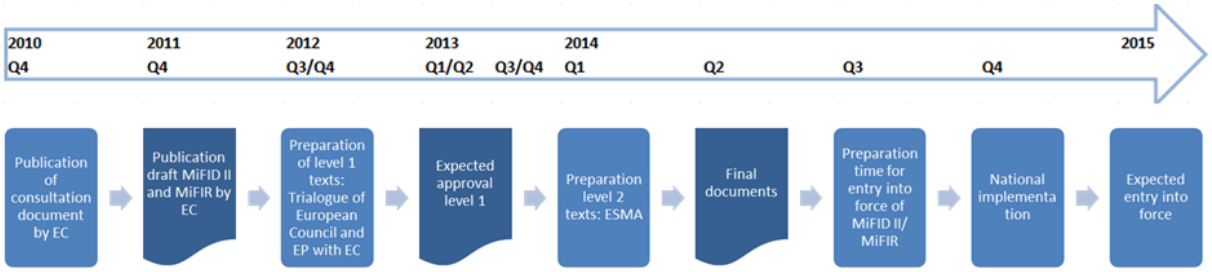


Figure 24: Timeline approval process (Lamfalussy procedure) MiFID II/MiFIR.

In October 2011 the European Commission published the proposal for MiFID II, which is expected to become effective in mid-year 2014. MiFID II responds to technological and market developments, and to the deficiencies in MiFID I exposed by the financial crisis. It intends to capture previously unregulated or weakly regulated areas. The main changes from MiFID I to MiFIR and MiFID II are described below [World Economy, Ecology & Development, 2011].

- **Extended scope.** Until now, the scope of MiFID I was largely predicated to equities (Accenture, 2010). Equity instruments are for example transferable securities (such as shares), depository receipts, exchange traded funds and certificates. While equities are predominantly traded on exchanges, most non-equity instruments, such as derivatives, are traded OTC. Due to the insufficient regulation and lack of transparency of non-equity markets, the scope of MiFID II is extended both in terms of financial instruments (to non-equity instruments) and firms (to commodity firms, data providing services firms and third country firms). Non-equity instruments are for example bonds, structured finance products, emission allowances and derivatives [European Commission, 2013].
  Regarding derivatives, commodity derivatives have been exempt from MiFID so far, because the trading of these products is mainly done among professional, non-financial counterparties [Conforto, 2011]. Due to the increased weight of financial transactions in commodities market and concerns over the effects of speculation in these markets, commodity derivatives are included in MiFID II [(European Commission, 2011), (European Commission, 2013)]. Emission allowances are brought fully into the scope of MiFID II as well, due to fraudulent practices in the spot secondary markets of these products [European Commission, 2013].
- **Stronger investor protection.** Personal recommendations are getting more important for clients. At the same time, products and services become increasingly complex. This led to the need for enhanced conduct of business obligations in order to strengthen investor protection for complex products, such as structured products and derivatives [(European Union, 2013), (Valiante & Lannoo, 2011)]. MiFID II updates the definition of 'complex' financial instruments, which now includes all products with embedded derivatives and some structured UCITS [KPMG, 2012]. Next to this, MiFID II sets stricter requirements for investment advice and portfolio management. In order to prevent potential conflict of interest, independent advisors and portfolio managers will be prohibited from making or receiving monetary gains [European Commission, 2011].
- **More robust and efficient market structures.** MiFID already covered Multilateral Trading Facilities (MTF) and regulated markets, but the revision introduces Organised Trading Facilities (OTFs). The latter are organized, currently non-regulated platforms that play an increasingly important role. MiFID II continues to allow for different business models, but will ensure that all

trading venues have similar transparency rules. The introduction of OTFs aims at increasing pre- and post-trade transparency of trading activities in equity markets [European Commission, 2011].

- **Access to capital markets for small- and medium-sized enterprises (SMEs).** MiFID II will introduce a specific label for SME markets, which are platforms aiming to meet the needs of SMEs [European Commission, 2011].
- **New trading practices.** In the past decade, the use of trading technologies has evolved significantly. The introduction of new technologies resulted in trading venues catering for automated trading, investment firms investing in algorithmic trading and high-frequency trading (HFT) technologies, and investments in new trading platforms [Valiante & Lannoo, 2011]. Algorithmic trading and HFT have increased the speed of trading and pose possible systemic risks enormously. Therefore MiFID II introduces new safeguards for electronic trading [(European Commission, 2011), (Valiante & Lannoo, 2011)].
- **More comprehensive transparency regime.** Under MIFID II, a new transparency regime for non-equities markets is introduced and the scope for reporting of transactions is extended. Counterparties must report pre- and post-trade information to TR's. Transparency is the disclosure of information related to quotes (pre trade) or transactions (post trade) relevant to market participants. Pre-trade transparency refers to the obligation to publish (in real-time) current orders and quotes. Post-trade transparency refers to the obligation to publish a trade report every time a transaction has been concluded. The provided information enables users to compare trading results across trading venues, to identify trading opportunities and to check for best execution. It also enables regulators to monitoring the behaviour of market participants [(European Commission, 2011), (Valiante & Lannoo, 2011)].
- **Supervisory power and commodity position limits.** Under MiFID II, competent authorities will be able to ban specific products, services or practices when they threaten investor protection, financial stability or the orderly functioning of markets. Also for commodity derivatives markets, there will be stronger supervision in the form of a position reporting obligation by category of trader. This should help regulators and market participants to better assess the role of speculation in commodity derivatives markets. Competent authorities can also set position limits for commodity derivatives and emission allowances. A position limit is a pre-defined limit on the amount of the particular instrument that an entity holds [European Commission, 2011].

3c. What is the content of MiFIR and MiFID II?

The MiFIR and MiFID II proposals discuss several topics, among which four key building blocks can be identified: investor protection, market structure, transparency and governance. Some of these topics were already part of MiFID I, others are introduced in MiFIR/MiFID II (see Table 24) [(KPMG, 2012), (Valiante & Lannoo, 2011), (European Commission, 2011)].

MiFIR/MiFID II building block	Goal	Topic	MiFID I
Investor protection	• Reducing systemic risk, • Strengthening investor confidence, conduct of business rules and organisational requirements for investment firms	Investment advice	NA
		Inducements	NA
		Execution only	Can be offered for non-complex products traded on a regulated market or when UCITS compliant
		Best execution	Firms must achieve best execution for their clients

		Appropriateness test[21]	Firms must assess whether financial instruments are appropriate for clients based on information received from them on their financial situation and investment objectives.
Market structure	• Proper regulation of all market structures and trading places, taking into account the needs of smaller participants (e.g., SME) and new trading practices (e.g., high frequency trading). • Ensuring that all organised trading is conducted on regulated trading venues (regulated markets, Multilateral Trading Facilities or Organised Trading Facilities).	SME growth market	No specific requirements
		Organised Trading Facilities	Three trading platforms (regulated markets, MTFs and Systematic Internalisers).
		Automated trading	No specific requirements
		OTC derivatives	No specific requirements
		Commodity derivatives	No specific requirements
		Central clearing	Investment firms have the right of access to CCPs. Regulated markets and MTFs may enter into appropriate arrangements with CCPs in other territories.
		Third country firms	No specific requirements
Transparency	• Increase pre- and post-trade transparency for market participants on equity market and establish it for non-equity markets. • Reinforce transparency for regulators.	Pre-and post-trade transparency	Pre-trade requirements apply to shares traded on a regulated market, Multilateral Trading facility or Systemic Internaliser.
		Transaction reporting	Relevant details of execution in financial instruments to be reported to the competent authority.
		Position reporting for commodity derivatives	No specific requirements.
Governance	• More specific requirements for investment firms, (members of) regulated markets and Multilateral Trading Facilities, Systematic Internalisers, data providers and algorithmic trading • New requirements for managing bodies of investment firms and market operators	Organisation requirements	General requirements for investment firm and market operators, ensuring that adequate policies and controls are in place to ensure compliance.
		Managing bodies	No specific requirements.

Table 24: Key themes and belonging topics of MiFID II.

[21] Where the appropriateness test applies, firms must seek information from a (potential) client about his knowledge and experience to understand the risks involved in particular products or services [ESMA, 2012].

3.4.2 Investor protection

The financial crisis has shown limits in the ability of non-retail clients to appreciate the risk of their investments. Therefore one of the main objectives of MiFID II is to strengthen investor protection for each category of investor (retail, professional and counterparties) [(KPMG, 2012), (European Commission, 2011)].

Business conduct rules and organisational requirements for investment firms and trading venues play a crucial role in strengthening investor protection across Europe [(Valiante & Lannoo, 2011), (European Commission, 2013)]. Business of conduct rules addresses typical issues in a fiduciary relationship between service provider and client. To ensure that investment firms execute client orders on terms that are favourable to the client, MiFID II imposes a **best execution** obligation. These best execution rules imply more granular reporting requirements for clients and oblige trading venues to publish data relating to the quality of executions of transactions on each trading venue [KPMG, 2012].

The general principle for investment firms when providing investment services to clients is to act honest, fairly and professionally in accordance with their clients' best interest. When an investment firm provides **investment advice**[22] to clients, it must obtain all relevant information regarding the (potential) client's needs, knowledge and experience, its financial situation and investment objectives [(European Union, 2013), (Valiante & Lannoo, 2011)]. Based on this information, which should be specified in a written statement, the investment firm should recommended investment services and financial instruments suitable for the client. This procedure is called the **appropriateness test** [(European Commission, 2013), (KPMG Financial Services, 2011)].

For **execution only services** – services that only consist of execution and transmission of client orders, provided at the initiative of the client – this appropriateness test is not necessary. These services are only for non-complex financial instruments such as bonds or other forms of securitised debt.

Investment firms must state whether their investment advice is independent or not. When providing **investment services on an independent basis**, investment firms must assess a range of financial instruments available for the client and is not allowed to receive or give third party fees, commissions or any (non-)monetary benefits. The latter is also not allowed when providing portfolio management services [(KPMG, 2012), (European Union, 2013)].

3.4.3 Market structure

Small and Medium Sized Enterprises (SME): To cater to the needs of smaller participants, such as SMEs, MiFID II introduces a SME[23] growth market, which is created as a subcategory within the MTF category. It should facilitate access to capital for SMEs, and raise the visibility and further development of these specialist markets. To benefit SMEs, at least 50 per cent of the issuers whose financial instruments are traded on a SME growth market will have to be SMEs [European Union, 2013].

Organised Trading Facilities: Organised Trading Facilities (OTFs) are a new category of trading venue that is designed to capture organised trading outside of regulated markets (RM), Multilateral Trading Facilities (MTF) (see Table 25) [European Commission, 2013], Systematic Internalisers (SI) and trading that is not genuinely OTC [KPMG Financial Services, 2011].

An SI is an investment firm, which frequently and systematically deals on own account by executing client orders against own proprietary. Excepted from the execution through a SI are transactions that carried out outside a RM, MTF or OTF, on an infrequent, ad hoc and irregular basis. A SI cannot bring together third party buying and selling interests, because it is not a trading venue [European Union, 2013].

Investment firms are not allowed to act as an SI in an OTF that is operated by them. The reason is that an OTF constitutes a genuine trading platform, whose operator should be neutral and should not be allowed to execute in the OTF any transaction between multiple third-party buying and selling interests, including client orders brought together in the system against his own proprietary capital [European Union, 2013].

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[22] Investment advice is the provision of personal recommendations to a client, either upon its request or at the initiative of the investment firm, in respect of one or more transactions relating to financial instruments (European Commission, 2013).

[23] SME here means a company that had an average market capitalisation of less than €100.000.000 on the basis of end-year quotes for the previous three calendar years.

	Regulated Market	MTF	OTF
Description	Regular exchange, such as NASDAQ.	Similar to Regulated Markets, but without a clearing obligation.	Trading facilities other than a regulated market, MTF or SI. In OTFs multiple third parties buy or sell financial instruments.
Facility type	Multilateral	Multilateral	Multilateral and bilateral
Mandatory clearing	✓	×	×
Discretion[24]	×	×	✓

Table 25: Summary regulated markets, MTFs and OTFs.

On RMs, MTFs and OTFs, multilateral platform trades of highly standardized and liquid products take place. When products are non-standardised and illiquid, however, they are traded bilaterally on OTC markets that are subject to mandatory pre-trade requirements. Liquid products with lower levels of standardisation are traded bilaterally as well, but through SIs, which are also subject to some mandatory pre-trade requirements [European Union, 2013].

OTC derivatives: The European Commission imposes that financial and non-financial counterparties must trade all OTC derivatives that are eligible for clearing under EMIR only on regulated trading venues (RM, MTF, and OTF). To ensure uniform conditions between trading venues, identical requirements apply for RMs, MTFs and OTFs, as can be seen in Table 26 [European Commission, 2013]. A list of the trading platforms that are established in the Netherlands and got a license to operate as a RM and/or a MTF by the Dutch Ministry of Finance can be found in Appendix G (Table 47).

	Platform trading (multilateral)			OTC trading (bilateral)	
	RM	MTF	OTF	SI	OTC
Pre-trade transparency	✓	✓	✓	✓	×
Post-trade transparency	✓	✓	✓	✓	✓
Non-discretionary execution	✓	✓	×	✓	×
Market surveillance	✓	✓	✓	×	×
Conduct of business	×	×	✓	✓	✓

Table 26: Market structures for trading of financial instruments.

Commodity derivatives: Under MiFID II, trading venues that offer commodity derivatives trading will need appropriate position management controls and limits to manage trading on commodity markets, to prevent market abuse and to ensure orderly pricing. Venues where the most liquid commodity derivatives are traded must make public an aggregated weekly breakdown of the positions held of different financial instruments traded on their platform by different position holder categories [European Union, 2013].

Automated trading: The evolvement of electronic trading has led to a growth in automated trading, which involves the use of computer programs to initiate trades, without human intervention (Hull, 2012). Due to concerns about the market impact from rogue algorithms, automated trading – e.g., algorithmic trading and high-frequency trading (HFT) – was driven to the forefront of regulatory attention and therefore comes under increased scrutiny [European Union, 2013]..
Under MiFID II, firms engaging in automated trading will be required to post liquidity (executable quotes) during the trading period, and to provide details of their trading strategies and trading parameters to competent authorities on an annual basis. Furthermore, they are required to have in place effective systems and risk controls to ensure that their trading systems are resilient, have sufficient

[24] Discretion over how a transaction is executed.

capacity, are subject to appropriate trading thresholds, and limit and prevent the distribution of erroneous orders [European Union, 2013].

Central clearing: MiFIR states that derivative classes subject to clearing under EMIR that are concluded on an regulated market must be cleared by a CCP [European Commission, 2013]. MiFID II states that there must be non-discriminatory access to CCP's, and to index and benchmark data [KPMG, 2012].

Third country firms: MiFID II also contains rules regarding the provision of investment services or activities by third country firms. When providing investment services to retail clients in the EU, third country firms are subject to national regimes and must establish a branch in the Member State [(KPMG, 2012), (European Union, 2013)]. They must acquire prior authorization for establishment of a branch by the competent authority of the particular Member State. Proper cooperation arrangements should be in place between ESMA and third country regulators [European Union, 2013].

3.4.4 Transparency

Transparency plays a crucial role for the smooth functioning of financial markets and the monitoring of systemic risk [Valiante & Lannoo, 2011].The existing **pre- and post-trade transparency** regime is extended in MiFID II, already mentioned, to non-equity instruments [KPMG Financial Services, 2011]. This is a complex task, because current MiFID rules on transparency for equities cannot be translated bluntly into non-equity markets due to a difference in trading mechanisms. Equities are typically dealt with a quote-driven dealer system or bilateral negotiations with the support of an intermediary. Non-equity instruments, such as commodity derivatives, are mainly traded on a bilateral basis, either purely OTC or through 'inter-dealer platforms' [Valiante & Lannoo, 2011]. Financial instruments traded purely OTC, thus not in an organised way, are outside the scope of the transparency requirements [European Commission, 2013].
The MiFID II transparency regime seeks to improve the reliability, availability and timeliness of market data to allow comparison of prices across different trading venues [Accenture, 2010]. The gathering of market data in one place will give investors an overview of all trading activities in the EU, enabling them to make more informed choices [European Commission, 2011].

Under the MiFID II **pre-trade transparency** regime, market operators and investment firms operating a trading venues (RM, MTF or OTF) must report current bid and offer prices and depth of trading interest at those prices advertised through their systems to competent authorities, for both equity and non-equity instruments [KPMG Financial Services, 2011]. The information must be made public on a continuous basis during normal trading hours [European Commission, 2013].
SI's must publish quotes on instruments traded on a trading venue and for which there is a liquid market, on a continuous basis during normal trading hours. For instruments for which there is no liquid market, a SI must make public quotes to clients when the client requests it.
The goals of these pre-trade transparency requirements are enhancing investor protection, supporting efficient price discovery and implementing best execution policies. However, some trading interests (e.g., transactions that contain sensitive information) must be exempt from pre-trade transparency requirements and therefore can be waived, because full disclosure would have a negative impact on the market. These waivers must be approved by ESMA. In general, MiFID II tries to minimize dark liquidity, that is all trading in financial markets done without pre-trade transparency, either under the MiFID exemptions (waivers) or under the MiFID definition of OTC trade [Valiante & Lannoo, 2011].

MiFID II addresses the quality and availability of **post-trade information** with the new regime for data consolidation and reporting services, including Consolidated Tape Provider (CTP), Approved Publication Arrangement (APA) and Approved Reporting Mechanism (ARM) [KPMG, 2012].

- A CTP collects trade reports for financial instruments from RMs, MTFs and OTFs.
- An APA is a person authorised under MiFID II to publish trade reports (quotes, volumes and time) on behalf of investment firms.

- An ARM is a person authorised under MiFID II to provide details of transactions to competent authorities on behalf of investment firms (e.g., trade-matching or reporting systems, including EMIR TR's, authorised as ARM).

Market operators can operate data reporting services of a CTP, APA and ARM, when they get approval from the competent authority [KPMG Financial Services, 2011]. Member States will have to register all data reporting service providers and make the register public. Market operators and investment firms operating a trading venue, and thus executing transactions in financial instruments, must disclose, as close to real time as technically possible, and no later than the close of the following working day, the following information:

- Identifier of the financial instrument bought or sold.
- Transaction price.
- Transaction volume.
- Time of execution.
- Client.
- Trading venue the transaction was executed on.
- Persons responsible for the investment decision and the execution of the transaction, including algorithms used.

The transaction reporting can be done by the investment firm itself, third parties acting on its behalf, trade matching or reporting systems approved by the competent authority (ARM), or trading platforms through whose systems the transaction was completed (RM or MTF). The reported information will be made public through an APA. Regulators should set the conditions to facilitate the consolidation, timely delivery and publication of trade reports to investors through APAs [European Union, 2013].
Investment firms (and operators of a trading venue) must **keep records** of the relevant data relating to all transactions (orders submitted) in financial instruments for at least five years [European Commission, 2013].

Next to this, MiFID II requires investment firms to provide, on request of ESMA, **position reports** for all commodity positions. ESMA will have to monitor these positions and, where necessary, can apply limits on the size of a position in a commodity derivative which a person can have over a specified period. This should help preventing market abuse and support orderly pricing and settlement conditions [European Union, 2013].

The data that different parties must report is summarised in Table 27 [Accenture, 2010].

Who?	What?
Regulated markets and operators of MTFs/OTFs	• Current pre-trade bid and offer prices • Post-trade price, volume and time of equity instruments
MTFs and OTFs	• Current pre-trade price and depth of trading interest • Post-trade price, volume and time of non-equity instruments
Investment firms acting as a SI	• Pre-trade firm quotes regularly during normal trading (if liquid enough) • Disclose firm quotes on client request when not liquid enough for equity instruments traded on RMs, MTFs or OTFs • Pre-trade firm quotes when requested (and agreed to be provided) for non-equity instruments traded on RMs, MTFs or OTFs
Investment firms	• Post-trade price, volume and time for equity instruments traded on regulated markets, MTFs or OTFs • Post-trade price, volume and time for non-equity instruments traded on regulated markets, MTFs or OTFs.

Table 27: Type of information parties will have to publish under MiFID II.

3.4.5 Governance

Investment firms are subject to **organisational requirements.** When these firms not already authorised, they must become authorised, at least when being member of a RM or MTF. Investment

firms must establish adequate policies and procedures sufficient to ensure compliance, including its managers and employees as well as the personal transaction by such persons. This involves, for example, the identification and management of conflict of interest between managers or employees. The organisational requirements of algorithmic trading venues are also tightened under MiFID II to ensure that excessive orders cannot seize up markets or increase volatility [European Union, 2013].
The organisational requirements should ensure continuity and regularity in the performance of investment services and activities. When dealing on their own account or on behalf of clients, investment firms must **keep records** of all these services and activities (as well as transactions), including telephone conversations or electronic communications. When an investment firm records conversations with clients, the clients must be notified in advance. The records must be kept five to seven years [European Union, 2013].
Under MiFID II, all members of a **managing body of an investment firm or market operator** must be of sufficiently good repute, possess sufficient knowledge, skills and experience, and commit sufficient time to perform their function.
Investment firms and market operators operating a MTF or OTF[25] must establish:

- Transparent rules and procedures for fair and orderly trading;
- Objective criteria for the efficient execution of orders ;
- Access to, sufficient publicly available information to enable its users to form decisions; and
- Non-discretionary rules for the execution of orders in the system [European Union, 2013].

Furthermore there are detailed requirements for compliance, risk management and internal audit functions play an important role [KPMG Financial Services, 2011]. When implementing these organizational requirements, there should be harmonisation across Europe and consistency with other upcoming regulations in order to avoid inefficiencies [Valiante & Lannoo, 2011].

3.4.6 Requirements MiFIR/MiFID II

3d. How will MiFIR and MiFID II be implemented?

Below the MiFIR and MiFID II requirements are given, that will impact FC (e.g., banks) and NFC (e.g., energy traders) that are subject to the regulation [European Union, 2013]. In Section 4 this impact is assessed. Hereby the numbering and colouring of the requirements is important in order to distinguish which requirements belong to which regulation.

The requirements are considered to be confidential and therefore cannot be provided.

Investor protection

28. [redacted]

Market Structures

Organised trading

30. [redacted]

[25] They are not allowed to execute client orders against proprietary capital [European Union, 2013].

[redacted]

Automated trading

33. [redacted]

Clearing

35. [redacted]

Third country firms

36. [redacted]

Transparency

Pre- and post-trade transparency

[redacted]

Transaction reporting

41. [redacted]

Position reporting

42. [redacted]

Governance

44. [redacted]

3.5 Overlap

The previous sections show that EMIR, REMIT and MiFID II share a number of common themes (see Table 28). Therefore firms should not consider the regulations in isolation when implementing regulatory requirements. Recognizing common subjects and dependencies across the regulations, will allow them efficient and cost-effective regulatory compliance by avoiding duplication of efforts and generating better outcomes by aligning objectives [KPMG, 2012]. Such a theme-based approach not only aids compliance, but also can have significant business benefits, e.g., competitive advantage through profiting from the industry-wide price transparency in OTC derivatives [Accenture, 2012].

4. What common subjects can be identified across EMIR, REMIT and MiFID II?

	EMIR	REMIT	MiFIR/MiFID II
Central clearing	✓		✓
Transparency	✓	✓	✓
Reporting	✓	✓	✓
Risk management	✓		✓

Table 28: Common themes EMIR, REMIT and MiFID II.

Each of the common subjects from Table 28 is elaborated in the following subsections.

Central Clearing: Both EMIR and MiFID II contain central clearing requirements, e.g., non-discriminatory access to CCP's.

Transparency: One of the key goals of EMIR is to increase transparency in the derivatives market. This goal is covered by REMIT as well, through enhanced reporting requirements [Tieben et al., 2011]. MiFID II also intend to increase transparency, but within the context of market abuse.

Reporting: Compared to EMIR, the trade reporting obligations under MiFID II are less substantial in scope due to differences in the reportable asset classes and the content of the trade reports (see Figure 25) [Clifford Chance, 2012].

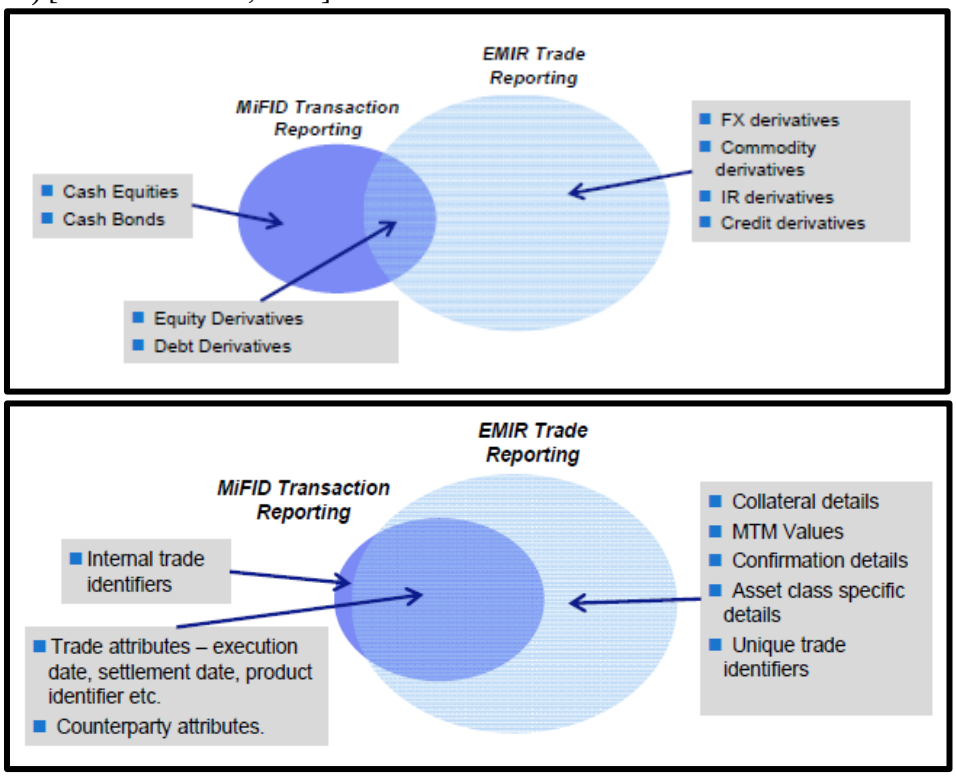


Figure 25: Comparison EMIR trade reporting and MIFID II transaction reporting.

Despite the difference in scope, there are overlaps between EMIR trade reporting and MiFID II transaction reporting, as well as between MiFID II and REMIT in transaction reporting for market abuse surveillance [(KPMG, 2012), (Conforto, 2011)].
The purposes of the reporting obligations under EMIR and MiFID II – improving transparency in the derivative markets and protection against market abuse (European Commission, 2012) – are in line with the rationale for transaction reporting under REMIT [Tieben et al., 2011]. To ensure harmonised reporting under REMIT and EU financial market rules, such as EMIR and MiFID II, a similar approach for the transaction reporting must be handled.
Legally there will be three separate reporting obligations on market participants under EMIR, REMIT and MiFID II, but in practice there would be no double reporting, because only data not already reported to ESMA (EMIR, MiFID II) would have to be reported to ACER (REMIT) (see Table 29) [ACER, 2013]. Those parties, who trade wholesale electricity and natural gas products, will have to comply with REMIT. Those who do not, but trade commodity derivatives, will need to become MiFID II compliant and have to comply with the new requirements on position reporting and limits. For example, spot market contracts that are generally settled physically would require reporting under REMIT, but not under EMIR or MiFID, and therefore must be reported directly to ACER [ACER, 2012].

	Products traded at RM	Products traded at MTFs	Products traded at other trading venues	Products traded bilateral OTC
Wholesale energy products	REMIT (ACER)	REMIT (ACER)	REMIT (ACER)	REMIT (ACER)
Financial instruments with physical settlement	MiFID (FMA) EMIR (TR)	MiFID (AFM) EMIR (TR)	MiFID (AFM) EMIR (TR)	EMIR(TR)
Financial instruments with cash settlement	MiFID (AFM) EMIR (TR)	MiFID (AFM) EMIR (TR)	MiFID (AFM) EMIR (TR)	EMIR(TR)

Table 29: Reporting obligation depending on financial instrument type and market it is traded on.

ACER may also access derivative transaction reports collected and maintained by trade repositories (TRs) [PwC and Ponton Consulting, 2012], as shown in Figure 26 [ACER, 2012]. This should help avoiding double reporting. Furthermore, after MiFID II comes into force, TRs will have the option to register as ARM. Then firms that are subject to EMIR and REMIT do not have to report trades to an ARM when they have already reported it to a TR [Clifford Chance, 2012].

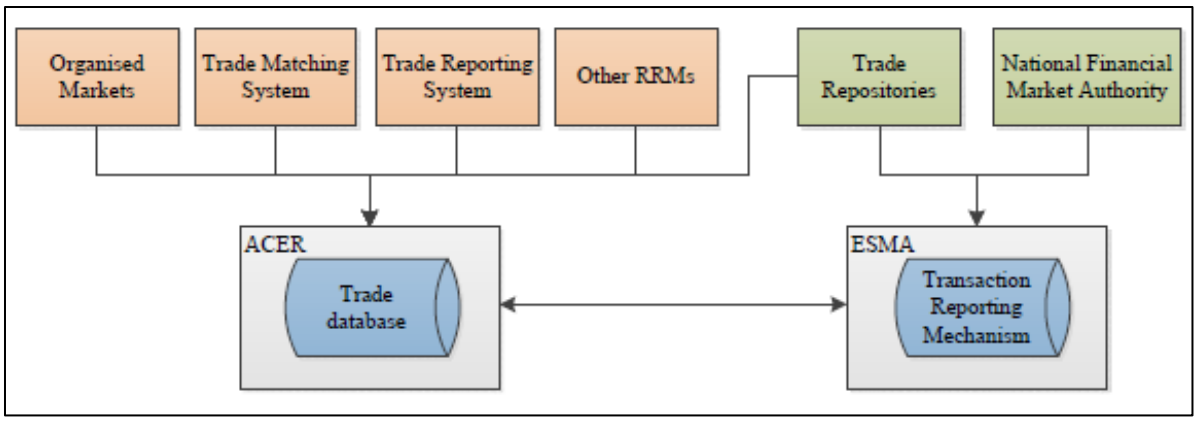


Figure 26: Avoidance of double reporting under EMIR/MiFID II and REMIT.

The reporting channels also show similarities: the TR's registered under EMIR are comparable with the RRMs under REMIT and ARMS under MiFID II. All of them function as an aggregator and should provide the respective supervising authority (ESMA or ACER) with data [PwC and Ponton

Consulting, 2012]. Furthermore, the RM, MTF, SI and market operator under MiFID II correspond with energy exchange, broker and market operator under REMIT, only that the latter is applied to wholesale energy products and market participants to cover the energy commodity market instead of financial instruments and investment firms [Glowacki Law Firm, 2013].

Risk management: Both EMIR and MiFID II contain risk management requirements. Under EMIR these requirements are for non-cleared OTC contracts and under MiFID II for automated trading and HFT.

4. General impact assessment EMIR, REMIT and MiFID II

In this section the general impact of EMIR, REMIT and MiFID II is analysed, which is used in chapter 5 as input for the company specific impact assessment. The general impact of each regulation will be assessed by taking the following steps:

(1) **Map the requirements** of EMIR, REMIT and MiFID II **on process maps** of an investment bank (IB), commercial bank (CB) and energy company in order to provide insights into which requirements impact which particular departments/activities of a bank and an energy company.
A process map shows the organisational structure, including information about the tasks each department performs to produce a specified output [Oracle Financial Services, 2008), (Biazzo, 2002)]. A separate process map for IBs and CBs is created, because they differ significantly in terms of clients and core banking processes. The clients of IBs are corporations, governments and other institutions. Its core processes involve trading and corporate finance decisions (e.g.,, raising debt and equity by issuing and selling securities, mergers and acquisitions, and restructurings). A CB has retail clients (individuals and SMEs) and wholesale clients (medium and large corporations, and financial institutions). Its core activities are deposit-taking and lending [Hull, 2010].

5. What processes can be identified within an investment bank, commercial bank and energy company?

The IB process map (Figure 27) and the energy company process map (Figure 29) are developed by Accenture. The CB process map (Figure 28) is created during this research[26].
To identify which requirement belongs to which regulation (EMIR, REMIT or MiFID II) after having them mapped on the process maps, each of the identified requirements has a number and each regulation has a colour (see Table 30).

Regulation	Requirements
EMIR	1 – 16 (see Section 3.2.4)
REMIT	17 – 23 (see Section 3.3.4)
MiFID II	24 – 44 (see Section 3.4.6)

Table 30: Identification of EMIR, REMIT and MiFID II requirements.

The requirement mapping can be found in Section 4.1 for IBs, in Section 4.3. for CBs and in Section 4.5 for energy companies.

(2) **Assess the impact** of each requirement that is mapped on a particular process within an IB, a CB and an energy company.

6. What requirements of EMIR, REMIT and MiFID II impact which processes within an investment bank, a commercial bank and an energy company, and what is the impact?

[26] The process maps only present the general processes within an IB, a CB and an energy company. It does not necessarily mean that all banks and energy companies show exactly the processes given in the process map.

The impact of the regulations and their requirements not only differ depending on the type of company, but also varies depending on the department and processes within a particular firm. For example, the clearing obligation under EMIR influences the trading department of an IB in a different way than the IT department. Therefore the impact of each mapped regulatory requirement is analysed for each process/department within an IB (see Section 4.2), a CB (see Section 4.4) and an energy company (see Section 4.6).

(3) In this research, a total of 44 requirements are mapped on the process maps. As already mentioned, every requirement has a different impact for different departments/processes within a particular firm. To reduce the complexity of the impact assessment and to give a better overview of the **impacts**, they **are clustered into impact areas**. The latter will be used as a starting point for the company specific impact assessment in Section 5.

7. What impact areas of EMIR, REMIT and MiFID II can be identified when looking at banks and energy companies?

The identified impact areas can be found in Section 4.7.

The process maps are confidential and therefore cannot be provided, as well as the impact assessment, because it contains information related to the process maps.

4.1 Requirement mapping on an investment bank's process map

Figure 27: Requirements of EMIR and MiFID II mapped on the process map of an investment bank.

4.2 General impact of EMIR and MiFID II on investment banks

The requirements of EMIR and MIFID II were mapped on the IB process map in Figure 27. Below the impact of every mapped requirement is analysed and assigned to an impact area.

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

[redacted]

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

Nr.	Regulation	Impact	Impact area

Nr.	Regulation	Impact	Impact area

[redacted]

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

Nr.	Regulation	Impact area	Impact area
[redacted]	[redacted]	[redacted]	[redacted]

4.3 Requirement mapping on a commercial bank's process map

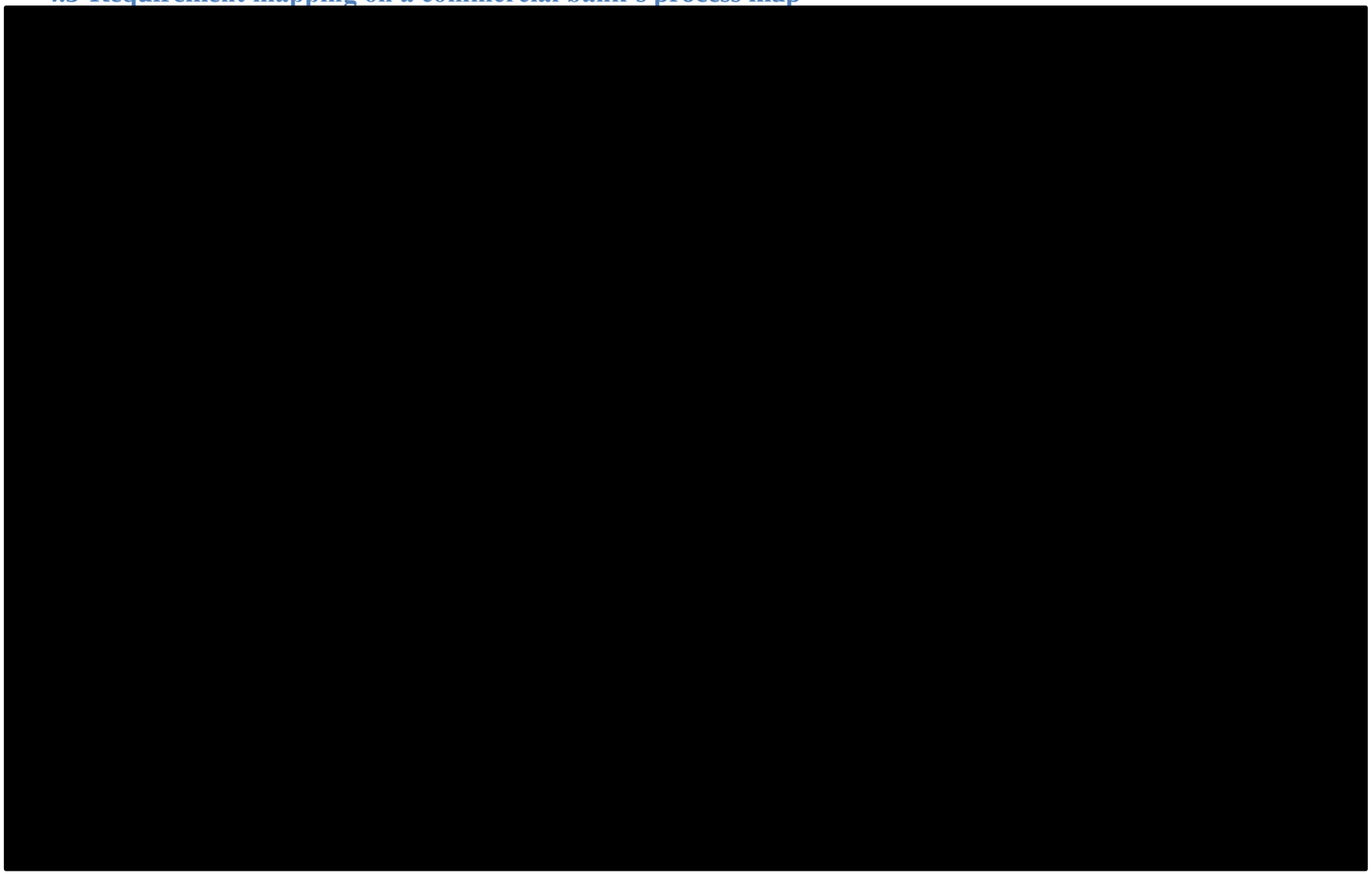


Figure 28: Requirements of EMIR, REMIT and MiFID II mapped on the process map of a commercial bank.

4.4 General impact of EMIR and MiFID II on commercial banks

The requirements of EMIR and MIFID II were mapped on the process map of a commercial bank in Figure 28. Below the impact of each mapped requirement is assessed and assigned to an impact area.

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

[redacted]

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

[redacted]

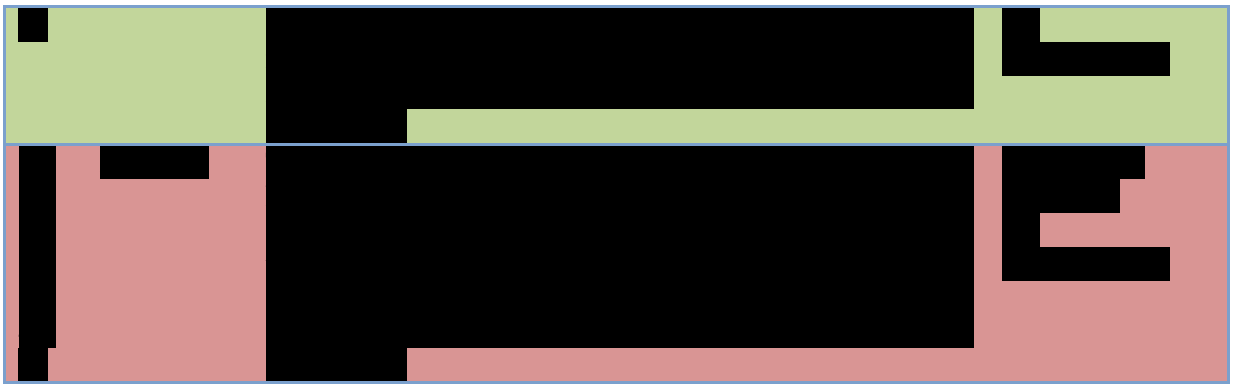
Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]			



Nr.	Regulation	Impact	Impact area

4.5 Requirement mapping on an energy company's process map

Figure 29: Requirements of EMIR, REMIT and MiFID II mapped on the process map of an energy company.

4.6 General impact of EMIR, REMIT and MiFID II on energy companies

The requirements of EMIR, REMIT and MIFID II were mapped on the process map of an energy company in Figure 29. Below the impact of every requirements mapped is described and attributed to an impact area.

Nr.	Regulation	Impact	Impact area
[redacted]	[redacted]	[redacted]	[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Nr.	Regulation	Impact	Impact area
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Nr.	Regulation	Impact	Impact area

[redacted]

[redacted]

Nr.	Regulation	Impact	Impact_area
[redacted]			

[redacted]

Nr.	Regulation	Impact	Impact_area
[redacted]			

4.7 Impact areas of EMIR, REMIT and MiFID II

The mapping of EMIR, REMIT and MiFID II requirements on the process map of an IB, a CB and an energy company resulted in the identification of five impact areas (trading, clearing, reporting, risk management, protection), each having several topics (see Table 31).

Impact area	Topic
Trading	Shift to trading venues
	Automated trading
	Position limits
	Third country regime
	Trading systems
Clearing	Clearing threshold
	CCP membership
	Clearing member membership
	Margin and collateral
	IT infrastructure for clearing
	Trading costs
Reporting	Outsourcing
	Data collection and management

	Record keeping
	Infrastructure for reporting
Risk management	Credit risk
	Operational risk
	Hedging
	Risk management framework
Protection	Investor protection
	Company protection
	Market participant protection

Table 31: Impact areas of EMIR, REMIT and MiFID II on investment banks, commercial banks and energy companies.

5. Characteristics of selected banks and energy companies

8. Which of the banks and energy companies affected by EMIR, REMIT and/or MiFID II are most interesting for Accenture Gallia as potential client in terms of revenue, assets, geographical presence, trading derivatives and client status at Accenture?

Based on revenue, total assets, geographical presence, the size of the derivatives portfolio (see Table 32 and Table 33) and client status[27] at Accenture, the following banks and energy companies are selected for this research:

Banks:

- ING
- ABN AMRO
- Rabobank
- KBC
- BNP Paribas
- Deutsche Bank

Energy companies:

- Shell
- Nuon (Vattenfall)
- Essent (RWE)
- DELTA
- GasTerra
- GDF Suez

The information seen in the following two tables is retrieved from the detailed company profiles in Appendix H.

	Revenue	Total assets	Trading derivatives (assets)	Domestic market
ING Bank	14,241	1,169,000	52,135	Netherlands
ABN AMRO	7,338	394,404	15,726	Netherlands
Rabobank	13,452	752,410	65,423	Netherlands
KBC	7,549	256,886	12,095	Belgium
BNP Paribas	42,384	1,965 ,283	451,975	France
Deutsche Bank	33,741	2,012,329	776,687	Germany

Table 32: Summary selection criteria of selected banks in 2012 (in € million).[28]

[27] The companies' client status cannot be shown in this research, because this information is confidential.

[28] ING, ABN AMRO, Rabobank, BNP Paribas and Deutsche Bank are members at LCH Clearnet, and KBC at HCH (Holland Clearing House).

	Revenue	Total assets	Derivatives	Domestic market
Shell	467,153	360,325	9,527	Netherlands
Nuon	3,905	6,834	1,779	Netherlands
RWE (Essent)	53,227	88,202	84,568	Netherlands
DELTA	2,172	3,064	237,789	Netherlands
GasTerra	23,381	3,734	N/A[1]	Netherlands
GDF Suez	97,038	205,498	2,610	France, Belgium

Table 33: Summary selection criteria of selected banks in 2012 (in € million).

9. What are the characteristics of the selected banks and energy companies in terms of strategy, clients, products, processes, systems and people?

For each selected bank and energy company, information regarding its strategy, clients, products and services, processes, systems and people with respect to the use of financial instruments can be found in Table 34 to Table 37. More detailed information and selected financial data can be found in Appendix H.

Table 34: Information about the strategy, clients, products and services, processes, systems and people of ING, ABN AMRO and Rabobank.

	ING[29]	ABN AMRO[30]	Rabobank[31]
Strategy	ING's overall strategy is to strengthen its financial position, to restructure and streamline its portfolio, to further reduce the risk profile and the size of balance sheet, and to simplify the product range. ING's banking strategy is to build its global presence and international network while capitalizing on its leadership position as a retail, direct and commercial bank in Europe. The bank does this in order to increase its growth potential in the long term.	ABN AMRO concentrates on focusing on the client, maintaining a moderate risk profile and controlling costs while achieving healthy returns. The bank will continue to pursue its strategy to be the principal bank for Dutch businesses and aim to follow its clients abroad. It is internationally active in areas in which it has substantial knowledge, such as energy, commodities and transportation, as well as clearing through the 100 per cent subsidiary ABN AMRO Clearing. ABN AMRO Clearing provides clearing services on more than 85 energy, metals and commodity exchanges.	The bank faces new regulations and tighter supervision, which changes the way of doing business. Rabobank's strategy is to remain market leader in the Netherlands in all financial markets. The bank aims at the same time at positioning itself globally as the worldwide food and agri bank. It is working on streamlining processes and simplifying the product range. This will initially come with large investments in processes and systems, but should lead to major cost cuts in the end.
Clients	ING has a broad customer base with over 67 million private (individuals and SMEs), corporates (large corporations) and institutional clients (institutions and governments).	ABN AMRO serves retail, private, commercial and merchant banking clients. The bank builds sustainable, long-term relationships with its clients in order to best serve their interests. ABN AMRO Clearing's clients include proprietary trading groups, financial institutions, oil and gas companies, hedge funds, brokers, end-users, large international corporate institutions and utility companies.	In the Netherlands, Rabobank has retail, private and business customers.
Products and services	ING offers a variety of products and services to meet the need of all its customers. For individuals ING offers payments, savings, investments, mortgages, insurance, loans, pensions, private banking, and asset and wealth management.	The services ABN AMRO provides depend on the client category. For individuals, the bank provides personal banking services. For private clients (individuals with investable	For retail customers, Rabobank offers the following products: payments, savings, mortgages, lending, insurance, investments, and mobile banking.

[29] [(ING Group, 2012), (ING, 2013), (ING, 2013)]
[30] [(ABN AMRO, 2012), (ABN AMRO Bank N.V., n.d.), (ABN AMRO Clearing, 2013)]
[31] [(Rabobank, 2012), (Rabobank, 2013)]

	For business customers the bank provides products and services related to banking, savings, investments, financing and insurance. For large companies and institutions ING offers payments and cash management, financing, insurance and loans. ING also offers clearing and reporting services for their clients, such as subsidiaries.	assets of more than €1 million) and SMEs, business banking services are offered. For corporates, ABN AMRO offers services regarding cash management, risk management, financing, international business, mergers and acquisitions and asset management. These service offerings are divided into the following sectors: large corporates; energy, commodities and transportation; financial institutions; financial sponsors; and real estate.	The product portfolio for corporates consist of payments and receipts, corporate savings, capital management, trading risk management, exchange and interest rate management, financing and insurance. Private customers can choose from payments, savings, investments, mortgages and insurance products. The bank offers services to customers in the international trade in physical (agricultural) commodities through its Trade and Commodity Finance division.
Processes	The bank's retail banking division generates about 63 per cent of the Group's revenue. Therefore ING can be categorised as a commercial bank, which processes are illustrated in Figure 28.	The bank has limited trading and investment activities. The bank's retail banking division generates 50 per cent of total revenue and uses about 42 per cent of total assets. Therefore ABN AMRO can be categorised as commercial bank, which processes are illustrated in Figure 28 Subsection 4.1.3.	The main processes of Rabobank, which is a mainly commercial bank, are illustrated in the process map of a commercial bank.
Systems	ING has a transformation program aiming, among others, at streamlining IT systems. By decreasing the number of booking locations and front office IT systems, the bank's financial market business line continued increasing efficiency, as well as reducing operational risk and costs. The streamlining helped meeting new regulatory requirements. The bank has many integrated applications, which manage the various workflow processes of the bank. For example, the 'SMARTpro' application manages credit risk and processes related to counterparty on-boarding. The system has several functions, among others the MiFID classification	In March 2012, the bank migrated the total forward exchange and interest rates business to one platform for front- and back-office activities for Finance and Risk. ABN AMRO Clearing has cutting edge IT systems, which are the basis of a stable, high-performance secure production environment. To facilitate reporting requirements, ABN AMRO Clearing offers a state of the art web application that gives access to trades, positions, cash movements and other information. Clients can download data in a flexible format or as predefined files. Therefore both standardised and custom-made queries are	Within Rabobank, an extensive system of limits and controls has been put in place to manage risk with the primary objective to protect the banks reputation. The bank has implemented the Calypso system that supports trading, risk management and processing for a broad range of asset classes on a single integrated platform [International Banking Systems, 2009].

	determination. For Trading Risk Management (TRM), the bank uses Summit [OR&C Staff, 1996]. ING has systems in place to enable management to track current and emerging compliance risk issues, to communicate these to internal and external stakeholders and to drive continuous improvement. To gather market data for mark-to-market valuation, ING uses a single in house developed infrastructure, which receives information from external data vendors (e.g., Bloomberg).	possible. The Clearing division also has a so-called "i-Clearing Line"; a tool that contains global market information of countries, e.g., settlement deadlines.	
People	ING has a separate legal and compliance department. To help its companies effectively manage compliance risks, ING Group created the Compliance Risk Management Charter and Framework. It describes the roles and responsibilities of management and employees of a Compliance Risk Management Framework and Function.	ABN AMRO has a Group wide compliance function, which provides independent oversight on behalf of the Managing Board with respect to policies, procedures and core processes to ensure the bank complies with regulations.	Rabobank has a separate legal and compliance department.

Table 35: Information about the strategy, clients, products and services, processes, systems and people of KBC, BNP Paribas and Deutsche Bank.

	KBC[32]	BNP Paribas[33]	Deutsche Bank[34]
Strategy	By the end of 2012, KBC had largely turned into a regional European bank-insurer with a lower risk profile, while preserving its strengths. The bank had repaid a substantial proportion of the state aid. The group wants to complete its divestment program, further fine-tune its strategy and adjust the management	The bank's strategy focuses mainly on Corporate Social Responsibility. It tries to further develop in the Asia-Pacific region, which is one key driver for the Group's future profitability. The changing (regulatory) environment leads to structural changes within the	The banks strategy emphasises the need for organic growth of its capital base, further risk reduction and higher operating performance. Deutsche Bank reinforces its commitment to the universal banking model, to its German home market and to its global positioning. Furthermore it tries to seize opportunities

[32] [(KBC , 2012), (KBC, 2013), (KBC Asset Management, n.d.)]
[33] [(BNP Paribas, 2011), (BNP Paribas, 2013), (BNP Paribas, 2013)]
[34] [Deutsche Bank, 2012]

	structure accordingly.	banking group. The asset base and funding needs must be reduced. Next to this, the group had to adapt its business model in order to continue creating maximal value for both its customers and for the banking group.	arising from long-term megatrends.
Clients	The bank has mainly retail, SME and mid-cap customers.	BNP Paribas has retail clients and corporate clients.	The bank has corporate, retail and private clients.
Products and services	KBC's offers loans, customer deposits, securities (equity and debt instruments) and insurance products. As a general clearing participant at Holland Clearing House, KBC offers clearing services for derivative transactions entered into on TOM (The Order Machine) MTF to its clients. The Group also has an Asset Management division, which provides investment services for individual portfolio management.	The corporate and investment banking division offers products and services that aim at meeting corporate clients financing, advisory and risk management needs.	Deutsche Bank offers a wide range of products and services for investment, corporate and retail banking, as well as for asset and wealth management. The corporate banking and securities division sells, trades and structures diverse financial market products, such as bonds, equities, ETD, OTC derivatives, foreign exchange and commodities. The bank also trades energy on wholesale energy markets.
Processes	KBC is a commercial bank, which processes can be seen in Figure 28.	The bank generates 55.8 per cent of its revenues from retail banking operations, but only accounts for 29 per cent of the group's total assets. The corporate and investment banking division, however, accounts for 53.5 per cent of total assets. Therefore BNP Paribas can be categorised as investment bank, which processes can be found in Section 4.1.1.	Almost 50 per cent of the bank's revenue and 73 per cent of total assets can be attributed to its corporate banking and securities division. This indicates that the bank is mainly an investment bank, which processes are illustrated in Figure 27 in Subsection 4.1.1.
Systems	The securities division has implemented SunGard, which provides the bank with connectivity, trading, order management and pre-trade risk solutions as managed services or in-house systems [Sungard, 2011].	BNP Paribas uses Kondor Trade Processing systems for its settlement and accounting processes (back-office). This system provides all required functions, such as messaging, reporting and workflow management [Misys, 2012]. The bank's securities division adopted	The bank has an integrated in-house trading platform for the processing of credit derivatives, called T-Zero [Digiterre, 2013]. For trading risk management, the bank uses the same system as Shell. More information about this system can be found in Table 36, column 'Shell', row 'systems'.

		Ubitrade software for its trading and risk management systems [Humphries, 2001].	
People	The bank has a legal and compliance function.	BNP Paribas has a legal and compliance department.	The bank has a legal and compliance department.

Table 36: Information about the strategy, clients, products and services, processes, systems and people of Shell, Nuon and Essent.

	Shell[35]	Nuon (Vattenfall)[36]	Essent (RWE)[37]
Strategy	Shell's strategy is to generate profitable and sustainable growth, and to provide competitive returns to shareholders. The company aims to meet the global energy demand in economically, socially and environmentally viable ways, now and in the future.	The company's strategy is to maintain a reliable, sustainable and affordable supply of energy by using several energy sources for its portfolio.	Essent aims at accomplishing more with fewer resources.
Clients	The firm's clients are large industrial customers around the world.	Nuon delivers energy products to households, companies and organisations in the Netherlands.	The company serves retail customers (private and business).
Products and services	Upstream, the company explores crude oil, natural gas and liquefied natural gas (LNG), and trades natural gas, LNG, power and emission rights. Downstream, it manufactures, supplies and distributes crude oil. It trades physical and financial contracts, lease storage and transportation capacities. The company's trading portfolio consists of crude oil, refined products, natural gas, electrical power, environmental products and chemicals.	The energy firm supplies electricity, gas, heating and provides complementary services. The trading portfolio consists of energy commodities (physical and financial), that mainly relate to forward contracts for oil, gas, coal, power and emission allowances.	It provides gas, electricity, heat and energy services to its customers.
Processes	Shell is an energy company, which processes can be seen in Figure 29 in Section 4.1.5.	The processes of an energy company, such as Nuon, can be seen in Figure 29 in Section 4.1.5.	Essent/RWE is an energy company, which processes can be found in Figure 29.

[35] [(Royal Dutch Shell Plc, 2012), (Shell, n.d.)]
[36] [(Nuon, 2012), (Vattenfall, 2013), (Nuon, n.d.)]
[37] [(RWE Supply & Trading, n.d.), (RWE, 2012), (Essent, n.d.)]

Systems	(Trading) risk management play a crucial role for the energy company is therefore is embedded in its processes. The firm uses OpenLink's Active Data Services based on Oracle technology to calculate and maintain risk, credit and physical position data throughout the trading day. The system can support millions of rows of real-time data [Oracle, 2011].	Just as Shell, Vattenfall uses OpenLink's Active Data Services [Oracle, 2011]. Nuon uses Sakonnet's Xenon software for trading and risk management including VaR for fuels, carbon emissions credits, natural gas and electric power. It is a single platform, which is used to generate data on physical deliveries to gas pipeline systems [Bruce, 2007].	The energy company implemented Pioneer's 'TRMTracker' software to manage its diversified energy portfolio. The firm has a single interface between trading and sales channels, called 'Sales Portfolio Management'. The latter uses TRMTracker to manage the entire lifecycle of complex gas, oil, power and forward exchange transactions (from deal inception to settlement [Molnar, 2011].
People	Every division of the firm has a head of legal, which should handle compliance issues.	The Vattenfall Group has a compliance committee.	The energy company has a legal and compliance department.

Table 37: Information about the strategy, clients, products and services, processes, systems and people of DELTA, GasTerra and GDF Suez.

	DELTA[38]	GasTerra[39]	GDF Suez[40]
Strategy	The company's strengths is the robustness of it multi-utility concept, which involves a lower risk profile due to diversification of activities. It tries to compensate its scale disadvantages with spreading its risks.	GasTerra's strategy is maximising the value of natural gas reserves in the Netherlands. It wants to contribute to strengthening the position of natural gas in the energy mix.	GDF Suez Trading (a 100 per cent subsidiary of GDF Suez) has a strong position throughout Europe and Asia. It aims at creating value by implementing trading strategies. The subsidiary should optimise the Group's assets.
Clients	DELTA supplies gas and electricity to private and business customers.	The firma supplies to energy companies and industrial customers. Important client groups are the Dutch industry and energy suppliers. Next to this, international energy companies, commodity traders and financial institutions increasingly use the company's products.	The firm develops market risk management solutions for all types of energy players, from upstream explorers and producers to downstream industrial consumers, as well as financial institutions such as banks and hedge funds. It also designs risk management solutions for the Group's clients.
Products and	It generates electricity and supplies gas and electricity to its customers. The company	The company produces, sells and trades natural gas. It does not trade in derivative	GDF Suez Trading designs physical and financial market-oriented solutions. It offers a

[38] [(DELTA, 2013), (DELTA, 2012)]
[39] [(GasTerra, 2013), (GasTerra, 2012)]
[40] [(GDF Suez Trading, n.d.), (GDF Suez, n.d.), (GDF Suez, 2012), (GDF Suez, 2013)]

services	trades electricity, fuels (natural gas, oil, and coal) and emission allowances on markets in the Netherlands, Belgium and France. The trading is for hedging purposes, to mitigate the risks involved in energy price fluctuations and to ensure security of supply.	financial instruments. It also provides screen-trading and structured products[41] via brokers or trading platforms (OTC deals). Clients that want to trade gas with GasTerra at a trading point (e.g., the Title Transfer Facility virtual trading point for supplies within the Netherlands) need a contract with the European Federation of Energy Traders (EFET).	range of structured products for highly customised solutions, from vanilla options to complex derivatives. The firm trades gas, oil, exchange, environmental, power, spark, options, and structured products; carries out proprietary trading; and build models to manage energy price fluctuations.
Processes	The company's processes are illustrated in Figure 29 in Section 4.1.5. The company's trading department is, among other things, responsible for selling electricity and buying fuels for its power stations.	The firm is an energy company, which processes can be found in Section 4.1.5.	It is an energy trading company, which processes can be seen in Figure 29.
Systems	Since April 2013, DELTA offers a new service to its clients: an outage-application for Android and iOS (iPhone and iPad). With this application, clients can check 24/7 whether there are outages in the electricity or gas network and what the cause of the outage is.	In 2012, GasTerra chose Energeya's XDM Platform for energy management that enables them to build and integrate several analytical business functions (e.g., pricing, risk management and optimisation) in an open source environment [Energeya, 2012]. The company is a counterparty of EFETnet's eXchange Related processing (eXRP), which is an automated clearing registration process for off-exchange deals [EFETnet, n.d.]. In 2007, Deutsche Bank implemented a new cash management system at GasTerra in order to increase efficiency through automated processing. The system interfaces seamlessly with the company's SAP Electronic Data Interface system [Bruintjes, n.d.].	The company uses Trayport's 'GlobalVision Trading GatewaySM', which provides the trading division with a central system to view, enter, modify and execute deals in increasingly global and complex gas and power markets. The implied 'price calculator' enables the company to use its price information to generate customised, real-time and tradable implied prices within Trading Gateway [Bobsguide, 2011]. For cash management (including treasury, reconciliation and netting), deal management (including interest rate and forward exchange and counterparty risk), and regional co-ordination (such as reporting), the company uses Misys's 'Kondor Trade Processing'as the single communication channel [Misys, 2012].

[41] Screen-trading products are products that have a level supply profile that can be contracted be means of screen trading and that are supplied at virtual trading points [GasTerra, 2013].

People	The company has a compliance function.	The company has a 'Legal and Regulatory Affairs' department.	The subsidiary has separate legal and compliance functions. The Group also has an internal control and compliance division.

6. Company specific impact assessment of EMIR, REMIT and MiFID II

In this section, the impact of EMIR, REMIT and MiFID II is analysed for each of the selected banks and energy companies. To refresh the reader's memory, the selected banks are ING, ABN AMRO, Rabobank, KBC, BNP Paribas and Deutsche Bank. The selected energy companies are Shell, Nuon (Vattenfall), Essent (RWE), DELTA, GasTerra and GDF Suez.
The company specific impact is assessed by combining the general impact of the regulations (Section 3) with company specific characteristics regarding (Section 4). This will give insights in how intense the impact is expected be for each bank/energy company. It will also help to identify opportunities and challenges that arise from the new regulations. These are discussed at the end of this section.

10. What is the impact of EMIR, REMIT and/or MiFID II for each of the selected banks and energy companies?

The expected regulatory impact for each of the selected banks and energy companies is discussed in the following subsections. Which regulation is expected to apply to which banks and energy companies can be seen in Table 38.

Bank/Energy Company	EMIR	REMIT	MiFID II
ING	✓		✓
ABN AMRO	✓		✓
Rabobank	✓		✓
KBC	✓		✓
BNP Paribas	✓		✓
Deutsche Bank	✓		✓
Shell	✓	✓	✓
Nuon (Vattenfall)	✓	✓	✓
Essent (RWE)	✓	✓	✓
DELTA		✓	
GasTerra		✓	
GDF Suez	✓	✓	✓

Table 38: Applicability of EMIR, REMIT and MiFID II for selected banks and energy companies.

6.1 ING Bank

The bank's balance sheet reflects that ING focuses on retail banking, because it shows many simple, transparent products on the asset side such as loans and advances to customers (e.g., mortgages). The largest part on the liability side is customer deposits.
Trading assets and liabilities held for the bank's own risk are very limited, which means that it does not actively trade derivatives and therefore is hardly affected by EMIR. However, this regulation enables the bank to create new service offerings: clearing services for clients. ING must assess to which clients it can provide these services and make sure that they hold sufficient highly liquid collateral to post at the CCPs to comply with margin and collateral requirements. [redacted]
The bank also operates in America through 'ING Direct'. Therefore harmonisation of the EMIR time frame with Dodd-Frank[42] is very important, which includes data fields (e.g., LEI, UPI), information sharing and the single use of a Global Trade Repository for both regulations. ING also asks for

[42] The goals of Dodd-Frank and a table showing the differences between Dodd-Frank and EMIR/MiFID II can be found in Appendix I.

synchronization of EMIR with other jurisdictions, such as Capital Requirements Directive (CRD) IV[43] for dispute resolution and the availability of eligible CCPs [ING, 2012].
EMIR aims to reduce counterparty credit risk in the derivatives market, which is one of the factors that led to the introduction of the Credit Value Adjustment (CVA) charge.
The drop of 22 per cent in the bank's result before tax to €3.219 million in 2012 reflects among other things the negative CVA, for example of €587 million (2011: €275 million positive) for the Commercial Banking and the Corporate business lines. The latter is mainly a result of tightened credit spreads. 2012 was the second year that the CVA was applied, which reflects that mark-to-market counterparty credit risk is embedded within the bank's derivatives portfolio. ING applies CVA also for pricing credit risk into new external trades with counterparties. A mechanism to reduce the CVA charge is posting of collateral [Herbert Smith Freehills, 2013]. For OTC derivative contracts cleared through a CCP, ING will have to post collateral at CCPs, which might reduce the banks CVA.
ING is subject to MiFID II, because the bank's investment management division qualifies as investment firm [ING, 2013]. Due to the already mentioned focus on retail banking, the majority of the bank's clients are likely to be categorized as retail clients. The bank is compliant with MiFID I, but the review changed the requirements for investment advice, execution only services, categorization of clients and best execution. Therefore it is necessary to revise the current client classification, which is especially important for retail clients which get the highest level of protection, because they have the least knowledge about financial instruments. The bank might need to gather additional information necessary to determine a client's profile. On the ING website there is a section called 'what is your investor profile', where clients can fill in a questionnaire that helps drawing up their investor profile [ING, n.d.]. This questionnaire might need to be adjusted.
The retail bank does not trade wholesale energy products and therefore will not be subject to REMIT.

6.2 ABN AMRO

One of the bank's short-term business objectives is to anticipate for potential geographical and sequential differences with regard to the implementation of EMIR and MiFID II, which can disrupt the global level playing field and/or the earnings model of certain businesses. The bank has little investment banking activities and a small derivative portfolio. The latter implies that it is not expected to be heavily affected by the regulations.
The implementation of EMIR will increase the bank's reporting requirements on outstanding derivative contracts and the risk management requirements for non-cleared contracts, including increased exchange of collateral.
MiFID II requires the institution to change its processes and systems significantly, for example because its infrastructure must be aligned with the shift of all organised trading to trading venues, including the new OTF category. The transparency and reporting requirements will place an additional burden on the bank's administrative processes. Due to the increased pre- and post-trade transparency, competitors can get more insight into the bank's operations, which might danger its competitive advantage in some areas.
The retail bank does not trade wholesale energy products and therefore will not be subject to REMIT.

After the takeover of ABN AMRO by the Dutch government in 2011, the bank divested the majority of its foreign operations. The remaining, mainly retail, operations were centred in their domestic market. Currently, the bank tries to win back its position as a dominant player in private banking and to re-establishing its international presence as a corporate and investment bank. The latter involves its fully subsidiary ABN AMRO Clearing, which offers clearing service within derivatives market worldwide.
The subsidiary will be heavily affected by the regulatory changes under EMIR and MiFID II. Given the goal of the bank to win back its international presence, the new regulations are an opportunity rather than a treat for the subsidiary. They take the bank one step further to re-establishing its global presence as a dominant clearing party for corporations and other banks across the globe, especially

[43] CRD IV entered into force on 17 July 2013. It contains EU rules on capital requirements for credit institutions and investment firms. These rules aim to put in place a comprehensive and risk-sensitive framework to foster enhances risk management amongst financial institutions [European Commission, 2013].

within the energy (e.g., crude oil, emissions, natural gas and electricity), commodities, and transportation business.
Prior to EMIR, a product was associated with one CCP for interdealer transactions, e.g., CDS with ICE Europe and IRS with LCH SwapClear. Currently, CCPs clear a range of products. In Europe, Eurex, LCH Clearnet, ICE and CME Europe will all be competing for IRS, CDS and forward exchange clearing. Currently, ABN AMRO Clearing provides OTC derivatives clearing for Interest rate Swaps, Overnight Index Swaps, and Variable Notional Swaps. It already clears LCH SwapClear and expects to clear Eurex and CME Europe from Q4 2013 onwards [ABN AMRO Clearing, 2013]. The firm has grown because of its cross-market and cross-asset clearing services. New regulations create opportunities and the need to expand its expertise to new products and target groups/markets and to connect with new CCPs [ABN AMRO Clearing, 2012].
To help its clients cope with the higher cost of collateral and greater trading complexity, ABN AMRO Clearing has been investing in collateral optimization by combining CCP margin financing with cross-asset correlation and collateral protection [ABN AMRO Clearing, 2012].

6.3 Rabobank

In its domestic market, Rabobank focuses on loans and deposits with a large portfolio of low risk residential mortgages. The bank has a small derivatives portfolio, just as ING and ABN AMRO. However it differs from the other banks of this research because globally, it focuses on food and agri businesses. The latter involves the structuring and trading of agricultural commodities for its food and agri clients. Therefore, the bank is likely to be subject to EMIR and MIFID II requirements that concern commodity derivatives. The impact might be limited because it does not speculate in agri-cultural commodities for its own account and risk.
Nevertheless, the bank faces new regulations and tighter supervision, which changes the way of doing business. It will have to increase its transparency and reporting efforts, which require enhanced compliance, risk management and internal audit functions. An infrastructure must be created that facilitates the new trading and reporting requirements, such as systems that can be connected with CCPs, TRs and trading venues, including the new OTF category. Rabobank has a lot of custom, in-house build solutions, for which changes are quite difficult to make.
Not only the bank itself, but also its clients might be subject to certain obligations under EMIR. Especially non-financial companies are often not aware of that. Therefore, on its website, Rabobank informs its clients about the possibility of being subject to regulatory requirements. The website also provides information about MiFID I, but nothing about MiFID II. To ensure that advice is still properly suited to the knowledge, experience, financial position, objectives and risk appetite of clients, the bank need to review the client classification.
Rabobank does not trade wholesale energy products and therefore will not be subject to REMIT.

6.4 KBC Bank

KBC is the smallest of all banks analysed in this research, with a very small trading derivatives portfolio (2012: €12,095 million). Therefore the bank is unlikely to be affected by EMIR. However, MiFID II will heavily impact its large asset management division (KBC Asset Management NV). In order to comply with the new investor protection and transparency requirements, the firm needs to find a clearing member with the capacity to provide sufficient clearing services and must rethink its distribution strategy. On the KBC Asset Management website several documents are published, such as a brochure that provides clients with information on the nature of financial instruments and the related risks. In this document, for each financial instrument it is stated whether it is covered by MiFID and a complex instrument. For undertakings for collective investment (UCI), however, there is no information about whether these products are subject to MiFID and/or categorised as complex products. The document was last updated in June 2013, so the question is if KBC Asset Management is not providing these information on purpose, because there are no final MiFID II documents yet. Under MiFID II, the definition of complex products is extended to some structured UCITS [KPMG, 2012]. The other documents on the firm's website are last updated in 2010/2011. This indicated that KBC Asset Management has not implemented any MiFID II requirements yet. It is unclear whether they are already working on it.
KBC does not trade wholesale energy products and therefore will not be subject to REMIT.

6.5 BNP Paribas

BNP Paribas, as one of the world leaders in derivatives trading, is significantly affected by EMIR and MiFID II. The bank will have to shift large parts of operations to exchanges and OTFs, which limits the possibility to tailor contracts for clients and obliges the bank to clear their derivatives through CCP's. To comply with the regulations, substantial changes to existing derivative trading processes are necessary. This involves, for example, the reestablishment of all bilateral agreements and the setting up of settlement agreements with all counterparties.

BNP Paribas needs to rethink its investment banking and derivatives strategy. The bank relies on its large derivatives portfolio, as about half of the bank's assets and liabilities are attributed to investment and trading activities, but these instruments place an enormous compliance burden on the bank.

Furthermore, the bank will be subject to increased transparency and reporting requirements and an additional set of rules of business conduct. It must increase transparency and reporting efforts, which require enhanced compliance, risk management and internal audit functions. An infrastructure must be created that facilitates the new reporting requirements.

Regarding the investor protection requirements under MiFID II, BNP Paribas will have to be more prudent when giving investment advice, especially towards retail clients. This will impact the bank's private banking and asset management operations. These divisions will have to (re-)classify clients and tighten the monitoring of portfolios.

It is also active in the commodities derivatives business by trading energy products, such as crude oil and natural gas. The bank invests in physical markets as well and thus offers services related to both financial and physical aspects of commodities. Regarding commodities, BNP Paribas must deal with regulatory requirements when trading commodities on own account and on the behalf of clients. For the latter, it has to establish robust trading risk management (TRM) processes and systems in order to cope with the risks associated with commodities, especially physical commodities. The 'normal' TRM software of banks is not designed to cope with these type of risks, so banks, when not already have, need to purchase an ETRM software when trading commodities.

Not only BNP Paribas itself, but also some of the bank's clients have to comply with EMIR. Therefore it offers trading, clearing, reporting and post-trade services for client's OTC derivative contracts (see Figure 30) [BNP Paribas, 2013].

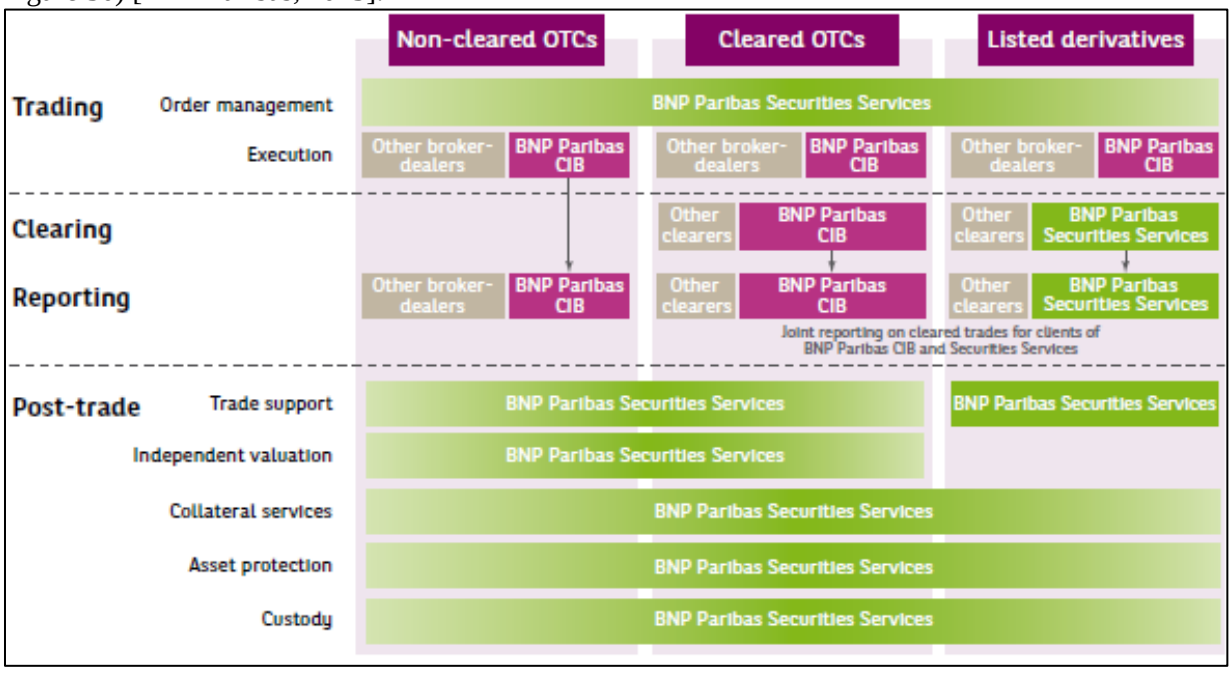


Figure 30: A complete solution for derivatives needs.

Currently, BNP Paribas conducts its operations in compliance with MAD (Market Abuse Directive) and therefore is unlikely to be subject to REMIT requirements as well [BNP Paribas, 2013]. In accordance with MAD, the bank has established a system for the prevention and detection of market abuse) and conflicts of interest. It has also developed tools for detecting suspicious transactions, e.g., a

procedure that defines the role of an employee who discoverers the suspicious transaction [BNP Paribas, 2013].
The central clearing obligation (EMIR) and the shift of all organised trading to trading venue (MiFID II) should reduce credit risk in the derivatives market. These obligations might also reduce the risk associated with BNP Paribas' derivatives portfolio, which then would result in reduced capital and liquidity requirements, such as the Capital Adequacy ratio (CAR) and the Net Stable Funding Ratio (NSFR) under other regulations, such as Basel III. The alignment of the implementation of EMIR and MiFID II not only with Dodd-Frank, but also with other, capital and liquidity addressing, regulations would be a smart move.

6.6 Deutsche Bank

The impact of EMIR and MiFID II on Deutsche Bank is similar to those on BNP Paribas, as both are investment banks with a large derivatives portfolio.
The largest proportion of the bank's trading derivatives portfolio can be allocated to the 'Corporate Banking and Securities' division. Its risk profile is dominated by its trading activities, in particular market risk from position taking and credit risk from derivatives exposure. The credit exposures from OTC derivatives transactions of the different business divisions can be seen in Table 39, including netting and cash collateral received. Derivatives qualifying for hedge accounting are excluded [Deutsche Bank, 2012].

OTC derivatives exposure	2012	2011
Corporate Banking and Securities	53,629	65,145
Global Transaction Banking	732	815
Asset and Wealth Management	555	1,042
Private and Business Clients	1,150	829
Non-Core Operations	6,373	11,790
Consolidation and Adjustments	5	3
Total	**62,444**	**79,624**

Table 39: OTC derivatives credit exposure by business division (in € million).

Table 42 [Deutsche Bank, 2012] indicates that the banks credit exposure in OTC derivatives in North America decreased, which may be related to the implementation of Dodd-Frank.

OTC derivatives exposure	2012	2011
Germany	3,159	5,148
Western Europe (excluding Germany)	29,478	35,932
Eastern Europe	1,075	135
North America	18,423	28,070
Central and South America	1,053	396
Asia/Pacific	9,165	9,011
Africa	17	888
Other	74	44
Total	62,444	79,624

Table 40: OTC derivatives credit exposure by geographical region (in € million).

81.5 per cent of the bank's OTC business are interest rate derivatives (notional value: notional value: €41,265 billion), 11.7 per cent are currency derivatives (€5,908 billion), and the rest can be attributed to equity, credit, commodity and other derivatives [Deutsche Bank, 2012].
Deutsche Bank already centrally clears OTC derivative transactions, where possible, to mitigate credit risk. The notional amount of OTC derivatives that the bank has settled through CCPs is €10.0 trillion in 2012 (2011: €10.8 trillion). EMIR obliges them to clear all standardised OTC derivative transactions and post margin and collateral for non-cleared contracts at CCPs. The implementation of this mandatory clearing obligation will further increase the bank's use of credit risk mitigation [Deutsche Bank, 2012].
The increase in centrally cleared OTC derivative transactions matches with the observation that the bank's CVA decreased from €1.1 billion in 2011 to €737 million in 2012. This amount is required to

cover expected credit losses to the extent not already included in the valuation relating to default risk of counterparties. Its calculation takes into account, among others, collateral held and the effect of any relevant netting arrangements [Deutsche Bank, 2012].
The investment bank does not trade wholesale energy products and therefore will not be subject to REMIT.

6.7 Shell

Shell is an energy trading company and therefore a participant of wholesale energy markets. The latter implies that it is subject to REMIT. To meet the requirements regarding information reporting and disclosure, the company must make sure that it can access all relevant data. Therefore it must review existing controls and systems to ensure these can cope with the increase of the data reporting under the new regulation. Shell should analyse potential overlaps between this regulation and other regulations, in particular EMIR and MiFID II, in order to reduce potential duplication of efforts [KPMG, 2012].
The company complies with the requirements by publishing information on planned (maintenance) and unplanned (outages) availability of its facilities on its website in the format shown in Table 41 [Shell, n.d.].

Date of outage	Relevant ASEP	Loss of volume (mcm/d)	Duration of outage
14/09/2013	Baction	17.7	2 days
01/08-2013	Bacton SEAL	10	18 days
07/05-2013 at 8:00 hrs	St Fergys	25	6-12 hours

Table 41: Format for disclosure of information on (un)planned unavailability of Shell's facilities.

In response to REMIT, the energy company is currently *adjusting its trading risk management system and implementing process and analytics solutions to detect potential insider trading and other market abusive trading activities.*

The energy giant is lobbying, among others with BP, against proposed regulation to prevent insider trading and market abuse on commodity markets under REMIT and MiFID II. It argues that physical commodity trading should be excluded from the regulations. According to Shell, the volume of data that must be disclosed is inappropriate and will increase trading costs [Gosden, 2013]. The latter would ultimately result in higher costs of energy for end users, because firms would pass on additional costs to customers (e.g., airlines and business), who would incorporate it in final energy prices [(Freedman, 2013), (ICIS, 2012)]. When becoming subject to MiFID II, it might be wise to segregate the area that deals with MiFID business [KPMG, 2012].
It is not clear yet whether Shell will be subject to EMIR and MiFID II. This depends on the final definition of 'financial instrument' (e.g., whether physically settled commodity derivatives will be included) and on the purpose for which derivative instruments are used (e.g., hedging or not). In any case, the company should assess the potential impact of becoming subject to these regulations, the corresponding costs and ways to minimize the impact, e.g., by restructuring the business model [KPMG, 2012].
Regarding EMIR, Shell must analyse its actual level of OTC commodity and derivative trading to determine whether a breach of the clearing threshold is likely or not. To avoid becoming subject to mandatory clearing, the company will need to clearly identify those contracts that cover risks arising from commercial activity, and demonstrate that to the relevant regulatory authority [KPMG, 2012].
When becoming subject to EMIR, the company will experience higher costs of reporting and it will need additional capital for margin and collateral. Its flexibility of structuring products for hedging purposes might also be reduced. Furthermore, existing processes and systems are likely to require updates to cope with the new reporting requirements [KPMG, 2012].
Whether Shell is required to comply with the regulation or not, it will have to assess the regulation's impact on the firm's counterparties in the commodities and derivatives market. The company needs to know who is captured by the regulation and what the implications will be when conducting business with these parties [KPMG, 2012].
Given the fact that Shell is an international company, it should also assess if it might be captured by other jurisdictions as well, such as Dodd-Frank in the US.

6.8 Nuon (Vattenfall)

To comply with REMIT transparency requirements, Vattenfall publishes details on availability of capacities of its power plants in the Netherlands and the Epe gas storage facility at the Dutch-German border on its website. Only reductions higher than 100 megavolt are published (see Table 42) [(Vattenfall, n.d.), (Gas to Power Journal, 2012)].

Buggenum 01, Coal, Power NL, 0				
Unavailable	**Begin**	**Expected End**	**Updated**	**Comment**
249.0	2013-04-01 00:00	2017-12-31 23:45	2013-03-18 21:49	Plant is closed down permanently from the first of April 2013

Table 42: Format for disclosure of information on (un)planned unavailability of Vattenfall's plants.

Regarding EMIR and MiFID II, Nuon/Vattenfall is in the same situation as Shell. It is still unclear if the company will belong to the regulations' target group. It must examine its current exemptions and assess whether these are still applicable [KPMG, 2012]. When being captured by these regulations, the expected impact is substantial. When the company cannot sell electricity on OTC markets anymore, but has to go through CCPs, it would need additional capital for margins and collateral. This could add up to a billion euro amount [Financial trading, 2011]. Therefore the company is lobbying against the implementation of these regulations as well.

6.9 Essent (RWE)

In 2010, RWE implemented the REMIT transparency requirements and fulfilled the new standards as one of the first European power generators. The company publishes relevant information regarding the capacity of its facilities (e.g actual capacity, available capacity forecast and current failures) on its website on an hourly basis, also on behalf of its subsidiaries, such as Essent. The company discloses information related to the [(Energiekeuze, 2012), (4-traders, 2011), (RWE, n.d.)].

Industry observers expect a number of large energy trading firms, including RWE, to get caught by the requirement to clear their OTC derivatives under EMIR [Farrington, 2013]. The company says it is not scared about the possible consequences of becoming subject to that regulation, because it can proof that most of its trading business is risk-reducing and thus excluded from the clearing threshold calculation [PwC, 2013].

The chance of being captured by MiFID II, however, is higher. This could fundamentally change the trading business in the energy and commodity markets, in a direction that is not beneficial to the company [PwC, 2013]. The impact on Essent/RWE would be the same as on Shell and Nuon/Vattenfall. According to RWE, the move of all organized trading to trading venues would reduce the risk associated with trading, but only increase transaction costs [(RWE Supply & Trading, n.d.), (PwC, 2013)].

If having to comply with the regulation, RWE can move its trading activities to trading venues, because the company has set up two subsidiaries in Germany and UK, both having banking licenses [(RWE Supply & Trading, n.d.), (PwC, 2013)].

6.10 DELTA

As an energy company, DELTA is subject to REMIT as well and therefore discloses information about events of unplanned availability of its plants (see Table 43) and about the short and long term maintenance planning (see Table 44) on its website [DELTA, 2013].

Maintenance data	Example
Power plant (unplanned)	Sloe20
Fuel	Gas
Location	Ritthem
Unplanned unavailable (in MW)	400
Unplanned available (in MW)	
Begin day	23-07
Begin time	0:00
Expected end day	30-07
Expected end time	24:00

Table 43: DELTA format to publish data on unplanned unavailability; all data is given in megawatts (MW)[44].

Date	Time	Coal fired	Nuclear	Gas fired	Wind energy	Biomass
2013.07.30	00:00	393	467	1226	112	32

Table 44: DELTA format to publish data on short-term and long-term availability; all data is given in megawatts (MW).

The company publishes a monthly report with actual market information on its website. Due to lack of clarity regarding REMIT and EMIR, the publication stopped. DELTA expected to have more information in June 2013, which was not the case and the publication of monthly market updates not continued yet [DELTA, 2013]. This indicates that the company takes into account the possibility of being subject to EMIR.
Regarding MiFID II, Delta is likely to be exempt, because it is an utility company, which are outside the scope of the regulation.

6.11 GasTerra

The company has implemented a compliance program to prevent insider trading and market manipulation in accordance with REMIT. The content of this regulation and its impact on the company's processes and systems still contains a lot of uncertainty. Therefore GasTerra tracks these developments carefully. To comply with the regulation's transparency requirements, the company discloses information on its website.
With respect to EMIR, the company states in its annual report that they do not actively trade in derivative financial instruments and therefore not expect to be subject to this regulation. However, the company attends conferences about OTC derivatives trading and central clearing [IIR Finance, 2012], which contradicts with statements they make in their annual report regarding the regulation.
The applicability of MiFID II to the GasTerra depends on how the term 'financial instrument' will be defined and on possible exemptions. The company expects that it is outside the regulation's scope, because its products are physically settled.
If the company will be subject to EMIR and/or MiFID against all odds, it will be a huge challenge to comply with these regulations. It is a much smaller company than Shell, Nuon/Vattenfall, Essent/RWE and GDF Suez and thus has a less sophisticated infrastructure and fewer resources available, for example to invest in new IT systems. GasTerra not have a separate IT role, but moved everything into the business. This involves a lot of joint coding and development of systems with traders, planners and optimizers [PwC, 2013].

6.12 GDF Suez

Asset operators, such as GDF Suez, are required under REMIT to publicly disclose certain data related to assets in an efficient and timely manner. The company meets these transparency requirements by publishing information on its website about the capacity of the company's assets to produce, store and transmit electricity and gas (including LNG) in the EU. Planned and unplanned unavailability of these assets is disclosed as well [GDF Suez, n.d.]. The development of this website to fulfill REMIT disclosure obligations has taken a lot of efforts and its maintenance continues to do so. Features like

[44] For illustration, 1 megawatt (1.000.000 watt) can be used to supply electricity for approximately 2.000 Dutch households.

24/7 availability and a high degree of security made it costly: the development of the IT systems has cost GDF Suez €150,000 and their estimated ongoing costs are €30,000 to €75,000 per year [Leys, 2012].
The company has a large derivatives portfolio and its overall gross notional value of their asset position is likely to exceed the EMIR clearing threshold. The company's head of regulation, Jan Leys, expects clearing costs between €900 million and €4 billion, based on a back of the envelope calculation of the initial margin costs for commodities, forex and interest rates [Montel, n.d.].
Regarding the implementation of MiFID II, the Chief Risk Officer of GDF Suez Trading, Nico van Wayenbergh stated that the company is MiFID I compliant. It is obliged to comply, because it is registered as an Investment Service Provider[45] [Carr, 2013] and thus qualifies as investment firm.This makes it more prepared for this regulation than other energy companies of this research.
According to van Wayenbergh, integrated processes and a robust IT infrastructure are essential when operating in a regulated environment. The new regulatory requirements impact all functions within the company. To comply it is crucial that different parts of the business collaborate; all systems must be integrated, from back to middle office, e.g., risk management, sales, trading and support functions [Carr, 2013].

6.13 Company specific challenges and opportunities

In the previous subsections, several opportunities and challenges for the selected banks and energy companies that arise from EMIR, REMIT and/or MiFID II were identified. These are summarised in this section.

11. What are the opportunities and challenges for the selected banks and energy companies that arise from EMIR, REMIT and MiFID II?

Alignment of European and US regulations: Banks and energy companies that operate in Europe and in the US (ING, Rabobank, BNP Paribas and Deutsche Bank; Shell and GDF Suez) must assess whether they are subject to EMIR/MiFID II and Dodd-Frank to avoid duplication of efforts when implementing regulations.

Additional service offerings: Banks might increase their revenue by offering additional services to clients, such of clearing services. This is an opportunity, in particular for ABN AMRO Clearing. The latter can establish as a global leading clearing party and thereby winning back its international presence.

Market exit: When becoming subject to EMIR and/or MiFID II, the implementation of which will be cost extensive, small banks and energy companies (KBC; Delta, GasTerra) might curtain activities or even drop out of the market (e.g., stop trading derivatives).

Reduction of CVA: For the selected banks that are subject to mandatory clearing under EMIR (ING, ABN AMRO, Rabobank, BNP Paribas and Deutsche Bank), the trading through CCPs might result in reduced capital requirements in the form of a lower CVA amount.

Risk models: Banks are increasingly challenged to build robust models to assess counterparty credit risk, including for example CVA and credit VaR.

Integrated processes and strong IT infrastructure: Large banks, especially investment banks (BNP Paribas and Deutsche Bank) and energy companies with a large derivatives portfolio (GDF Suez) have integrated processes and a robust IT infrastructure, which makes it easier for them to implement new regulatory requirements. For smaller banks and energy companies, which do not have such strong and

[45] Investment Service Providers (ISP) other than asset management companies are, investment companies and credit institutions that have received an authorization of AMF (Autorité des Marchés Financiers) to provide investment services [AMF, 2013].

integrated internal processes and systems, it will become much more costly – maybe even too costly - to comply with EMIR/REMIT/MiFID II requirements.

Extended scope: For energy companies that have not been subject to financial regulation before, the impact of being captured, e.g., by EMIR and/or MiFID II, will be substantial. GDF Suez is the only energy trading company of this research that is registered as Investment Service Provider and thus MiFID compliant. This is an opportunity for the company, because it will be ahead of competitors regarding regulatory compliance and is likely to experience lower costs of compliance.

7. Accenture's value proposition for EMIR, REMIT and MiFID II

The impact of EMIR, REMIT and MiFID II for each of the selected banks and energy companies and the resulting business opportunities and challenges, for both the selected companies and Accenture, are used as input for this chapter.
Now it is analysed which assets and capabilities Accenture has that are necessary to help companies complying with EMIR, REMIT and/or MiFID II and to utilise business opportunities resulting from the regulations.

7.1 Definition value proposition

12. What is a value proposition?

According to Osterwalder and Pigneur (2010), a value proposition is an aggregate bundle of a company's products and services that create value for a specific customer segment by solving a customer problem or satisfying a customer need. The solution to the customer's problem is delivered through communication, distribution and sales channels. When successfully satisfying customer's needs, it results in revenue streams. The value proposition is the reason why customers turn to one company over another, and therefore a strong value proposition can mean competitive advantage.
A value proposition can be innovative and represent a new product or service that should satisfy needs that customers previously did not perceive, because there was no similar offering. It can also be existing products or services that are slightly improved, such as improved performance or lower price. A value proposition can also simply be related to getting a particular job done, that allows customers to focus on their core business and strengths [Osterwalder and Pigneur, 2010]. The latter applies here, because compliance is not a core business of the selected banks and energy companies and Accenture can offer services that help these companies comply with EMIR, REMIT and MiFID II and at the same time can concentrate on their core business. Accenture's value proposition regarding compliance with EMIR, REMIT and/or MiFID II is given in the next section.

7.2 Accenture's value proposition for EMIR, REMIT and MiFID II

Accenture Risk Management has several capabilities, some of which can be interesting for the selected banks and energy companies. When they have to comply with EMIR, REMIT and/or MiFID II, they can make use of Accenture's assets and capabilities.

13. What are the assets and capabilities of Accenture Risk Management with respect to the impact of EMIR, REMIT and MiFID II on banks and energy companies and the opportunities and challenges resulting from the regulation?

Figure 31 shows all capabilities of Accenture Risk Management [Accenture Research, 2012]. Below the, for regulatory compliance matters relevant, capabilities will be described in more detail and it will be explained why particular capabilities of Accenture can help the selected banks and energy companies to achieve compliance.
Figure 33 contains confidential information.
Figure 31: Accenture Risk Management Capability Framework.

[redacted]

Concerning energy companies' compliance with EMIR, REMIT and/or MiFID II, Accenture can play an important role in setting up a sophisticated Enterprise Risk Management (ERM) framework. Currently, a relatively smaller percentage of energy companies have ERM programs in place, as can be seen in Figure 32 [Accenture Risk Management, 2011].

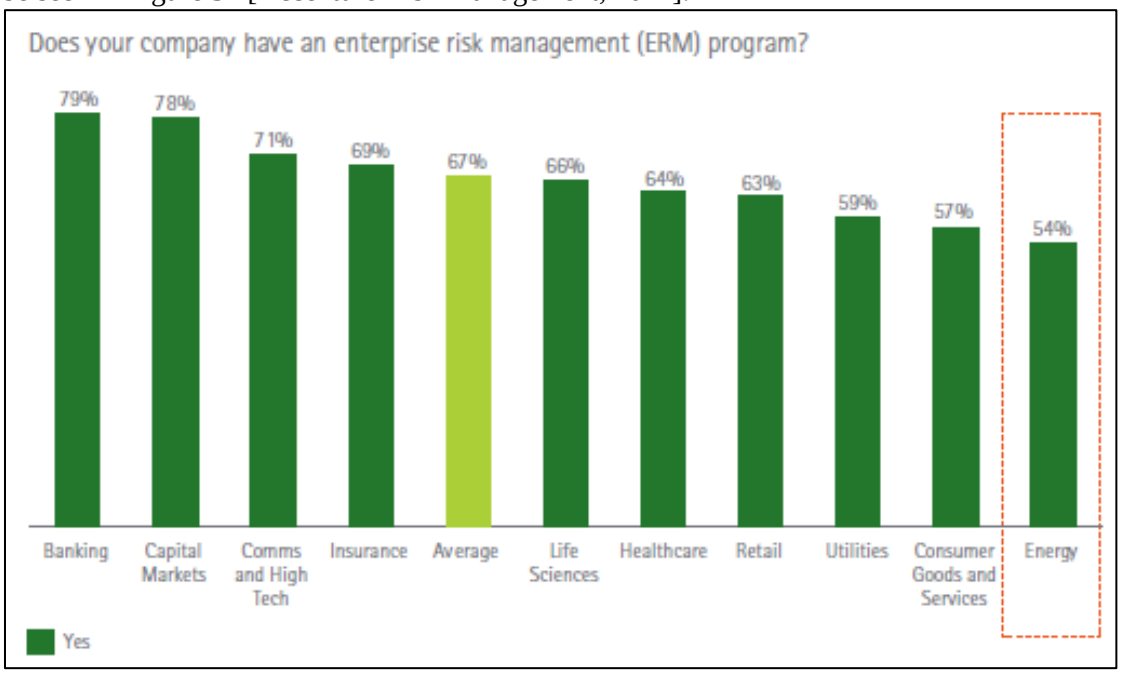
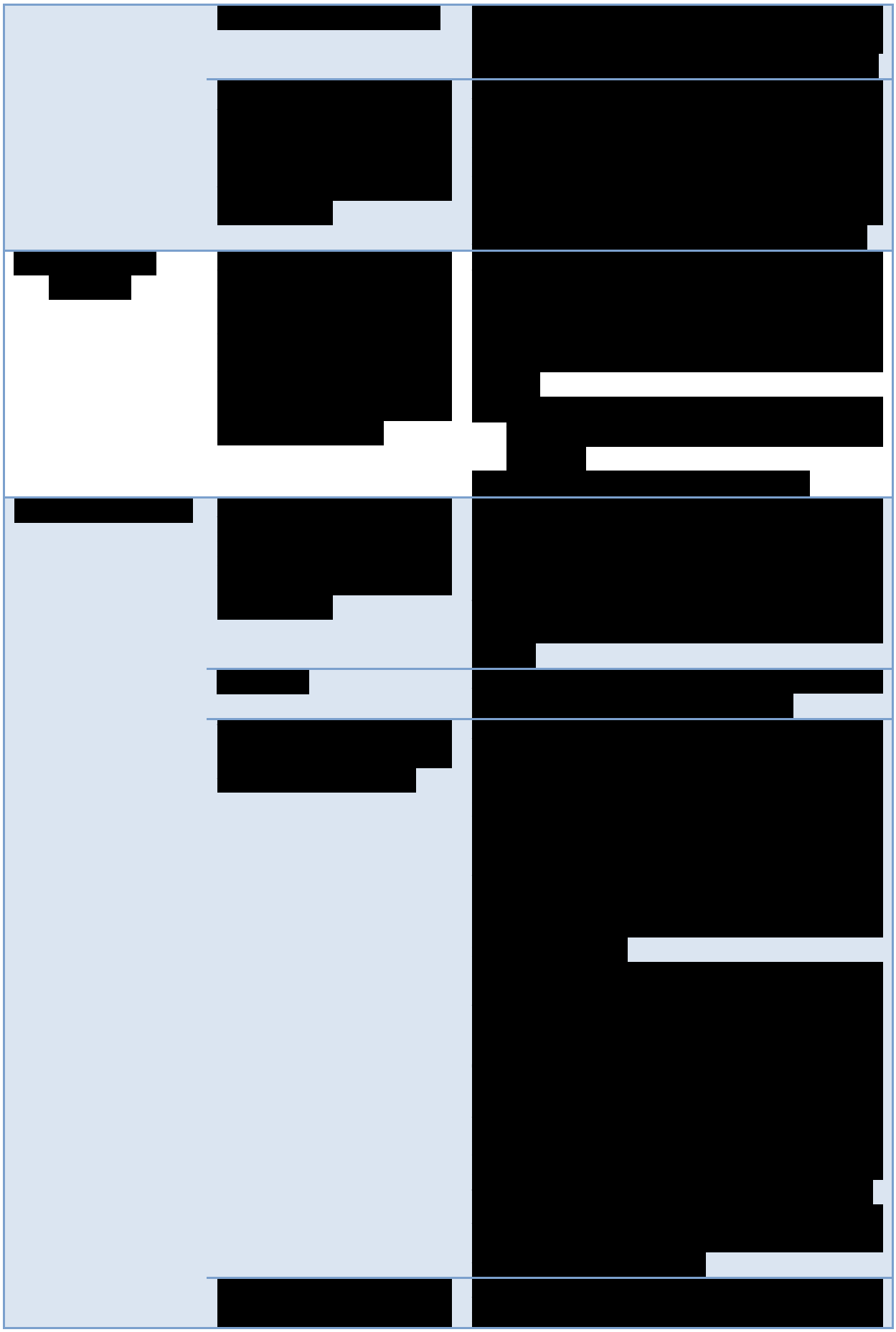


Figure 32: Finding ERM from Accenture Global Risk Management Study in 2011.

Instead of having an integrated ERM program, many energy companies have a combination of risk capabilities at the corporate and business unit level. This is not necessarily a bad thing; however, Accenture believes that one of the primary benefits of a comprehensive ERM capability is its symbiotic relationship with performance management. When ERM and performance management are integrated, they can work together toward the common goal of increasing the company's profitability and growth. This integration is supported by results of the Accenture Global Risk Management Study 2011, in which 75 per cent of respondents said that they have extended their credit risk analysis beyond trading functions, such as hedging applications, to include the entire enterprise. Technology vendors offering front-to-back Trading and Risk Management (TRM) solutions are, for example, Murex and Calypso [Accenture Research, 2012].

In order to illustrate how Accenture can specifically help companies to comply with EMIR, REMIT and/or MIFID II, the steps shown below, banks and energy companies need to take when working towards compliance. Each step is described with the corresponding assets and capabilities of Accenture for each step it is described how Accenture can assist (see Table 45).

Step	Description	How Accenture can help
[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]



	[redacted]	[redacted]

Table 45: Implementation process and Accenture's role.

7.3 Credentials of Accenture – Accenture internal use only

This information is confidential (for Accenture internal use only) and therefore cannot be provided in this document.

8. Accenture Point of View about the combined impact of EMIR and MIFID II

14. What is a Point of View?

To give an overview of the findings of this research in a catchy way but still very informative, a Point of View has been made. This document shows Accenture's viewpoint on the impact of EMIR and MIFID II, with focus on banks and energy companies. It should catch the attention of potential clients, who are subject to EMIR and/or MiFID II and need help with compliance. The PoV show them why they should choose Accenture as a qualified partner to help them achieving regulatory compliance. The necessary steps to create and publish a PoV, and their expected duration, are described in the next subsection.

8.1 Elements of a Point of View

15. What are the process and the timeline of creating a Point of View?

[redacted]

Figure 35 contains relevant information that cannot be provided.

Figure 33: Timeline of creating a Point of View.

8.2 Accenture Point of View about the combined impact of EMIR and MiFID II

The Point of View is confidential until it is distributed to potential clients and published on the Accenture website. Because the Point of View is not published, it cannot be provided at this point.

9. Discussion and conclusion

9.1 Conclusion

The following subsections show the conclusion of the impact assessment of EMIR, REMIT and/or MiFID II on investment banks, commercial banks and energy companies.

9.1.1 Investment and commercial banks

When comparing the requirements mapped on the process map of an investment bank in Figure 27 with those mapped on the commercial bank's process map in Figure 28, it can be seen that the impact on the support functions, such as asset and liabilities management, risk management, regulatory and technology, is similar. The core banking processes, however, show significant differences, which will be summarised in this subsection.

The introduction of EMIR and MiFID II will change the way in which most banks conduct their business. Transactional costs are likely to increase – not only for financial but for non-financial counterparties as well, see Subsection 9.1.2 [ABN AMRO Clearing, 2012].

The core process of an investment bank that is highly affected by EMIR and MiFID II is 'trading'. The trading department makes use of large derivatives portfolios that is heavily impacted by the regulations. It also engages in algorithmic trading, which is no common practice for commercial banks. For the latter, the core processes are deposits, lending, treasury and trade financing services that are all moderately influenced by the regulations.

Investment banks

Large investment banks, such as BNP Paribas and Deutsche Bank, are well advanced in their preparation and already clear the majority of their standardised OTC derivative trades. They also have made progress towards reporting to trade repositories, for some asset classes. Their trading and risk management systems are sophisticated and additional IT investments are unlikely to be needed. However, other derivative market participants are less advanced and therefore are expected to experience a bigger impact [Deloitte, 2013]. This is especially the case for many energy companies (see Subsection 9.1.2).

Due to their large derivatives portfolio, investment banks must deposit huge amounts of margin capital in the form of highly liquid collateral at CCPs for their cleared trades. It is also likely that they need additional headcount for the compliance and advisory functions [ABN AMRO Clearing, 2012]. The latter involves the banks wide range of complex products and services, such as financial advisory and portfolio management, which are directly related to MiFID II requirements regarding investor protection (e.g. inducements, conflict of interests, best execution) [KPMG Financial Services, 2011].

Commercial banks

Commercial banks focus on retail clients, who receive the highest level of protection under MIFID II. For this client group the most stringent requirements in terms of communication, disclosure and transparency are imposed [KPMG Financial Services, 2011]. Therefore they must revise all client classifications and master agreements, which costs a lot of money and time, but is necessary to avoid selling unsuitable products to clients. To act in their clients' best interest, commercial banks have to be more prudent towards them when providing investment advice, especially with non-professional retail clients. However, many commercial banks have outsourced their order execution and thus some of the proposed regulatory changes, such as the market structure rules, are likely to have limited impact [KPMG Financial Services, 2011].

For both investment and commercial banks, some of their business might get lost to organised trading venues (e.g., derivatives trading moves to regulated markets, MTFs and OTFs) and to CCPs (e.g., management of risk exposure of derivative transactions), which may decrease corporate banking revenue. However, the implementation of EMIR and MiFID II provides them an opportunity to offer additional services to clients as well, such as collateral management, data collection and clearing services.

9.1.2 Energy companies

EMIR and MiFID II will impact the functioning of the current energy market and swamp many energy trading companies, such as RWE and GDF Suez, because they have not been exposed to this kind of regulation before [(Sidley , 2012), (PwC and Ponton Consulting, 2012)].
Subject to EMIR and/or MiFID II, energy companies need to review existing processes like trade valuation, collateral management, confirmations and margining (Sia partners, 2012). They are lobbying against the new regulatory requirements with the industry line being that there is no systemic risk in the energy market and therefore energy companies do not require the same extent of regulation as banks [Freedman, 2013]. The European Commission, however, objects by stating that the fact that there has never been a crisis does not mean that there is no risk.
Regarding EMIR, energy trading companies have to monitor their derivative positions actively to ensure that they stay below the clearing threshold, or that they are aware when exceeding it. For the latter, they would be subject to mandatory clearing. Whether they will be captured under MiFID II or not depends on the final definition of 'financial instrument'.
The implementation of both regulations will be a great challenge for energy companies in terms of IT. The majority of firms will need additional investments in process improvements and upgrades or renewal of existing IT systems [Sia partners, 2012] in order to meet regulatory reporting requirements. This is also the case for REMIT as energy companies' processes and systems must enable them to monitor possible incidents of insider trading and market manipulation regarding planning, production and logistics. In order to comply with regulatory reporting requirements, firms must gather, store, disseminate and report all relevant information to authorities.
Given the investment costs required to meet regulatory demands and the additional parties involved in each trade, energy companies' hedging and trading costs – and, if exceeding the EMIR clearing threshold, clearing costs - are expected to increase. Energy companies, such as Shell, will pass on higher costs of doing business to consumers (e.g. Nuon and Essent), which will incorporate it in final energy prices. The result is higher costs of energy for end users [Freedman, 2013].
Energy companies are expected to reduce the number of transactions. Particularly smaller firms, such as Delta and GasTerra, will need to restructure their trading activities, scale back hedging activities and might even be forced to exit the marketplace [ICIS, 2012]. All of this will reduce liquidity of energy markets and increase market concentration (e.g. bankruptcies, mergers and acquisitions). The more firms are subject to mandatory clearing under EMIR, the more the market is expected to concentrate, because increased margin and collateral requirements must be funded somehow [Sia partners, 2012].

9.2 Can Accenture help?

The main question of this research is: *How can Accenture Risk Management anticipate for banks and energy companies within Gallia by exploiting upcoming business opportunities and challenges regarding the strategy, clients, products, processes, systems and people of selected companies that result from EMIR, REMIT and MiFID II?*

The previous subsection indicated that both sectors, banking and energy, show business opportunities for Accenture Risk Management. From an implementing perspective, the implementation of EMIR, REMIT and MiFID II involves a large amount of work regarding among others data management, reporting and risk management. The risk management team in the Netherlands, for which this research is executed, can approach (i) Dutch-based commercial banks (ING, ABN AMRO and Rabobank), (ii) energy trading companies active in the Netherlands (Shell, Nuon, Essent, GasTerra) or (iii) both commercial banks and energy companies. There are no large investment banks in the Netherlands, so addressing this group would not be logical for Accenture in the Netherlands,.
Option (iii) is not possible, simply because the team is too small to approach both sectors. An argument in favor of option (ii) is that the energy companies are captured by all three regulations analysed in this research and that the expected impact on them is expected to be heavier than for commercial banks. Accenture's assets and capabilities could help energy companies enormously in the area of Enterprise (Trading) Risk Management (E(T)RM). However, the risk management taskforce has little experience with the energy sector. It does have extensive knowledge of the banking industry and many years of experience, which are arguments that favor option (i).

The Point of View addresses the impact of EMIR and MiFID II on both banks and energy companies; to enable Accenture to see which type of counterparty is more responsive and anticipate accordingly. It focuses on the combined impact and thus overlaps between requirements. The identification of synergies across the regulations can be seen as a service itself. When wanting to compete with other consulting firms in the field of regulatory compliance, Accenture needs additional headcount with knowledge of the regulations and about the banking/energy industry in order to be able to qualify the regulatory impact.

9.3 Discussion

In this section, several aspects of EMIR, REMIT and MiFID II are discussed. These discussion points are important for the banks and energy companies selected in this research, and thus for Accenture to explore future business opportunities regarding regulatory compliance.

9.3.1 Work in progress

Each of the three regulations is still work in progress [ABN AMRO Clearing, 2013]. Definitions are not finalised yet and currently leave too much room for interpretation [Carr, 2012]. Examples are the definition of the term 'inside information' under REMIT and 'financial instrument' under MiFID II. To ensure being on the right side of the law, banks and energy companies that are captured by the regulation(s) are expected to publish more information than necessary [Carr, 2012]. This can endanger their competitive position.

Potential service-providers (e.g., clearing members), to whom for example EMIR clearing and reporting could be outsourced, are still waiting for more detailed information as well. However, banks, energy companies and service providers cannot wait forever. They need to start implementing EMIR, REMIT and/or MiFID II requirements and adapt solutions for trading, clearing, reporting, risk management and/or investor/market participant protection now [ABN AMRO Clearing, 2013].

9.3.2 Alignment of implementation projects

To avoid duplication of efforts when being subject to more than one regulation, implementation projects should be aligned. This is especially important with regard to reporting requirements. In particular among wholesale energy market participants (e.g., Shell, Vattenfall, RWE, GasTerra, and GDF Suez) there is a lot of concern about the burdensome consequence of double reporting. They advise regulators to consider joint procedures and reporting formats between REMIT (ACER) and EMIR/MiFID II (ESMA) for required data fields and reporting deadlines. Not aligning regulations is likely to cause an extra burden on market participants and could fragment trading [PwC and Ponton Consulting, 2012].

The alignment of reporting formats involves technology (e.g., ETRM), standards (e.g., commodity product Mark-up Language [cpML]) and coding schemes (e.g., Energy Identification Codes [EIC] for identification of energy commodities) used to gather, store, disseminate and report relevant information. Energy companies prefer that existing systems are used as much as possible to reduce implementation effort and costs, and to provide a coherent data set across all market participants [PwC and Ponton Consulting, 2012]. Currently 50 to 80 per cent of wholesale energy market transactions are captured by EFET's cpML. The latter has built-in coverage of EMIR (and Dodd-Frank) and could be extended for REMIT, which implies that the majority of transactions could be covered using this language [PwC and Ponton Consulting, 2012].

9.3.3 Regulations' scope

EMIR captures non-financial companies, which trade derivatives, and MiFID II is extended to commodity derivatives.[46] These force commodity market participants, such as banks and energy companies to comply with provisions designed for financial instruments and institutions [Conforto, 2011]. According to Conforto (2011), some argue that this extension of regulatory scope is disproportionate.

[46] MiFID II still exempt persons dealing on own account or providing services in commodity derivatives. It also not applies to persons providing investment services as an ancillary activity [Tieben et al., 2011].

The clearing obligation of all eligible derivatives does not correspond to the market needs [Conforto, 2011]. According to Freedman (2013), the industry line is that there is no systemic risk in the energy market and therefore energy companies do not require the same extent of regulation as banks. The European Commission objects that the fact that there has never been a crisis does not mean that there is no risk. According to Pierret (2012), there is no consensus on the existence or the importance of systemic risk in the energy market.
Banks and energy companies will face high collateral and capital requirements, when becoming subject to mandatory clearing. According to Conforto (2011) it is questionable whether these are appropriate for non-financial counterparties such as energy traders. It might lead to an increase in standardisation, a depth reduction of the energy trading market[47] and convergence of physical or financial price levels. The latter could have negative effects on the industry's competitiveness [Conforto, 2011].
With regard to REMIT, currently only standard transactions are captured by the reporting and disclosure requirements as they are easier to capture, more frequent and more volatile. Despite their frequency, standard transactions do not account for a large proportion of overall transactions. Non-standard transactions, on the other hand, are harder to use to manipulate the market, but they often involve a higher volume than standard transactions. There is no consensus among wholesale energy market participants whether to include non-standard transactions or not [PwC and Ponton Consulting, 2012].

9.3.4 New 'too big to fail'

The EMIR obligation to trade standardised OTC derivative contracts through CCPs intends to reduce credit risk through multilateral netting, margins and collateral and a well-defined default management procedure [Finaxium Consulting, 2013]. However, the credit risk of the entire market is then concentrated on a few highly systematically important CCPs. Despite the default waterfall and stringent requirements for CCPs, the question remains what happens if a CCP defaults. One likely scenario is that CCPs become the new 'too big to fail' and that government would intervene in the case of a default. The impact of the default of a CCP to financial markets, taxpayers and the society at large will be unimaginable [(Futures & Options World, 2013), (Futures & Options World, 2012)].

9.3.5 From under- to overregulation

Another area of concern for banks and energy companies is the increased size of the data reporting set under EMIR, REMIT and MiFID II. For example, RISs will have difficulties catering for all the information companies are required to disclose [Carr, 2012]. It is also questionable whether TRs' system can process the high volume of data that is reported every day.
The transparency requirements of MiFID II, in particular regarding pre-trade information, are currently one of the main topics of discussion. Revealing specific trading interests to the public may expose traders to unforeseen costs [(Madhavan, 1995), (Harris, 1997), (Harris, 2002)]. For example, if banks' or energy companies' exposure reveals their motives, it might negatively impact prices and as a result of this future trades [Valiante & Lannoo, 2011] and in the end liquidity. According to Conforto (2011), transparency and reporting need the uttermost safeguard of information.
Energy companies that are subject to REMIT have to stop trading or publish information, whether it is inside information or not [Carr, 2012]. For companies, for which information disclosure would jeopardize their competitive position and thus the continuity of the business, there might be no other option than stop trading particular financial instruments. That could lead to a substantial reduction of market liquidity.

9.4 Further research

The two topics that are outside the scope of this research but could be further analysed by Accenture, are described in this subsection. The first subject is related to the 'follow-up' research phase (see Figure 8) and the other one to the potential impact of EMIR clearing obligation on capital requirements for banks.

[47] Market depth concerns the market's ability to sustain large order flows without resulting in price changes [(Kyle, 1985), (Investopedia, 2013)].

9.4.1 Actual impact of EMIR, REMIT and MiFID II on banks and energy companies

If Accenture decides to issue the Point of View about the (combined) impact of EMIR and MiFID II on financial and non-financial counterparties, follow-up calls must be made in order to plan meetings with these companies that respond positively. During meetings potential collaboration in the field of regulatory compliance can be discussed. Accenture has to set up a questionnaire to assess the preparedness of a particular company for the regulations, the actions these companies have already taken regarding the regulations' implementation, specific opportunities and challenges resulting from the regulations and the actual regulatory impact on the company's strategy, processes, systems and people. This research supports Accenture's knowledge about the expected impact of EMIR and MiFID II, as well as REMIT, on banks (financial counterparties) and energy companies (non-financial counterparties).

9.4.2 Impact of clearing obligation on capital requirements for banks

Firms that are captured by the definition 'financial institution' under MiFID II are also very likely to be subject to other financial regulations, such as EMIR, CRD IV and Basel II. The latter two were no part of this research, but are related to EMIR and MiFID II.

Accenture should analyse the link between derivatives regulation (EMIR, MiFID II) and capital regulations (CRD IV, Basel III) in order to expand its service offerings to banks. The clearing obligation could result, as already mentioned, in a reduction of capital requirements for banks in the form of a lower CVA.

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Appendix A – Activities and planning

	Month	March				April					May				June					July								
	Week	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34		
	Date	8-mrt	15-mrt	22-mrt	29-mrt	5-apr	12-apr	19-apr	26-apr	3-mei	10-mei	17-mei	24-mei	31-mei	7-jun	14-jun	21-jun	28-jun	5-jul	12-jul	19-jul	26-jul	2-aug	9-aug	16-aug	23-aug		
Situation and complication		X																										
Structure report		X																										
Research design		X																										
Issue tree			X																									
Activities and planning			X																									
Deliverables			X																									
Phase 1: New and changing regulation																												
Theory derivatives			X																									
Theory risk types					X																							
Description of the regulations (what, when, how, who)																												
EMIR							X																					
REMIT							X																					
MiFID II							X																					
MiFIR							X																					
Phase 2: Impact assessment																												
Identification of industries affected by regulations								X																				
Identification of companies in affected industries								X																				
Description of companies (profile,client status,OTC positions)										X																		
General impact assessment regulations on industries																					X							
Company specific impact assessment																						X						
Opportunities and challenges																								X				
Phase 3: Value Proposition																												
Analysis value proposition of Accenture											X																	
Analysis credentials of Accenture												X																
Phase 4: Point of View																												
General structure/elements PoV				X																								
EMIR-PoV Accenture for financial services industry																												
Define goals and establish metrics														X														
Select language, get WBS number, and write text														X														
Calculate and request budget														X														
Text correction and design																X												
Identify contact data															X													
Print PoV																	X											
Wirte cover letter and get signed by CAL(s)																X												
Send PoV																	X											
Call companies for feedback, evaluation etc.																			X									
Phase 5: Conclusion and discussion																												
Conclusion, future research, limitations																									X			
Discussion																									X			
References																										X		

Figure 34: Work plan.

Appendix B – Forms of market organisation for derivatives

Selected characteristic	Bilateral OTC	CCP	Exchange-based
Trading	Bilateral	Bilateral	Centralised
Clearing	Bilateral	Centralised	Centralised
Counterparty	Initial buyer or seller	CCP	CCP
Product features	All	Standardised and liquid	Standardised and liquid
Product examples	Foreign exchange swaps Interest rate swaps Credit default swaps	Plain vanilla interest rate swaps	Commodities Exchange rate futures Government bond futures
Participants	All	Typically larger dealers and higher-rated market participants	Typically larger dealers and higher-rated market participants
Market maker importance	Significant	Significant	Limited
Collateral practices	Bilateral posting of collateral	Margin requirements uniform for all	Margin requirements uniform for all
Margin movement	Decentralised and disputable	Centralised enforcement by CCP	Centralised enforcement by CCP
Risk buffers	Regulatory capital	Equity and margins	Equity and margins
Clearing and settlement	Bilateral	Centralised	Centralised
Netting	Some gross exposures netted bilaterally and some ad hoc multilateral netting	Exposures are netted multilaterally and position is against a CCP	Exposures are netted multilaterally and position is against a CCP
Regulation	Self-regulation and reliance on "market practices"	Self-regulation, reliance on "market practices" and public sector regulation of CCP	Self-regulation as well as public sector regulation of the exchanges and CCP
Transparency of exposures and activity	Limited or none	Detailed information available but not disseminated	Detailed information available but not disseminated
Transparency of prices	Pre-trade prices are non-binding quotes Actual transaction prices typically not published	Pre-trade prices are non-binding quotes No automatic publication of transaction prices	Pre-trade prices are binding quotes Actual transaction prices published

Table 46: Three forms of market organisation for derivatives, by market characteristics [Bank for International Settlements, 2009].

Appendix C - Top-down and bottom-up approach for determining standardised OTC derivatives classes

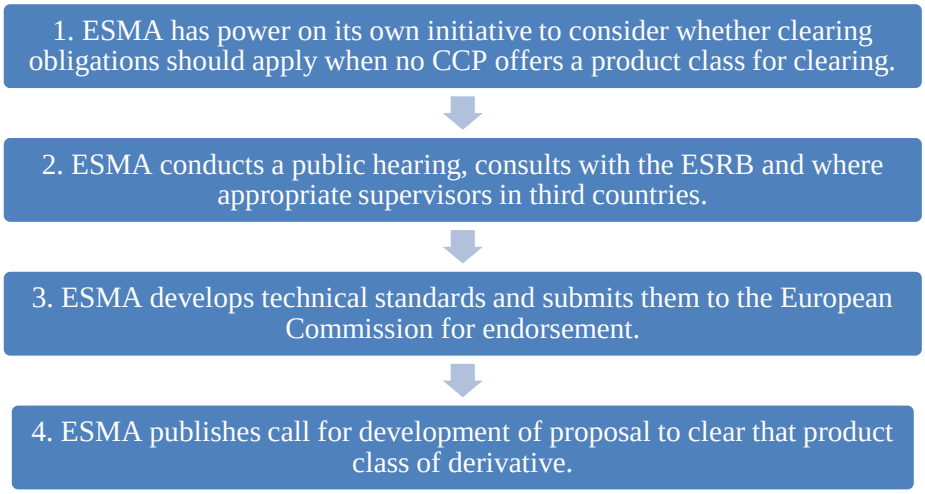

Figure 35: Top down approach for determining products that must be cleared [(Deloitte, 2012), (Norton Rose Fulbright, 2012)].[48]

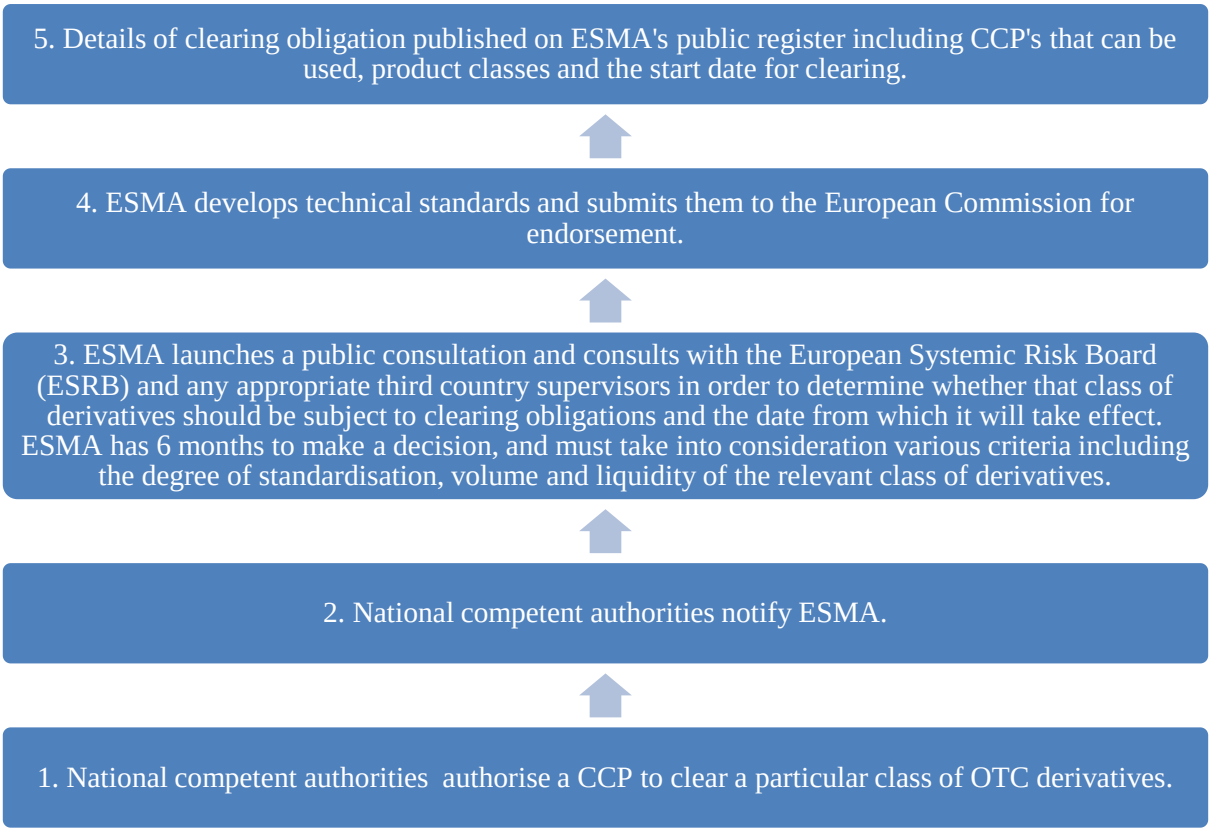

Figure 36: Bottom up approach for determining products that must be cleared [(Deloitte, 2012), (Norton Rose Fulbright, 2012)].

[48] European Systemic Risk Board (ESRB) was set up in response to the de Larosière group's proposals, in the wake of the financial crisis. This independent body has responsibility for the macro-prudential oversight of the EU.

Appendix D – List of currently operational OTC derivative CCPs

			Contract type				
Platform	Country	Average Clearing Cost/Side	Interest rate swap	Credit default swap	Foreign exchange	Equities	Other
CC&G	Italy	€0.09					
CCP.A	Austria	€0.07					
Clearing House	U.S.		X				X
CME Clearing	U.S.			X			X
Eurex Clearing AG	Germany	€0.55	X	X		X	X
EuroCCP	Pan-Europe	€0.0292					
Euronext/LIFFE Bclear	U.K.						X
Fortis EMCF	Scandinavia	€0.14					
ICE Clear Canada	Canada						X
ICE Clear Europe	U.K.			X			X
ICE Trust	U.S.			X			
IDCG International Derivatives							
LCH Clearnet Ltd.	U.K.	€0.19	X				X
LCE Clearnet S.A.	Belgium, Netherlands, France, Portugal	€0.23		X			
NASDAQ OMX Stockhold AB	Sweden						X
NOS Clearing	Norway						X
SGX Asia Clearing	Singapore						
SIS x-clear	Switzerland	€0.20					

IMF Staff. Others include commodities, energy, freight, macroeconomic indicators [(Finaxium Consulting, 2013), (European Central Counterparty Ltd., n.d.)].

Appendix E – List of wholesale energy contracts

Energy Commodity Contracts for the supply of natural gas or electricity with delivery in the EU [ACER, 2012]:

(1) Balancing market contracts for contracting generation reserves and the supply of electricity or natural gas where delivery is in the Union irrespective of where and how they are traded,

(2) Intraday or within-day contracts for the supply of electricity or natural gas where delivery is in the Union irrespective of where and how they are traded, in particular regardless of whether they are auctioned or continuously traded;

(3) Day-ahead contracts for the supply of electricity or natural gas where delivery is in the Union irrespective of where and how they are traded, in particular regardless of whether they are auctioned or continuously traded;

(4) Two-days-ahead contracts for the supply of electricity or natural gas where delivery is in the Union irrespective of where and how they are traded, in particular regardless of whether they are auctioned or continuously traded;
(5) Week-end contracts for the supply of electricity or natural gas where delivery is in the Union irrespective of where and how they are traded, in particular regardless of whether they auctioned or continuously traded;
(6) Physical forward contracts or other long-term contracts in electricity or natural gas that are settled physically where delivery is in the Union irrespective of where and how they are traded;
(7) Any other energy commodity contract other than financial instruments as set out in points (4) to (10) of Section C of Annex I to Directive 2004/39/EC as implemented in Articles 38 and 39 of Regulation (EC) No 1287/2006.

Commodity Contracts for the transportation of natural gas or electricity in the EU [ACER, 2012]:
(1) Contracts relating to the transportation of electricity or natural gas in the Union between two or more locations/bidding areas, which includes, but is not limited to, contracts concluded as a result of capacity allocations (capacity rights and obligations) and secondary markets in relation to these contracts for cross-zonal or other capacity;
(2) Actually confirmed schedules nominating capacities for electricity and gas transportation contracts irrespective whether they have been obtained in an allocation or by other means.

Appendix F – MiFIR/MiFID II list of investment services and activities

List of services and activities:
(1) Reception and transmission of orders in relation to one or more financial instruments;
(2) Execution of orders on behalf of clients;
(3) Dealing on own account;
(4) Portfolio management;
(5) Investment advice;
(6) Underwriting of financial instruments and/or placing of financial instruments on a firm commitment basis;
(7) Placing of financial instruments without a firm commitment basis;
(8) Operation of MTFs;
(9) Operation of OTFs.

Financial instruments:
(1) Transferable securities;
(2) Money-market instruments;
(3) Units in collective investment undertakings;
(4) Options, futures, swaps, forward rate agreements and any other derivative contracts relating to securities, currencies, interest rates or yields, emission allowances or other derivatives instruments, financial indices or financial measures which may be settled physically or in cash;
(5) Options, futures, swaps, forwards and any other derivative contracts relating to commodities that must be settled in cash or may be settled in cash at the option of one of the parties other than by reason of default or other termination event;
(6) Options, futures, swaps, forwards and any other derivative contracts relating to commodities that can be physically settled provided that they are traded on a regulated market or an MTF or an OTF, except for such contracts traded on an OTF that can only be physically settled;
(7) Options, futures, swaps, forwards and any other derivative contracts relating to commodities, that can be physically settled not otherwise mentioned in C.6 and not being for commercial purposes, which have the characteristics of other derivative financial instruments ;
(8) Derivative instruments for the transfer of credit risk;
(9) Financial contracts for differences.
(10) Options, futures, swaps, forward rate agreements and any other derivative contracts relating to climatic variables, freight rates or inflation rates or other official economic statistics that must be

settled in cash or may be settled in cash at the option of one of the parties other than by reason of default or other termination event, as well as any other derivative contracts relating to assets, rights, obligations, indices and measures not otherwise mentioned in this Section, which have the characteristics of other derivative financial instruments, having regard to whether, i.a. they are traded on a regulated market, OTF, or an MTF, are cleared and settled through CCPs or are subject to regular margin calls.

(11) Emission allowances consisting of any units recognised for compliance with the requirements

(12) Directive 2003/87/EC (Emissions Trading Scheme)

Appendix G – Trading platforms

The table below shows trading platforms that are established in the Netherlands and got a license to operate as a Regulated Market and/or a MTF from the Dutch Ministry of Finance

Trading platform	Country of residence	National authority	RM	MTF
European Energy Derivatives Exchange N.V.	NL	AFM	X	
NYSE Euronext – Euronext Amsterdam	NL	AFM	X	
Euronext Com – Commodities futures and Options	NL	AFM	X	
Euronext EQF – Equities and indices derivatives	NL	AFM	X	
Euronext IRF – Interest rate, future and options	NL	AFM	X	
NYSE Euronext – Alternext Amsterdam	NL	AFM	X	X
Euronext Amsterdam/ LIFFE.Amsterdam	NL	AFM	X	
ENDEX	NL	AFM	X	
Alternext Amsterdam	NL	AFM		X
NYSE Arca Europe	NL	AFM		X
TOM MTF Derivatives Market	NL	AFM		X
TOM MTF Cash Markets	NL	AFM		X
Le Marché Hors Bourse des Obligations Linéaires	BE	CBFA	X	
LIFFE Brussels	BE	CBFA	X	
Euronext Brussels	BE	CBFA	X	
Alternext	BE	CBFA		X
MTS Belgium	BE	CBFA		X
Marché Libre	BE	CBFA		X
MTS Denmark	BE	CBFA		X
MTF Finland	BE	CBFA		X
Trading Facility	BE	CBFA		X
Venties Publiques	BE	CBFA		X
Bluenext	FR	AMF	X	
Euronext Paris Matif	FR	AMF	X	
Euronext Paris Monep	FR	AMF	X	
NYSE Euronext Paris	FR	AMF	X	
NYSE Euronext – Alternext Paris	FR	AMF		X
MTS France SAS	FR	AMF		X
Galaxy	FR	AMF		X
NYSE Bondmatch	FR	AMF		X
Alternativa France	FR	AMF		X
NYSE Euronext – Marche Libre Paris	FR	AMF		X

Powernext	FR	AMF		X
Societe Generale	FR	AMF		

Table 47: Trading platforms [(AFM, 2013), (ESMA, 2011)].

Appendix H – Company profiles of selected banks and energy companies

ING

ING (Internationale Nederlanden Group) is a global financial institution of Dutch origin, present in more than 40 countries. The Group moves towards the full separation of its banking (ING Bank NV) and insurance (ING Insurance) operations. ING Bank offers retail, direct and commercial banking. ING Insurance provides life and non-life insurance, retirement services, asset and investment management activities. The Group aims to deliver financial products and services that meet the needs of their broad client base.

In the future, ING Group will concentrate on the position as an international retail, direct and commercial bank, while creating an optimal base for an independent future for the insurance business, that includes investment management. End 2015, more than 50 per cent of the operations are planned to be divested, with the remaining interest divested by year-end 2018. The Group will also further concentrate on its leading position as strong European bank in its home markets in the Netherlands, Belgium, Luxembourg and Germany. On the long term, the bank also wants to exploit growth options in Central and Eastern Europe and Asia.

	(Underlying operating) result	**(Underlying) result before tax**
Banking total	14,241	3,220
Retail banking	9,019 [63,3%]	1,698 [52,7%]
Commercial banking	4,963 [34,8%]	1,572 [48,8%]
Corporate Line banking	260 [1,8%]	(50) [-1,6%]
Insurance total	1,095	312
Insurance Benelux	663 [60,5%]	(91) [-29,2%]
Insurance Central and Rest of Europe	184 [16,8%]	170 [54,5%]
Insurance Unites States (ex. US Closed Block VA)	702 [64,1%]	928 [297,4%]
Insurance US Closed Block VA	(122) [-11.1%]	(379) [-121,5%]
ING Investment Management	159 [14,5%]	200 [64,1%]
Corporate Life Insurance	(491) [-44,8%]	(516) [-165,4%]

Table 48: Financial key figures ING Group in 2012 (in million €).

	Underlying income	**Underlying net result before tax**
Total Retail Banking	9,019	1,698
Retail Netherlands	3,897 [43,2%]	878 [51,7%]
Retail Belgium	2,194 [24,3%]	609 [35,9%]
Retail Germany	1,193 [13,2%]	441 [26,0%]
Retail rest of World	1,735 [19,2%]	(230) [-13,5%]
Total Commercial Banking	4,963	1,572
Industry lending	1,953 [39,4%]	832 [52,9%]
General lending and Transaction Services	1,459 [29,4%]	606 [38,5%]
Financial Markets	871 [17,5%]	0 [0,0%]
Bank Treasury, Real Estate and Other	680 [13,7%]	135 [8,6%]

Table 49: Financial key figures banking business in 2012 (in million €)2

Trading assets by type		**Trading liabilities by type**	
Equity securities	5,307	Equity securities	3,262
Debt securities	17,472	Debt securities	7,594

Loans and receivables	36,950	Funds on deposit	20,661
Derivatives	55,166	Derivatives	52,135
Other			
Total	114,895	Total	83,652

Table 50: Trading assets and liabilities by type of ING in 2012 (in million €).

The different operations within the banking (retail and commercial banking) and the insurance/investment business are described in the following subsections [(ING Group, 2012), (ING, 2013)].

Retail Banking

ING Retail Banking is mainly present in the Benelux, but also active in Central and Eastern Europe, China, India, and Thailand. The segment accounts for about 63 per cent of the total operating banking income, of which 43,2 per cent is generated in the Netherlands and 24,3 per cent in Belgium.
Retail Banking provides retail and direct banking services to individuals and SMEs throughout Europe and Asia, with a base in the home markets Benelux and Germany. ING Direct covers the international retail banking activities. The ambition is to transform ING Direct into a full-service bank. ING's retail banking operations focus on offering a limited number of simple and transparent products at low costs. Such products are mainly savings accounts, mortgages and other consumer lending.

Commercial Banking

Commercial Banking offers its clients a wide range of basic banking services, such as lending and cash management, and tailored solutions, such as corporate finance. Commercial Banking clients are mid-sized enterprises, large corporations, multinationals, financial institutions, governments and supranational organisations. The segment has an extensive global network in 40 countries, with key positions in structured finance and financial markets. ING Commercial Banking has a strong position in Central & Eastern Europe, mainly Benelux, supporting the domestic economy. The Commercial Banking segment accounts for about 35 per cent of the Group's total operating income. Almost 70 per cent of the segment's operating income (industry lending: 39,4%; general lending: 29,4%) is the result of lending activities, and thus interest. This indicates that the commercial banking portfolio consists of large corporate clients, with commercial loans being the main asset category.

Insurance/Investment Management

ING Insurance offers life insurance, retirement and asset management services, is present in Benelux, Central & Rest of Europe, US and Asia/Pacific and comprises ING Investment Management. Latter delivers a broad range of investment strategies and advisory services in all major asset classes and investment styles to the Group's network of businesses and third-party clients in Europe, the Americas and the Middle East.

ABN AMRO

The Dutch state acquired ownership of the Dutch activities of ABN AMRO Holding N.V. and Fortis Bank Nederland in 2008. ABN AMRO and Fortis Bank Nederland merged in 2010 to form the current ABN AMRO. According to the Dutch government, the bank will remain state owned at least until 2014. Then a public stock market listing (IPO) will be considered.
ABN AMRO is an all-round bank with 23,059 employees, serving retail, private and commercial banking clients. The bank offers a wide range of products and services to its 365,000 business banking clients and 2,500 corporate clients. As a leading retail and commercial bank, ABN AMRO has a strong base in the Netherlands and follows its customers abroad. In 2012, 47 per cent of assets under management belong to the Netherlands, 44 per cent to the Rest of Europe and 9 per cent to Asia and the rest of the world. The bank is active internationally in areas in which it has substantial knowledge, such as Energy, Commodities and Transportation (ECT) and ABN AMRO Clearing.
ABN AMRO has the following business segments: Retail & Private Banking, Commercial & Merchant Banking, and Group Functions. The latter facilitate the bank's operations. Each business segment will be described in the next subsections [(ABN AMRO, 2012), (ABN AMRO Bank N.V., n.d.)]. First a breakdown of the business unit, geographical areas, assets and liabilities is given.

ABN AMRO	Total (mil)	Retail	Private	Commercial	Merchant	Group Functions
Assets	394,404	164,100 [41,6%]	22,689 [5,8%]	44,063 [11,2%]	102,276 [25,9%]	61,276 [15,5%]
Operating income	7,338	3,105 [42,3%]	1,114 [15,2%]	1,585 [221,6%]	1,461 [19,9%]	73 [1,0%]
Operating result	2,829	1,417 [50,1%]	219 [7,7%]	604 [21,4%]	521 [18,4%]	68 [2,4%]
Net profit	1,285	774 [60,2%]	46 [3,6%]	7 [0,5%]	244 [19,0%]	214 [16,7%]
FTEs	23,059	6,335 [27,5%]	3,648 [15,8%]	3,249 [14,1%]	2,142 [9,3%]	7,685 [33,3%]

Table 51: Breakdown of key figures per business unit (in million €; except FTEs).

Geographical dispersion operating income		Asset breakdown		Liability breakdown	
The Netherlands	82%	Mortgages	39%	Customer deposits	50%
Rest of Europe	14%	Customer loans	27%	Long-term & subordinated debt	20%
Worldwide	4%	Securities financing	7%	Securities financing	4%
		Held for trading	6%	Equity	4%
		Other	21%	Other	22%

Table 52: Geographical, asset and liabilities breakdown of ABN AMRO in 2012.

(in millions)		31 December 2012			31 December 2011		
		Notional amount	Fair values		Notional amount	Fair values	
			Assets	Liabilities		Assets	Liabilities
Interest rate derivatives:							
OTC	Swaps	709,627	13,703	12,224	629,725	10,822	10,487
	Forwards	20,341	1	1	61,577	13	13
	Options	19,408	901	1,359	20,361	1,196	1,271
Exchange	Futures	1	3	3	463	133	132
	Options				152		7
	Subtotal	**749,377**	**14,608**	**13,587**	**712,278**	**12,164**	**11,910**
Currency derivatives:							
OTC	Swaps	38,866	455	561	30,478	655	366
	Forwards	8,607	80	85	18,508	450	345
	Options	4,203	55	96	4,219	80	120
Exchange	Futures	223	7		117		5
	Options	28					
	Subtotal	**51,927**	**597**	**742**	**53,322**	**1,185**	**836**
Other:							
OTC	Swaps	11,941	212	179	14,577	180	452
	Forwards	960	7		730	5	3
	Options	1,605	23	46	1,168	68	64
Exchange	Futures	1,628	1		739		
	Options	1,594	278	514	2,364	630	172
	Subtotal	**17,728**	**521**	**739**	**19,578**	**883**	**691**
	Other	**10**			**80**	**10**	**29**
Balance as at 31 December		**819,042**	**15,726**	**15,068**	**785,258**	**14,242**	**13,466**
Over the counter (OTC)		815,568	15,437	14,551	781,423	13,479	13,150
Exchange traded		3,474	289	517	3,835	763	316
Total derivatives held for trading		**819,042**	**15,726**	**15,068**	**785,258**	**14,242**	**13,466**

Figure 37: Derivatives held for trading in 2012.

Retail banking

Retail banking is by far the largest business segment of ABN AMRO, both in terms of operating income and allocated assets (both about 42 per cent). This income mainly is generated in the Netherlands. ABN AMRO Retail Banking is the main bank for 21 per cent of the Dutch population and is ranked second in savings and new mortgage production in the Netherlands. Retail Banking uses multiple channels to serve its clients, such as the internet, mobile applications and social media. The business segment offers a wide range of transparent, understandable and high-quality products and service.

Private banking

ABN AMRO is the number one private bank in the Netherlands, number three in the Eurozone and number seven in Europe. It serves 100,000 clients worldwide, in 11 countries. The private banking business segment operates under the name ABN AMRO MeesPierson in the Netherlands and

internationally under the name ABN AMRO Private Banking. The segment accounts for 15 per cent of operating income and has almost 6 per cent of total allocated assets.
Private Banking offers private banking services to clients with free investable assets exceeding €1 million. The client service teams offer different service models according to two client wealth bands: High Net Worth Individuals with Assets under Management (AuM) exceeding €1 million and Ultra High Net Worth Individuals having more than €25 million AuM.

Commercial banking
ABN AMRO's Commercial Banking segment is also a large player in the Netherlands. Commercial Banking serves commercial clients with an annual turnover up to €500 million and clients in the public sector. Commercial Banking consists of two business lines, namely Business Banking and Corporate Clients. This business line also has a strong position and growth in lease and commercial finance solutions in core markets in Western Europe. Corporate Clients serves about 2,500 clients. Business Banking offers small and medium-sized businesses with turnover up to €30 million a comprehensive range of standard and customized products to 365,000 clients. The Commercial Banking segments accounts for 22 per cent of the total operating income and 11 per cent of the allocated assets. However, only 0,5 per cent of the total net profit is generated through commercial banking activities.

Merchant banking
Merchant Banking serves Netherlands-based corporations, financial institutions, real estate investors and developers. Next to this, Merchant Banking has some international companies, that are active in the Energy, Commodities & Transportation (ECT) sector, as client. Merchant Banking has tow business lines, namely Large Corporates & Merchant Banking (LC&MB) and Markets. This business lines together account for about 20 per cent of the total operating income and have 26 per cent of the assets allocated.
LC&M offers a full range of financial services to Netherlands-based corporates, financial institutions and real estate investors and developers as well as international companies active in ECT. The services delivered are in the areas of debt solutions, cash management and working capital, M&A advice and equity capital market, and private equity financing. ECT activities account for almost 50 per cent of LC&M's income and therefore is the core business.
The Markets business line consists of the Trading, Sales and ABN AMRO Clearing business lines. These business lines serve a broad client base, ranging from corporates and financial institutions to retail and private banking clients. The products offered are specialized foreign exchange, interest rates, commodities, equities, equity derivatives and securities financing. Markets has two subsidiaries: Securities Financing and ABN AMRO Clearing.
ABN AMRO Clearing is a global leader in derivatives and equity clearing and is one of the few players currently offering global market access and clearing services on more than 85 of the world's leading exchanges.

KBC Bank
KBC is an integrated bank-insurance group, serving about nine million retail, private banking, SME and mid-cap clients. The bank geographically focuses on its core markets: Belgium, the Czech Republic, Slovakia, Hungary and Bulgaria. KBC has 37,083 employees.
By the end of 2012, KBC had largely turned the group into a more focused, regional European bankinsurer with a lower risk profile, while preserving its strengths. KBC had repaid a substantial proportion of the state aid. Bankinsurer means that the bank's portfolio is combined with insurance operations.

	Total income	Net result	Total assets
KBC	7,549	1,542	256,886

Table 53: Breakdown of key figures per business unit (in million €).

Geographical dispersion of net result	
Belgium	1,019
Central & Eastern Europe	621

Merchant Banking	(19)
Group Centre	(78)
Total	1,542

Table 54: Geographical, asset and liabilities breakdown of KBC in 2012.

	Held for trading			
	Carrying value		Notional amount	
(in millions of EUR)	Assets	Liabilities	Pur-chased	Sold
31-12-2012				
Total	**12 095**	**14 432**	**460 444**	**427 628**
Breakdown by type				
Interest rate contracts	7 739	8 613	258 424	237 310
Interest rate swaps	6 549	8 035	188 305	188 774
Forward rate agreements	3	4	2 609	4 829
Futures	2	0	6 090	4 698
Options	1 185	480	61 172	38 733
Forwards	0	93	247	276
Foreign exchange contracts	944	736	136 981	137 350
Forward foreign exchange operations/currency forwards	162	152	78 047	78 002
Currency and interest rate swaps	720	525	44 162	43 997
Futures	0	0	155	155
Options	61	59	14 616	15 195
Equity contracts	1 815	2 173	35 654	33 577
Equity swaps	1 322	1 411	30 289	30 288
Forwards	0	0	0	0
Futures	0	0	0	0
Options	493	761	5 365	3 289
Warrants	0	0	0	0
Credit contracts	1 576	2 891	29 017	19 025
Credit default swaps	1 576	2 891	29 017	19 025
Credit spread options	0	0	0	0
Total return swaps	0	0	0	0
Other	0	0	0	0
Commodity and other contracts	20	20	368	366

* Including hedges of net investments in foreign operations.

Table 55: Derivatives held for trading at KBC in 2012.

BNP Paribas

BNP Paribas is a global banking group, that has its headquarter in Paris. The BNP Paribas Group was created in 2000 from the merger of Banque Nationale de Paris (BNP) and Paribas. In 2011, Forbes ranked BNP Paribas as the first bank of the Eurozone and the fifth in the global banking sector, with €1,965 million total assets [BNP Paribas, 2013]. Therefore BNP Paribas is the largest (investment) bank of the banks analysed in this research.

BNP Paribas provides financial services in 80 countries and has 188,600 employees, including more than 140,000 in Europe. This indicates the strong European focus of the bank. It has four domestic markets in Europe, namely Belgium, France, Italy, and Luxembourg. BNP Paribas has three core activities, that are retail banking, investment solutions, and corporate and investment banking. The retail banking business is mainly in the domestic markets, but Investment Solutions and Corporate and Investment Banking also have a strong presence in America and Asia [BNP Paribas, 2011].

The following tables show BNP Paribas key financial data, such as revenue and operating income; a breakdown of geographical areas, assets and liabilities; information about the derivatives held.

BNP Paribas	Revenue	Operating income	Assets	Liabilities
Total Group	42,384	9,471	1,965 ,283	1,965,283
Retail Banking	23,663 (55.8%)	5,627 (46.4%)	569,526 (29.0%)	534,806 (27.2%)
FRB	6,717	1,940	154,537	148,331
BNL bc	3,101	502	86,662	79,984
BeLux retail banking	3,409	807	103,795	100,655
Personal finance	5,092	1,033	91,561	85,410
Other	5,344	1,345	132,971	120,426
Investment Solutions	6,265 (14.8%)	1,647 (13.6%)	212,807 (10.8%)	200,849 (10.2%)
Corporate & Investment Banking	9,731 (23.0%)	3,530 (29.0%)	1,050,883 (53.5%)	1,039,095 (52.9%)
Other activities	2,725 (6.4%)	(1,333) (11.0%)	132,067 (6.7%)	190,533 (9.7%)

Table 56: Key figures BNP Paribas S.A. in 2011 (in millions €).

Geographical representation	Revenue	Assets and liabilities
France	16,773 (39.6%)	972,274 (49.5%)
Belgium	4,702 (11.1%)	252,086 (12.8%)
Italy	3,857 (9.1%)	136,392 (6.9%)
Luxembourg	1,478 (3.5%)	36,829 (1.9%)
Rest of Europe	7,130 (16.8%)	244,747 (12.5%)
America	4,977 (11.7%)	201,184 (10.2%)
Asia-Oceania	1,998 (4.7%)	90,198 (4.6%)
Other	1,469 (3.5%)	31,573 (1.6%)
Total	42,384	1,965,283

Table 57: Information by geographic area BNP Paribas in 2011 (in millions €).

Financial assets at FV through P/L		Financial liabilities at FV through P/L	
Negotiable certificates of deposit	48,543	Borrowed securities and short selling	100,013
Treasury bills and other bills eligible for central bank refinancing	41,809		
Other negotiable certificates of deposit	6,734		
Bonds	89,721	Repurchase agreements	171,376
Government bonds	54,871		
Other bonds	34,850		
Equities and other variable-income securities	76,384	Borrowings	3,559
Repurchase agreements	153,262	Debt securities	37,987
Loans	586	Subordinated debt	3,393
Trading book derivatives	451,967	Trading book derivatives	447,467
Currency	28,097	Currency	26,890
Interest rate	332,945	Interest rate	330,421
Equity	38,140	Equity	36,377
Credit	46,460	Credit	46,358
Other	6,325	Other	7,421
Total	820,463	Total	762,795

Table 58: Detailed information financial assets and liabilities at fair value through profit or loss in 2011 (in million €).

Trading book derivatives	Total notional amount (in million €)	Percentage (%)

Currency derivatives	2,249,390	4,8
Interest rate derivatives	40,272,463	86,0
Equity derivatives	1,818,445	3,9
Credit derivatives	2,321,275	5,0
Other derivatives	156,291	0,3
Total	46,817,864	100

Table 59: Total notional amount of trading derivatives in 2011 (in million €).

Retail banking operations

BNP Paribas retail banking division has 7,200 branches worldwide and more than 23 million customers in 2011. The bank generates 55.8 per cent of its revenues from retail banking operations. The banking group has 198,400 employees worldwide, including 154,025 employees (77.6%) working in the retail banking business. Retail banking therefore is the largest operating division of BNP Paribas with respect to the number of employees, but only accounts for 29 per cent of the group's total assets [BNP Paribas, 2011].

Investment solutions

BNP Paribas Investment Solutions is present in 61 countries with 25,000 employees. The business division offers a broad range of value-added products and services around the world that are designed to meet the requirements of individual, corporate, and institutional investors. Activities within the Investment Solutions business division are insurance (BNP Paribas Cardif), securities services, private banking, asset management, and real estate. Investment Solutions accounts for 29 per cent of the group's total operating income and 10.8 per cent of total assets [BNP Paribas, 2011].

Corporate and Investment Banking (CIB)

In 2011, BNP Paribas CIB further strengthened its position as a leader in Europe and developed its international presence. The banking group focus on important growth markets, such as Asia. The changing (regulatory) environment lead to structural changes within the banking group. The asset base and funding needs must be reduced. Next to this, the group had to adapts its business model in order to continue creating maximal value for both its customers and for the banking group.

The CIB business division aims to develop long-term relationships with clients, to support their investment strategy, and to meet their financing, advisory and risk management needs. Almost 20,000 employees work for CIB business division within BNP Paribas. In 2011, BNP Paribas CIB contributed 29 per cent of the group's operating income and 53.5 per cent of total assets [BNP Paribas, 2011].

Deutsche Bank

Deutsche Bank is a global universal bank, which business encompasses a wide range of products and services in investment, corporate and retail banking, as well as in asset and wealth management. It also trades energy on wholesale energy markets [Deutsche Bank, 2012].

Deutsche Bank has five corporate divisions: corporate banking and securities; global transaction banking; asset and wealth management; private and business clients; non-core operations units [Deutsche Bank, 2012].

Deutsche Bank	Net revenue	Income before income taxes	Assets	Nr. of clients	Nr. of employees
Corporate Banking & Securities	15,648	2,874	1,476,090	21,400	(9.3%)
Global Transaction Banking	4,006	669	77,378	67,200	(4.6%)
Asset & Wealth Management	4,466	160	68,408	2,389,700	(6.7%)
Private & Business	9,541	1,524	282,603	28,426,000	(41.6%)

Clients					
Non-core Operating Units	1,058	(2,914)[49]	97,265	-	(1.6%)
Total Group	33,741[50]	784	2,012,329		98,219[51]

Table 60: Key figures Deutsche Bank in 2012 (in millions €).

Corporate Banking & Securities (CB&S)

CB&S consists of Markets and Corporate Financial business divisions. The Markets division combines the sales, trading and structuring of a wide range of financial market products, including bonds, equities and equity-linked products, exchange-traded and OTC derivatives, foreign exchange, money market instruments, securitised instruments and commodities [Deutsche Bank, 2012].

Geographical representation	Clients
Germany	47.1%
Rest of Europe, Middle East and Africa	24.3%
Americas	10.5%
Asia Pacific	18.1%
Total	98,219

Table 61: Information by geographic area BNP Paribas in 2011 (in millions €).

Royal Dutch Shell

Shell is a global group of energy and petrochemicals companies with around 87,000 employees, running more than 30 refineries and chemical plants, in more than 70 countries and territories. The groups headquarter is in The Hague, the Netherlands. Shell's strategy is to generate profitable and sustainable growth, and to provide competitive returns to shareholders. The company aims to meet the global energy demand in economically, socially and environmentally viable ways, now and in the future. Shell has three business segments – upstream, downstream and corporate [Shell, 2012].

The **Upstream** business explores for and recovers crude oil and natural gas[52]. Shell extracts bitumen from mined oil sands and converts it into synthetic crude oil. The company also liquefies natural gas by cooling, transports liquefied natural gas (LNG) to customers worldwide, coverts natural gas to liquids (GTL) to provide high quality fuels and other products, and market and trade natural gas (including LNG). Furthermore Shell's Upstream business segment operates the upstream and midstream infrastructure necessary to deliver oil and gas to market [Shell, 2012].
Shell trades LNG volumes around the world through hubs in Dubai, the Netherlands and Singapore. The company also trades natural gas, power and emission rights in the Americas and Europe.
Shell's **Downstream** business segment concentrates on generating sustainable, long-term cash flows from existing assets and selective investments in growth markets. Downstream, Shell turns crude oil into a range of refined products, which are moved and marketed worldwide for domestic, industrial and transport use. Some downstream activities are managed regionally or are provided through support units, but most of the activities are managed globally. Refining involves the manufacturing, supply and distribution of crude oil. The marketing department then sells the products for domestic and industrial use, and for transportation. Downstream also involves the trading of physical and financial contracts, lease storage and transportation capacities and the management of shipping activities [Shell, 2012].
The Corporate segment covers Shell's non-operating activities that support both Upstream and Downstream, such as finance, human resources, information technology, research and innovation, legal services and security [Shell, 2012].

[49] Add total management reporting of €2,313 million, subtract consolidation and adjustments of €(1,529) million.
[50] Add total management reporting of €34,719 million, subtract consolidation and adjustments of €(978) million.
[51] The missing 26.4 per cent is accounted for by infrastructure and regional management.
[52] 50 per cent of Shell's production is natural gas.

Table 62 shows key figures of Shell's three business segments. Upstream and Downstream income includes projects, technology and trading activities. Corporate represents the company's support functions. A geographical breakdown of revenue can be seen in Table 63 [Shell, 2012].

Shell	Revenue	Income	Net capital investment	Average employees
Upstream	94,550	22,162	25,320	26,000
Downstream	424,410	5,350	4,275	48,000
Corporate	84	(209)	208	13,000
Total	467,153	27,303	29,803	90,000

Table 62: Key figures Shell in 2012, by business segment (in million $).

Geographical representation	Revenue
Europe	184,223 (39.4%)
Asia, Oceania, Africa	156,310 (33.5%)
USA	91,571 (19.6%)
Other Americas	35,049 (7.5%)
Total	**467,153**

Table 63: Information by geographic area for Shell in 2012 (in million $).

Derivative contracts

Carrying amounts of Shell's derivative contracts in 2012 (in millions $); designated and not designated as hedging instruments for hedge accounting purposes [Shell, 2012]:

Derivative contract class	Assets			Liabilities			Net
	Designated	*Not designated*	*Total*	*Designated*	*Not designated*	*Total*	
Interest rate swaps	368	-	368	-	-	-	368
Forward foreign exchange contracts	45	314	359	-	153	153	206
Currency swaps	1,133	13	1,146	14	60	74	1,072
Commodity derivatives	-	8,746	8,746	-	8,798	8,798	(52)
Other contracts	-	454	454	-	778	778	(324)
Total	**1,546**	**9,527**	**11,073**	**14**	**9,789**	**9,803**	**1,270**

Table 64: Carrying amounts of Shell's derivative contracts in 2012 (in millions $); designated and not designated as hedging instruments for hedge accounting purposes.

Most derivative contracts are short-term contracts, with a maturity of less than one year, namely 89 per cent of forward foreign exchange contracts and currency swaps, 75 per cent of commodity derivatives and 12 per cent of other contracts.

Collateral

In 2012, the carrying amount of financial assets pledged as collateral for liabilities or contingent liabilities, and presented within trade and other receivables, was $541 million (2011: $426 million). The carrying amount of collateral held, and presented within trade and other payables, was $353 million (2011: $607 million) [Shell, 2012].

Commodity trading (Shell trading)

The global network of Shell Trading companies encompasses Shell's trading activities worldwide, mainly in the U.S. The businesses possess a portfolio in crude oil, refined products, natural gas, electrical power, environmental products, and chemicals [Shell, 2012].

Shell Energy and its subsidiaries are part of the Shell trading network and one of the leaders on the wholesale energy markets in North America. They provide a comprehensive portfolio of energy-related products and services, including [Shell, 2012]:

- energy marketing and trading;
- risk management,
- industrial energy services,

- gas and power asset and supply portfolio management, and
- environmental products.

Commodity trading is an important component of Shell's supply and distribution function. It involves trading and treasury risk, including among others exposure to movements in commodity prices, interest rates and foreign exchange rates, counterparty default and various operational risks [Shell, 2012].

Nuon Energy (Vattenfall)

Nuon is an energy company that produces and delivers electricity, gas, heating and complementary services for 2.3 million households, companies and organisations in the Netherlands. The company has about 5,200 employees. The company aims to maintain a reliable, sustainable and affordable supply of energy by using several energy sources for its portfolio. Nuon is part of Vattenfall, one of the largest electricity companies and heating suppliers in Europe [Nuon, 2012].
Nuon has five business divisions: production, distribution and sales, sustainable energy projects, nuclear, and asset optimisation and trading.

- Renewable and thermal electricity is generated within the **production** division.
- The **distribution and sales** division is responsible for selling and distributing the generated electricity to end customers.
- The division **sustainable energy projects** is involved in project development, the execution of new-build generation projects in electricity and large modification projects in thermal power, heat, infrastructure and hydro power.
- The optimal use of the company's production assets and the trading of electricity, gas, coal and emission allowances are handled by Nuon's **asset optimisation and trading** division. Nuon has a trade and wholesale department, where energy trading activities take place. Since 2009, this department is joined with the energy trading business unit of Vattenfal, into a central trading platform that is cross-regionally responsible for access to energy wholesale markets. The main task of the trading business unit is to mitigate and transfer energy and commodity-related risk to the market.

Table 65 shows key figures of Nuon [Nuon, 2012].

	Revenue	Net result	Assets	Liabilities
Nuon:	3,905	(716)	6,834	3,501

Table 65: Key figures Nuon in 2012 (in million €).

Energy commodities

Nuon conducts proprietary trading in energy commodities and actively trades oil, gas and coal contracts, and options and swaps, for the purpose of the production, sale and purchase of energy (see Table 66). The commodity contracts mainly relate to forward contracts for oil, gas, coal, power and emission allowances [Nuon, 2012].

Trading derivatives	Current assets	Non-current assets	Current liabilities	Non-current liabilities
Commodity derivatives	1,742	911	1,399	795
Treasury contracts	37	20	43	42
Total	**1,779**	**931**	**1,442**	**652**

Table 66: Nuon's trading derivatives in 2012 (in millions €).

RWE Supply & Trading (Essent)

Essent, fully-owned by RWE Group, is the largest energy company in the Netherlands, with about 3,600 employees and 4564 retail customers. The company's second home market is Belgium. Essent provides private and business customers with gas, electricity, heat and energy services [RWE, 2012].

	External revenue	EBITDA	Operating result	Investments
Essent	5,942	507	228	616

Table 67: Key figures Essent in 2012 (in million €).

Essent's most recent financial statement is from 2010. Therefore RWE's annual report of 2012 is used to collect data for this research, because Essent is a subsidiary of RWE [RWE, 2012].

RWE	External revenue[53]	Operating result	Net income	Assets	Liabilities
Electricity	34,256				
Gas	14,222				
Crude oil	1,540				
Total	**53,227**	**6,416**	**2,500**	**88,202**	**71,765**

Table 68: Key figures RWE in 2012, by business segment (in million $).

Geographical representation	External revenue	Operating result	EBITDA	Workforce
Germany	24,943 (46.8%)	4,622	5,977	34,304 (48.9%)
Netherlands/Belgium	5,942 (11.2%)	228	507	3,600 (5.1%)
United Kingdom	9,022 (17.0%)	480	827	11,861 (16.9%)
Central Eastern and South Eastern Europe	5,274 (9.9%)	1,045	1,305	10,945 (15.6%)
Renewables	387 (0.7%)	183	364	1,573 (2.2%)
Upstream gas and oil	1,848 (3.5%)	685	1,041	1,375 (2.0%)
Trading/gas midstream[54]	5,698 (10.7%)	(598)	(591)	1,475 (2.1%)
Other, consolidation	113 (0.2%)	(229)	(116)	5,093 (7,2%)
Total RWE Group	**53,227**	**6,416**	**9,314**	**70,208**

Table 69: Information by division of RWE in 2012 (revenue and operating result: in million €).

RWE is a leading electricity and gas company in Europe that is active at all stages of the energy value chain, has around 70,000 employees and more than 16 million electricity customers and eight million gas customers. In the Netherlands, Germany and the United Kingdom, RWE is among the largest supplier of electricity and gas. The company aims at accomplishing more with fewer resources. Main activities of RWE are [RWE, 2012]:

- gas and oil production,
- electricity generation from gas (conventional power generation and renewable energy),
- energy trading/gas midstream,
- electricity and gas networks,
- electricity and gas distribution and sales.

RWE Group has seven divisions as can be seen in Figure 38 [RWE, 2012].

[53] Includes gas and electricity tax

[54] Gas Midstream encompasses gas wholesale trading, storage and transportation. Gas production is covered by the term 'upstream', and supply to end customers is covered by the term 'downstream'.

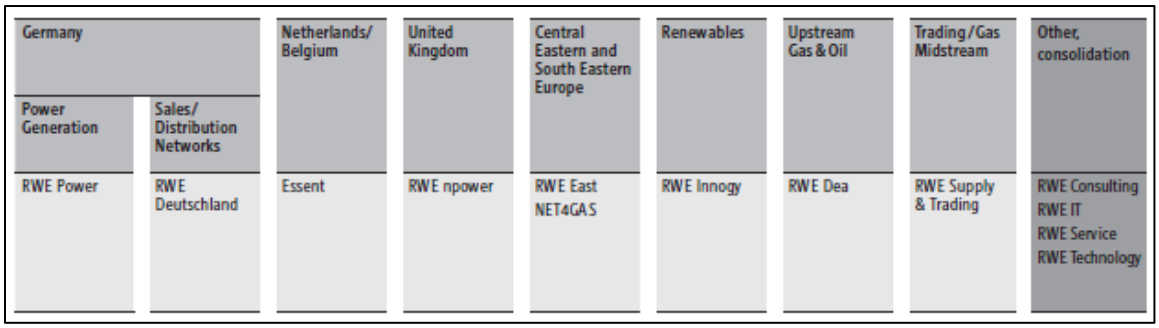

Figure 38: RWE Group Reporting Structure until 31 December 2012.

RWE Supply & Trading undertakes proprietary trading to a strictly limited extent in order to take advantage of changes in prices on energy markets [RWE, 2012].

DELTA

DELTA is an independent multi-utility company specializing in energy, grids and networks, and waste management. Its shares are held by municipal and provincial authorities in the Provinces of Zeeland, Brabant and South Holland. The company's head office of in Middelburg, the Netherlands. DELTA generates electricity, trades energy, and supplies gas and electricity to private and business customers [DELTA, 2012].

	Net revenue	Net profit	Assets	Liabilities	Nr. of employees
DELTA:	2,172	81	3,064	1,876	2,955

Table 70: Key figures DELTA in 2012, by business segment (in million €).

DELTA	Revenue
Electricity trading and sales	1,084
Gas trading and sales	337
Electricity and gas transmission	112
Cable, internet access and telecommunications	**75**
Waste logistics and environmental services	**505**
Other	**59**
Total	**2,172**

Table 71: Key figures DELTA in 2012, by product category (in million €).

Geographical representation	Revenue (x € 1.000)
The Netherlands	1,413
Belgium	204
UK and Ireland	355
Germany	168
Other EU	29
Outside EU	3
Total	**2,172**

Table 72: Information by geographic area for DELTA in 2012.

Derivatives trading

DELTA trades in contracts for electricity, gas, coal, oil, CO_2 certificates and currencies relating to the current year and the three following years. DELTA regards the markets for these commodities to be liquid over this time horizon, reliable prices being available from brokers, markets and suppliers of price information. DELTA also uses derivatives such as interest rate swaps (see Table 73). DELTA trades derivatives mainly for hedging purposes, in particular, to mitigate the risks involved in energy price fluctuations and ensure security of supply [DELTA, 2012].

	Assets Non-current	Current	Liabilities Non-current	Current	Net
Commodity contracts					
Gas	24,774	52,123	(37,335)	(56,284)	(16,722)
Electricity	57,358	57,229	(39,918)	(47,781)	26,888
Coal	1,805	1,596	(3,168)	(8,228)	(7,995)
Oil	1,243	4,037	-	(709)	4,571
Other	2,847	5,205	(10,440)	(14,193)	(16,581)
Other derivatives					
Foreign exchange contracts	13,061	16,367	(8,262)	(10,694)	10,472
Interest rate swaps	144	-	(2,163)	(1,455)	(3,474)
Total	101,232	136,557	(101,283)	(139,344)	(2,616)

Table 73: DELTA's derivatives portfolio in 2012 (in millions €).

GasTerra

GasTerra is an international company that trades in natural gas, with headquarter in Groningen (the Netherlands). The company operates on the European energy market and is an important supplier for gas on the Dutch market. In 2012, almost 40 per cent of the company's gas sales were generated in the Netherlands. The company's mission is to maximize the value of natural gas reserves in the Netherlands. GasTerra believes that it is possible to be a reliable and competitive gas supplier to its customers [GasTerra, 2012].

	Net turnover	Net profit	Assets	Liabilities	Nr. of employees
GasTerra:	23,381	36	3,734	3,518	189

Table 74: Key figures GasTerra in 2012, by business segment (in million €).

Geographical representation	Volumes sold (in billion m^3)
The Netherlands	34.8
Germany	19.3
UK	9.6
Italy	8.2
France	6.1
Belgium	4.7
Switzerland	0.7
Total	**83.4**

Table 75: Information by geographic area for GasTerra in 2012.

Derivatives

GasTerra uses derivatives within the course of its normal business activities. The company mainly uses forward exchange contracts to hedge the foreign exchange risk of receivables and payables in foreign currencies, and gas price swaps to hedge the price risk of gas contracts with a fixed price. GasTerra does not trade in derivative financial instruments [GasTerra, 2012].

GDF Suez

GDF SUEZ develops its businesses around a model based on responsible growth to take up today's major energy and environmental challenges: meeting energy needs, ensuring the security of supply, combating climate change and optimizing the use of resources [GDF Suez, 2012].

The Group provides highly efficient and innovative solutions to individuals, cities and businesses by relying on diversified gas-supply sources, flexible and low-emission power generation as well as unique expertise in four key sectors: LNG, energy efficiency services, independent power production and environmental services [GDF Suez, 2012].

GDF Suez has five business lines: Energy International, Energy Europe, Global Gas and LNG, Infrastructures and Energy Services [GDF Suez, 2012].

	Revenue	Net income	Assets	Liabilities	Nr. of employees
GDF Suez	97,038	1,550	205,500		219,300

Table 76: Key figures GDF Suez in 2012, by business segment (in million €).

Geographical representation	Revenue (in €million)
France	35,914
Belgium	11,110
Italy	7,035
UK	5,854
Germany	4,471
Netherlands	4,384
Other EU	1,040
North America	5,469
Asia, Middle-East and Oceania	8,633
South America	4,951
Africa	941
Total	**97,038**

Table 77: Information by geographic area for GDF Suez in 2012.

Appendix I – Dodd Frank Act

The Dodd-Frank Act is probably the most comprehensive U.S. regulatory reform since the Great Depression. The goals of Dodd-Frank are:

- Improving accountability and transparency to the financial system;
- Ending "too big to fail";
- Protecting the American taxpayer by ending bailouts;
- Creating new oversight agencies and combining others;
- Increasing transparency; and
- Increasing oversight of institutions deemed to be systematically risky.

	Dodd-Frank	EMIR/MiFID II
Instrument scope	OTC swaps contracts only. FX spot and some kinds of physically settled commodities are excluded.	OTC derivative contracts - list still to be determined but certainly most swaps. FX spot excluded.
Exemptions	Non-financial companies (end-users0)are exempt.	Non-financial/industrial groups
Clearing and trading	Standardized swaps must be cleared/traded through a CCP/trading platform, unless used for hedging. The derivatives eligible for clearing must be traded on an exchange or trading platform (Swap Execution Facility – SEF).	Standardized derivatives must be cleared/traded through a CCP/trading platform (also hedges) – but only for companies with large trading practices. Trade execution is not part of EMIR. MiFID II empowers ESMA to define derivatives that should be traded on at least an OTF.
CCP requirements	Adequate financial, operational and managerial resources. Sufficient resources to meet obligations despite default of largest member.	CCP has to meet minimum capital standards at authorisation (€5 million). Sufficient resources to cover an orderly wind down.
Margining	Margin requirements should	CCP must have access to central bank

	be sufficient to cover unexpected losses under normal conditions. Models and parameters to determine margin requirements need to be risk sensitive, and must be reviewed on a regular basis.	money. 99% of risk exposure movements need to be covered by the margin.
Reporting	Transaction reporting on OTC swaps, with stringent rules for major swap participants. Reporting to swap data repositories (SDRs). Additional publication requirements. Differentiation by level of activity (end user, swap dealer, major swap participant).	Transactions on **all** derivatives, both exchange traded and OTC must be reported to a central trade data repository. Transactions in energy commodity contracts, capacity contracts and supply contracts must also be reported. Reporting may be delegated to third parties.
Trading transparency	Pricing and volume data of certain swap transactions must be reported in real-time.	All regulated trading platforms must continuously publish trading prices and volumes – when liquid enough. Large trades are exempt. To be determined what "continuously" means.
Position limits	Limits will be imposed for all types of OTC derivatives, as well as aggregate limits combining exchange traded products.	No limit requirements.
Business conduct rules	Higher standards of conduct for dealers and large companies.	Transparency requirements for trading platforms. Higher (reporting) standards on insider information disclosure and market manipulation on wholesale energy products.
Requirements for pure OTC instruments (no clearing and trading obligations)	No requirements.	Stringent risk management practices required, including, for large companies, daily marking to market and collateral requirements.

Table 78: Main differences EMIR/MiFIR/MiFID II with Dodd-Frank Wall Street Reform [AIMA, 2013].