



Study on the Feasibility of Alternatives to Credit Ratings

Final Report

December 2015



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Abstract

This study maps the various alternatives to external credit ratings that are currently being used by market participants across Europe. These include: (i) internal measures and ratings where bulk of the analysis is performed in-house by the investor using qualitative and quantitative information collected from a variety of sources; (ii) market implied ratings e.g. bonds/ equity pricing information, CDS spreads; and (iii) accountancy based measures such as profitability and leverage ratios. Third party assessments conducted by non-commercial entities such as the OECD and Central Banks are also considered as an alternative to ratings produced by Credit Rating Agencies.

The study then assesses the feasibility of implementing the identified alternatives in a European context based on a consideration of criteria such as costs, market acceptability, accuracy and reliability, comparability, suitability for regulatory purposes etc. while drawing lessons from the US experience of implementing the Dodd-Frank Act of 2010 which, *inter alia*, requires all relevant US agencies to remove all regulatory references to or requirements of reliance on credit ratings and substituting these with alternative standards of creditworthiness.

List of acronyms and abbreviations

Acronyms	Meaning
CRR/ CRD IV	Capital Requirements Regulation and Directive
CCRs	Central Credit Registers
CFSDs	Central Financial Statements Databases
CCP	Central CounterParty
CDS	Credit Default Swap
CRA	Credit Rating Agency
EBA	European Banking Authority
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortisation
EBSCO	Elton Bryson Stephens Company
ECAF	Eurosystem Credit Assessment Framework
ECAI	External Credit Assessment Institutions
EIB	European Investment Bank
EIOPA	European Insurance and Occupational Pensions Authority
EMIR	European Market Infrastructure Regulation
ESA	European Supervisory Authority
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
Euro PP	Euro Private Placement
FCM	Futures Commission Merchant
FDIC	Federal Deposit Insurance Corporation
FE Rule	Filing Exempt Rule
FED	Federal Reserve System
FHFA	Federal Housing Finance Agency
FIBEN	Fichier Bancaire des Entreprises
FSB	Financial Stability Board
GDP	Gross Domestic Product
IMF	International Monetary Fund
IORPD	Institutions for Occupational Retirement Provision Directive
IOSCO	International Organization of Securities Commissions
IRB	Internal Ratings-Based
ISE	Intermediate-Sized Enterprises
ITS	Implementing Technical Standards
MFI	Monetary Financial Institution
MMF	Money Market Fund
MMMF	Money Market Mutual Fund

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NAIC	National Association of Insurance Commissioners
NCUA	National Credit Union Administration
NPRM	Notice of Proposed Rulemaking
NRSRO	National Recognized Statistical Rating Organisation
OCC	Office of the Comptroller of the Currency
OECD	Organisation for Economic Co-operation and Development
OTC	Over The Counter
OTCD	Over The Counter Derivative
RBC	Risk-Based Capital
REIT	Real Estate Investment Trust
RMBS	Residential Mortgage-Backed Security
RTS	Regulatory Technical Standards
S&P	Standard and Poor's
SCA	Sectoral Competent Authority
SEC	Securities and Exchange Commission
SME	Small and Medium Enterprise
SVO	Securities Valuation Office
SWOT	Strengths, Weaknesses, Opportunities and Threats
UCITS	Undertakings for Collective Investment in Transferable Securities
WKSI	Well-Known Seasoned Issuer

1 Introduction

It is widely acknowledged that external credit ratings enhance capital market efficiency and transparency by *reducing the information asymmetry* between borrowers (issuers) and lenders (investors); and, by providing market participants with a *means of comparing* different potential investments and a *common standard or language* to refer to credit risk. Blind faith in external ratings can however, have a destabilising effect on financial markets and the wider economy. During the 2009 global financial crisis and the Euro area sovereign crisis that followed, it became apparent that:

- The growing use of rating references - and specifically ratings produced by the 'big three' Credit Rating Agencies (CRAs) namely, Standard & Poor's, Moody's and Fitch) - within elements of prudential regulation and financial contracts prior to the crisis, has not only created a captive demand for external ratings by market participants over time, but has also reduced incentives for market participants to develop their own capacity for credit risk assessment, thus promoting sole and mechanistic reliance on external ratings.
- Sole and mechanistic reliance on external ratings can cause herding behaviour and "cliff effects"¹, thus amplifying pro-cyclicality and resulting in systemic disruption to financial systems.

Since the crisis, there has been a concerted effort at both a global and an EU level to (a) eliminate references to external ratings in financial standards, laws and regulations; and (b) encourage market participants to establish stronger internal credit risk assessment practices as an alternative.

In the EU, the basic principles to reduce reliance on CRA ratings are set out in the CRA Regulation², which stipulates that:

- Market participants shall not rely solely and mechanistically on credit ratings, but rather conduct their own credit risk assessment (Article 5a);
- Sectoral competent authorities (SCAs) shall monitor the adequacy of the credit risk assessment processes put in place by supervised entities, assess the use of contractual references to credit ratings and, where appropriate, encourage them to mitigate the impact of such references (Article 5a);
- The European supervisory authorities shall not refer to credit ratings in their guidelines, recommendations and draft technical standards where such references have the potential to trigger sole or mechanistic reliance on credit ratings by the competent authorities, the sectoral competent authorities and market participants (Article 5b);
- The European Systemic Risk Board (ESRB) shall not refer to credit ratings in its warnings and recommendations where such references have the potential to trigger sole or mechanistic reliance on credit ratings (Article 5b);
- The Commission shall continue to review whether references to credit ratings in EU law trigger or have the potential to trigger sole or mechanistic reliance on credit ratings, with a view to deleting all such references by 1 January 2020, provided that appropriate alternatives to credit risk assessment can be identified and implemented (Article 5c).

This report contributes to the above policy and regulatory objectives by:

¹ abrupt sell-offs of securities when ratings are downgraded

² Regulation (EU) No 462/2013 of the European Parliament and of the Council of 21 May 2013 amending Regulation (EC) No 1060/2009 on credit rating agencies

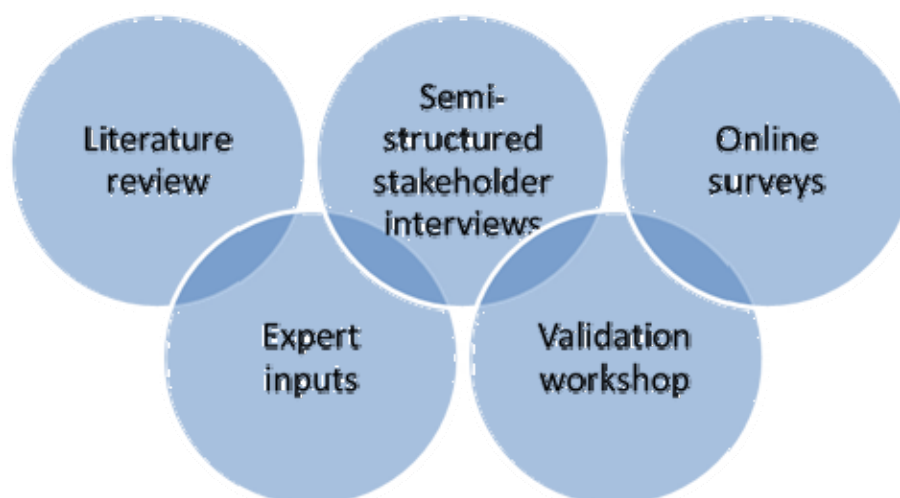
- a) Identifying and mapping the various alternatives to external credit ratings that are currently being used by market participants across Europe;
- b) Drawing lessons from the US experience of implementing the Dodd-Frank Act of 2010 which, *inter alia*, requires all relevant US agencies to remove all regulatory references to or requirements of reliance on credit ratings and substituting these with alternative standards of creditworthiness;
- c) Assessing the feasibility of implementing the identified alternatives in a European context (while taking account of the US experience);
- d) Describing the implementation of Article 5a(2) of the CRA III Regulation by competent national authorities in select EU Member States; and
- e) Identifying measures for mitigating the potential negative effects of contractual references to ratings.

The research was undertaken by ICF Consulting Services in association with Professor Lawrence J. White (Stern School of Business New York University), Professor John Ryan (University of Cambridge) and Pedro Maia Gomes (Assistant Professor at the Department of Economics at Universidad Carlos III de Madrid). The remainder of this section describes the research that was carried out, the limitations of the study and the structure of this report.

1.1 Research methodology

This study is based on data collected from a variety of sources: literature review, stakeholder consultations and surveys, expert inputs and a validation workshop.

Figure 1. Research methods used for this study



Each of these methods is described below.

1.1.1 Literature review

A literature review was undertaken in the early stages of the study to take stock of existing information on:

- The scale and scope of application of external credit ratings by regulators and market participants;
- Evidence of sole and mechanistic reliance on credit ratings;
- Alternatives to external credit ratings.

The literature review covered all major academic research as well as grey literature on the above topics, including:

- Reports published by International organisations such as the Financial Stability Board (FSB), the Basel Committee on Banking Supervision and the International Organization of Securities Commissions (IOSCO);
- Relevant reports published by European institutions and bodies like the European Commission, the European Banking Authority (EBA) and the European Securities and Markets Authority (ESMA); and
- News articles, blogs etc.

Annex 1 provides a list of references used in this study.

1.1.2 Semi-structured stakeholder interviews

Semi-structured interviews were conducted with a range of stakeholders including:

- Regulators and Sectoral Competent Authorities (SCAs);
- Market participants such as banks, asset management companies, investment and pension funds, Central Counterparties (CCPs), insurance/ re-insurance companies, representatives of corporate issuers etc.

Overall 114 individuals, representing 73 discrete organisations (including 8 US based organisations) were interviewed during the course of the study.

A list of organisations consulted and the topics explored with each stakeholder group can be found in Annexes 2 and 3 respectively.

1.1.3 Online surveys

Four online surveys were designed to collect inputs from the following stakeholder groups: (i) Sectoral Competent Authorities; (ii) Credit rating agencies; (iii) National central banks; (iv) National treasuries. The surveys were designed and implemented by ICF, but promoted by DG FISMA.

Table 1 shows the number of responses received for each survey. Unfortunately, not a single national central bank responded to our online survey. As we did not have the contact details of survey participants, it was not possible to follow-up directly with non-respondents in order to boost response.

Table 1. Survey responses

	Number of responses received
Sectoral Competent Authorities (SCAs)	29
Credit rating agencies	8
National central banks	0
National treasuries	14

1.1.4 Validation workshop

A validation workshop was organised on 30 October 2015 in Brussels to test the preliminary findings of the study and to explore some issues in further detail. Workshop participants included representatives of regulatory bodies, European Commission officials, academics and a range of market participants. A list of participants and workshop notes can be found in Annex 4.

1.2 Caveats and limitations

The substantial issue of resource constraints needs to be noted as it impacted upon the depth and breadth of the research that could be undertaken by us. The study ToR raised a number of 'big issues' with a limited budget and a tight timetable (6 months). This inevitably imposed certain limitations which need to be explicitly acknowledged:

- The study is based on qualitative research methods and purposively drawn samples. It explores the use of external credit ratings and alternatives by various market participants as well as the strengths and weaknesses of the different approaches from their perspectives. It presents the full spectrum of opinions expressed by stakeholders, but does not seek to draw generalisations. Nor does it attempt to quantify the scale of application of alternatives.
- The US case study is based on a limited number of interviews and desk research. As such it provides an overview rather than a comprehensive account of how the Dodd Frank Act is being implemented in the US.

1.3 Structure of the report

The remainder of this document is structured as follows:

- Section 2 describes the use of credit ratings by regulators and market participants;
- Section 3 provides a mapping and feasibility assessment of the various approaches to credit risk assessment;
- Section 4 presents the first results from the US experience;
- Section 5 presents the main conclusions of the study.

A separate document contains the following annexes:

- Annex 1: List of references;
- Annex 2: List of interviewees;
- Annex 3: Final set of research tools (topic guides and survey questionnaires);
- Annex 4: Workshop notes;
- Annex 5: Additional research findings;
- Annex 6: Implementation of the Dodd Frank Act in the US Financial sector regulatory framework

2 The use of external credit ratings

The use of external ratings by investors and other market participants has grown significantly over time, driven by an expansion in the number and types of issuers accessing capital markets, international diversification of investors' portfolios, and the advent of new and complex financial products such as asset-backed securities and credit derivatives. Moreover, the extensive use of external ratings in financial sector regulation (e.g. tying disclosure requirements, legal investment standards, or capital requirements to external ratings) and private financial contracts (e.g. setting of minimum rating requirements in investment mandates, the use of rating triggers in loan and bond covenants etc.) has further enhanced their significance in the marketplace. This section describes the scale and scope of application of external ratings by regulators and market participants in the European context.

2.1 Scale of application

External credit ratings originated in the US in 1909 for railroad bonds. Since then, the application of external credit ratings has expanded from corporate bonds to a range of instruments including loans, commercial paper, bank deposits and structured finance products. Moreover, different types of ratings have developed over time:

- Issuer ratings e.g. non-financial corporates, financial corporates such as banks and insurance companies, sovereign, special purpose vehicles (for structured finance products), sub-sovereign entities such as municipalities etc.
- Ratings of specific issues - each specific bond issue or loan from the same entity is separately rated in case of corporate debt;
- Target market of the issue – there are separate ratings for debt being raised on domestic markets and that being raised internationally;
- Short term and long-term credit rating.

One of the main reasons behind this expansion in the scope and scale of application of external credit ratings is that capital markets are playing an increasing role in financing governments and businesses – a trend that is likely to continue for years to come as banks are subject to higher capital requirements and other restrictions.

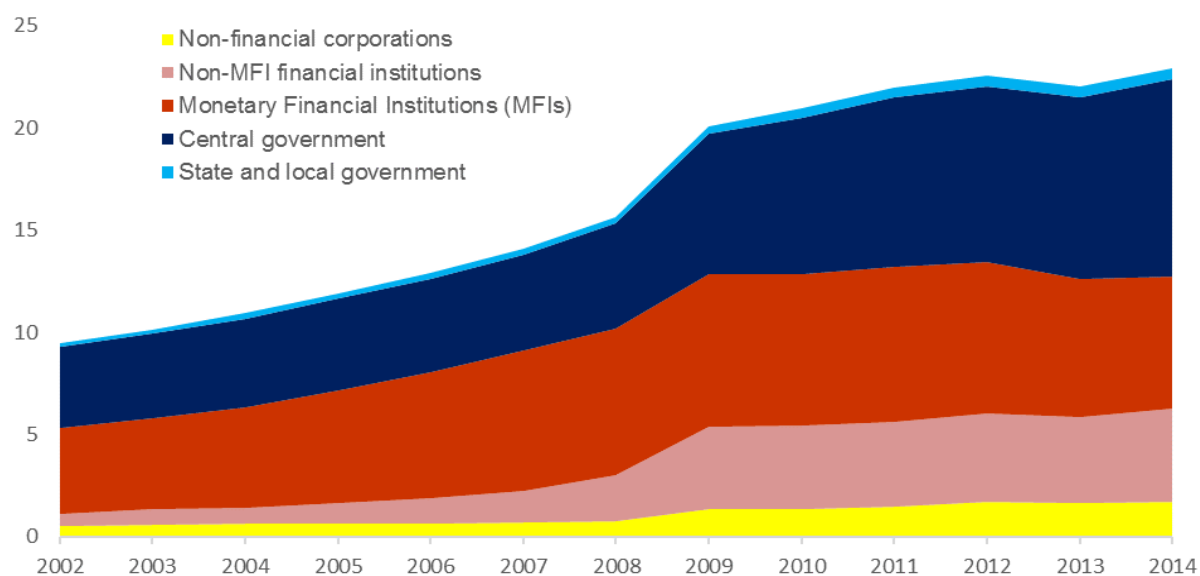
The European bond market has more than doubled in size since 2002. As of December 2014, the total outstanding amount of debt securities³ in the EU stood at €22.9 trillion or almost twice the EU's GDP. Figure 2 illustrates the size, growth, and make-up of the European bond market. Two groups of debtors account for the vast majority of the outstanding stock of debt securities: financial institutions (48 per cent⁴) and the public sector (44 per cent⁵), although the total volume of MFI corporate bonds outstanding has been declining in both absolute and relative terms since 2012 due to deleveraging in the financial sector.

³ Excluding shares and financial derivatives

⁴ Monetary Financial Institutions (MFI) = 28 per cent (€6.5 trillion) and Non-MFI financial institutions = 20 per cent (€4.5 trillion) in 2014

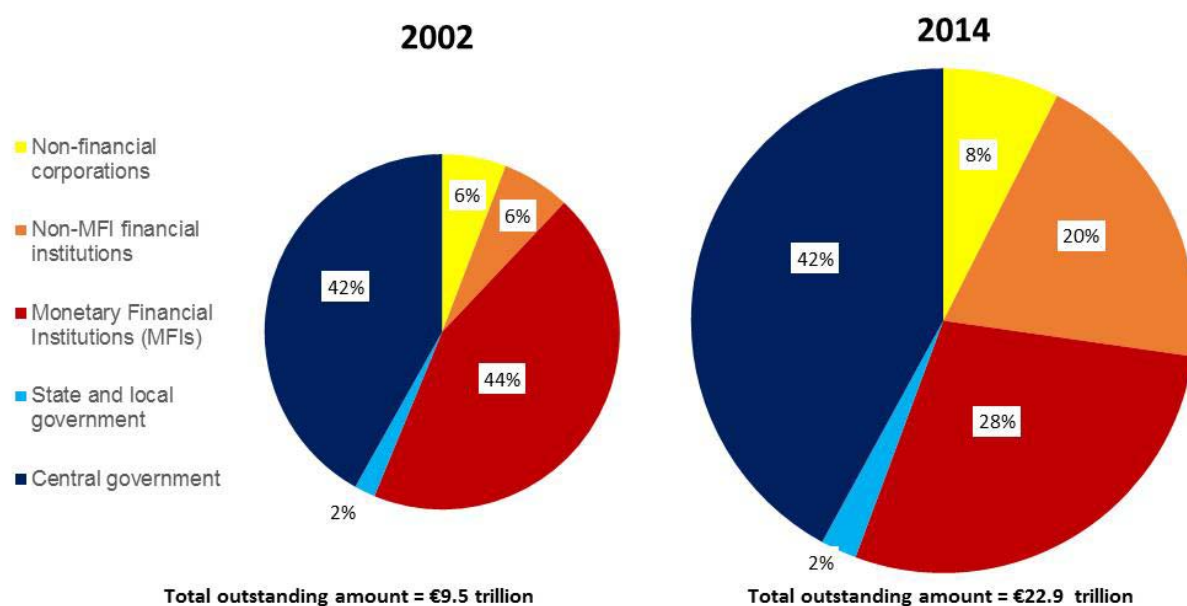
⁵ Central and state governments = € 9.6 trillion (42 per cent) and local governments = € 0.5 trillion (2 per cent) in 2014

Figure 2. Outstanding debt securities in the EU 28, 2002 to 2014 [in trillion EUR, nominal values]



Source: European Central Bank

Figure 3. Outstanding debt securities in the EU 28 broken down by issuer



Source: European Central Bank

The non-financial corporate bonds market on the other hand, has grown steadily during the post-crisis period, reaching €1.7 trillion in 2014. Corporations are increasingly turning to debt capital markets due to growing investor appetite for corporate debt (driven by a search for better yields in a low return environment) and reduced availability of bank lending in some countries (a consequence of the financial

crisis and more stringent regulatory requirements)⁶. According to an article in the Financial Times, a growing number of unrated European companies have been tapping capital markets in recent years. On average, unrated issuance accounted for a tenth of overall European corporate bonds issuance during the period 2010 to 2013, with much of the volume driven by first-time issuers, typically small and medium-sized enterprises.⁷

The economic recession has also seen a strong increase in the volume of central government bonds outstanding. As of end 2014, EU-28 sovereign securities, including both short-term (with maturity equal to or less than a year) and long-term securities amounted to an aggregate value of €9.6 trillion outstanding. As indicated in Figure 3 all EU-28 Member States are externally rated. In the past, governments tended to seek ratings on their foreign currency obligations exclusively, because foreign currency bonds were more likely than domestic currency offerings to be placed with international investors. In recent years, however, international investors have increased their demand for bonds issued in currencies other than traditional global currencies, leading more sovereigns to obtain domestic currency bond ratings as well. Sovereign ratings are important not only because central governments represent the largest group of borrowers in capital markets in terms of volume, but also because these ratings have a cascading effect i.e. sovereign ratings affect the ratings assigned to borrowers domiciled in the same country.

Table 2. Sovereign ratings coverage of EU Member States

EU Member	Capital Intelligence	DBRS	EIU	Feri	Fitch	Moody's	S&P
AUSTRIA			U	U	U		S
BELGIUM			U	U	U	S	U
BULGARIA				U	U		S
CROATIA				U	U	S	S
CYPRUS	S		U	U		S	S
CZECH REPUBLIC				U	U	S	S
DENMARK			U	U	U	S	S
ESTONIA				U	U		S
FINLAND			U	U	U	S	S
FRANCE		S		U	U		U
GERMANY			U	U	U		U
GREECE		S		U	U	S	S
HUNGARY				U	U	S	S
IRELAND		S		U	U	S	S

⁶ DB Research (2013) Corporate bond issuance in Europe: Where do we stand and where are we heading?

⁷ Thompson, C. (2011) Unrated bond issues double in Europe, The Financial Times, 1 August 2013

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EU Member	Capital Intelligence	DBRS	EIU	Feri	Fitch	Moody's	S&P
ITALY			U	U	U	S	U
LATVIA				U	U	S	S
LITHUANIA				U	U	S	S
LUXEMBOURG						U	S
MALTA						S	S
NETHERLANDS			U	U	U	U	U
POLAND				U	U	S	S
PORTUGAL			U	U	U	U	S
ROMANIA				U	U	S	S
SLOVAKIA				U	U	S	S
SLOVENIA	S			U	U	S	S
SPAIN			U	U	U	U	S
SWEDEN			U	U	U	U	S
UNITED			U	U	U	U	S

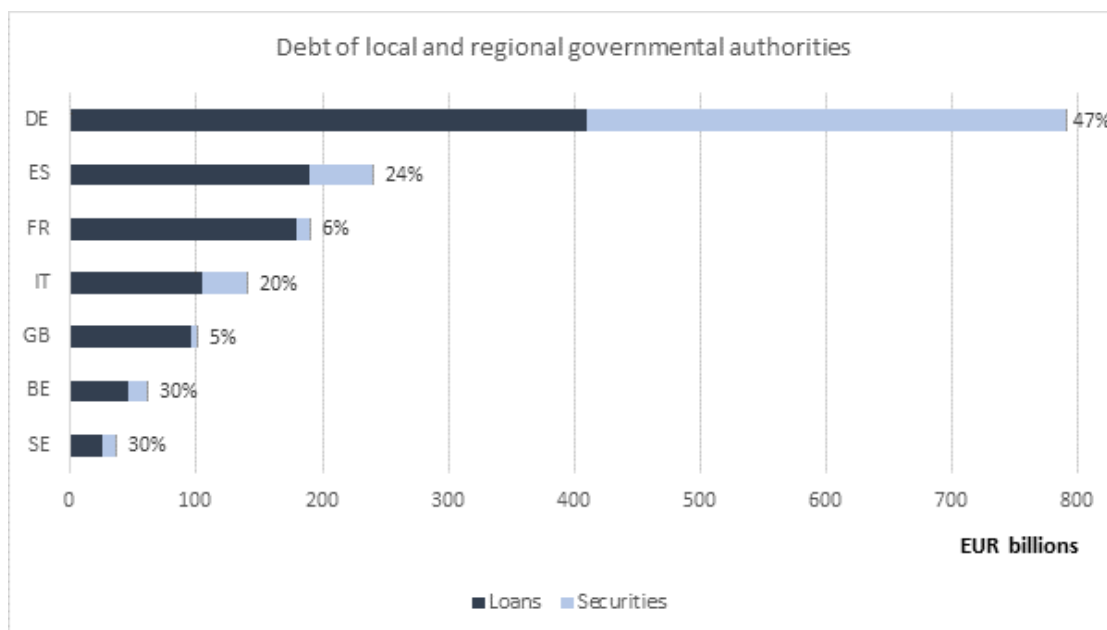
U= unsolicited; S = solicited

Source: ESMA (2014) Technical Advice in accordance with Article 39(b) 2 of the CRA Regulation regarding the appropriateness of the development of a European creditworthiness assessment for sovereign debt, 17 September 2014 | ESMA/2014/850rev.

As regards sub-sovereign debt⁸ raised on capital markets, there are big differences across Europe. While the Länder and local authorities in Germany raise almost half (47 per cent) of their debt via the capital market, the share of sub-sovereign debt that is bond financed is only 6 per cent in France and 5 per cent in the UK. Bond financing of sub-sovereign debt is however, gradually gaining importance in the EU. Some Member States such as France and the United Kingdom have recently set up municipal financing agencies to diversify the funding requirements of local units.

⁸ Borrowings of regional and local public authorities

Figure 4. The role of bonds as regional and local debt instruments in Europe



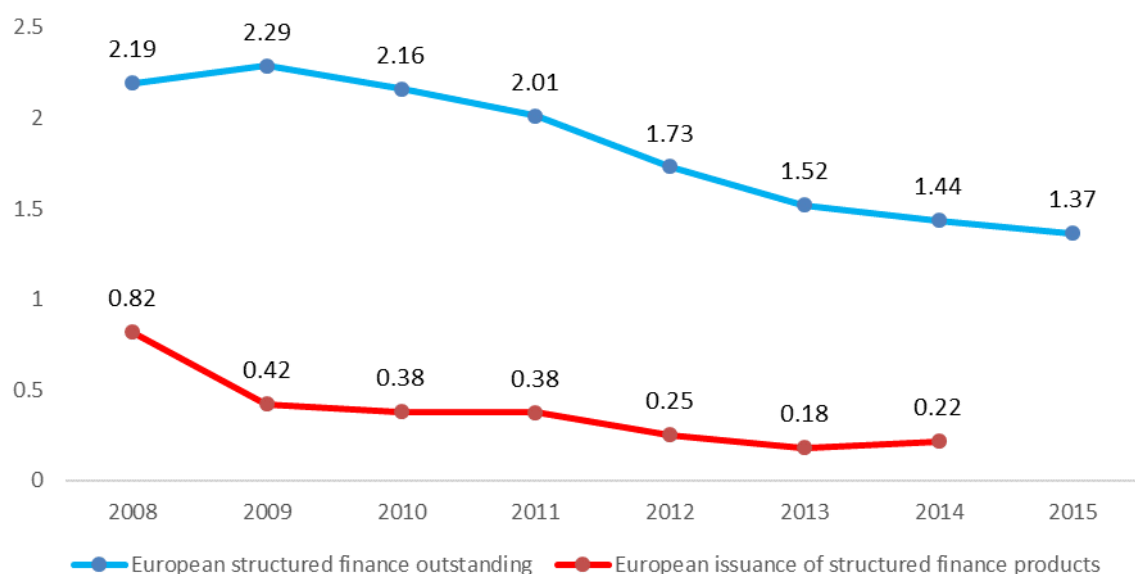
Source: Deutsche Bank Research (2014) *Small is beautiful? Capital market funding for sub-sovereign authorities on the rise*

For the time being, the market for sub-sovereign bonds in Europe is dominated by Germany's subordinate levels of government, which alone constitute 72 per cent of the total volume. The lion's share of this is accounted for by the Länder, which benefit from Germany's excellent sovereign rating. While the Länder ratings are the same or only slightly lower than the AAA sovereign rating for Germany, the ratings for the regions in Italy and Spain vary by up to five notches. Atypically, a few regions with particularly low levels of debt currently have even better ratings than the central government. For example, some agencies have higher ratings for the Basque Country and Navarre than for Spain. Both regions have per-capita income that is well above average, relatively low debt and limited autonomy in setting taxes. For Italy, Moody's ratings of the autonomous provinces of Bolzano and Trento are two notches higher than for the central government, while for Lombardy the rating is one notch higher. Bolzano and Trento enjoy a special status with greater financial and legislative autonomy, they have an extraordinarily strong fiscal position and low levels of debt⁹.

Structured finance products represent another big asset class where external credit ratings play an important role. The outstanding amount of structured finance products in the EU is currently about €1.4 trillion. Since its peak in 2009, there has been a constant decline in the outstanding stock of structured finance as well as the volume of new issuance (see Figure 4). Generally speaking, European banks are far less inclined to use securitisation nowadays, as compared to the pre-crisis period. Prior to the crisis, all primary issuances were placed with end-investors and banks; nowadays, almost all deals are retained by the originating banks and many are placed as collateral with central banks.

⁹ Deutsche Bank Research (2014) *Small is beautiful? Capital market funding for sub-sovereign authorities on the rise*

Figure 5. Outstanding amounts and new issuance of structured finance products in the EU [in trillion EUR, nominal values]



Source: AFME Securitization Data Reports

Structured financial products are designed to take advantage of different investor risk preferences and investment time horizons. Ratings therefore, play an important role in the structuring of these transactions. Moreover, as with corporate debt securities, many investors require that a structured finance debt security be rated by a CRA before they will purchase it. Not all structured finance products are however, rated by CRAs. Indeed, for many particularly complicated or risky CDOs, credit ratings are unusual. Further, some issuers create structured products specifically for a particular investor that does not require a credit rating because it relies solely on internal analytics to assess the credit risk of the security¹⁰.

In 2014, 55 per cent of European issued structured products had AAA rating followed by 6 per cent with AA, 21 per cent with A and 6 per cent with BBB or below. Only around 13 per cent of the value of European issuance in 2014 was not rated¹¹.

2.2 Regulatory references to external ratings

The first regulatory reference to the ratings can be traced back to the early 1930s, when US federal bank regulators started introducing the use of ratings for accounting practices of commercial banks. Bonds that commercial banks had purchased and were holding in their portfolios had to be marked to market (i.e., valued at market prices) if the bonds were rated as “speculative”; but the bonds could be valued at their original purchase cost if the bonds were rated as “investment grade”. In 1936, federal bank regulators went further, mandating that commercial banks could invest only in “investment grade” bonds as determined by “recognised rating manuals.”¹² During the following decades, regulators in the US as well as in other countries around the world started incorporating external ratings into laws and regulations to set capital requirements for regulated entities, provide a disclosure framework, and restrict

¹⁰ IOSCO (2008) The Role of Credit Rating Agencies in Structured Finance Markets, Final Report, May 2008

¹¹ AFME, 2015. Securitisation Data Reports. Available at: <http://www.afme.eu/Documents/Statistics-and-Reports.aspx>

¹² White, L (2011) An Assessment of the Credit Rating Agencies: Background, Analysis, and Policy

investments. Box 1 provides an overview of the main uses of external ratings within financial sector regulatory frameworks.

Box 1: Regulatory uses of external ratings

- (1) Calculation of Regulatory Capital Requirement.
- (2) Classifying the riskiness and concentration level of assets for regulated institutional investors, such as pension funds and life insurance companies.
- (3) Assessing the credit risk of securitised instruments based on the underlying riskiness of their assets.
- (4) Assessing the credit risk of issuers of listed securities as part of overall capital market disclosures requirements.
- (5) Determining eligibility of a prospectus for public offering

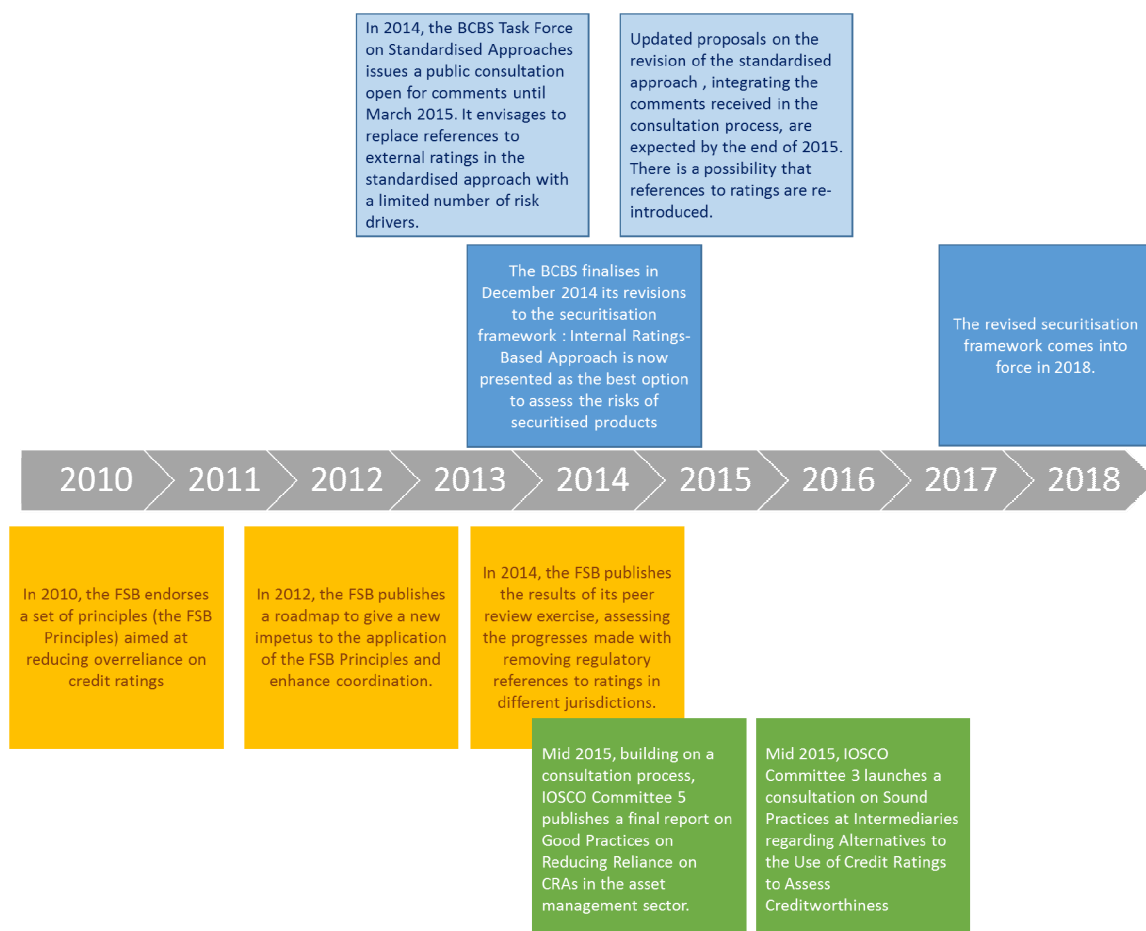
Source: Joint Committee Final Report on mechanistic references to credit ratings in ESA’s guidelines and recommendations

Since the financial crisis, regulators have taken several steps to eliminate the mandatory use of ratings in financial sector regulations. These are summarised below.

2.2.1 International and EU efforts to reduce regulatory references to external credit ratings

The figure below provides a snapshot of coordinated efforts being made at an international level to reduce regulatory references to ratings.

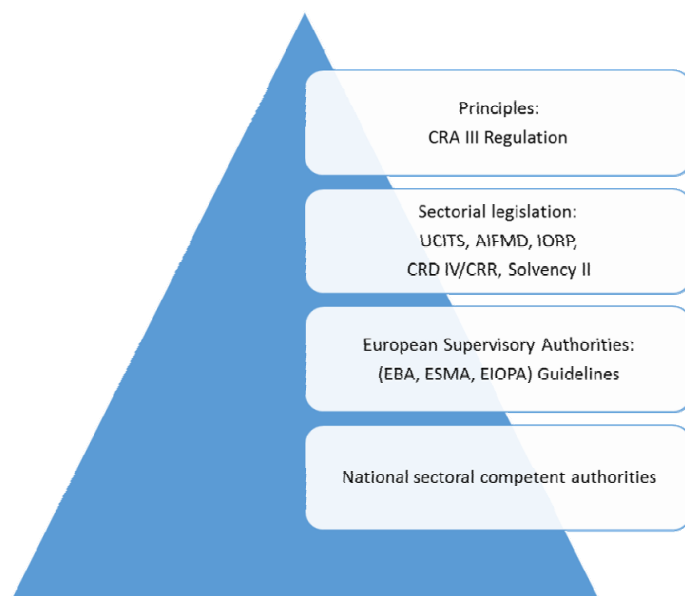
Figure 6. Timeline of coordinated international efforts coordinated on reducing regulatory references to ratings



As regards specific steps taken by individual jurisdictions, the United States (U.S.) has made the most significant changes in its regulatory framework. In 2010, the Dodd Frank Act was passed, which requires all U.S. agencies to remove references to external credit ratings in their legislation. The U.S. experience of implementing the Dodd Frank Act is further examined in section 5.

The EU's policy response, on the other hand, has been much more measured. The general conceptual framework to reducing reliance on CRA ratings in the EU is based on a multi-layer approach¹³ which is illustrated in Figure 7 and described in the sub-sections that follow.

Figure 7. The EU's conceptual framework for reducing reliance on CRA ratings



Source: The EU Action Plan to reduce reliance on CRA ratings

2.2.1.1 The CRA Regulation

The first layer consists of the CRA III Regulation¹⁴ (*Regulation 462/2013*), which sets out the basic principles for reducing reliance on CRA ratings. It came into force in 2013 and amends earlier versions of 2009 (*Regulation 1060/2009*) and 2011 (*Regulation 513/2011*).

Its Article 5a notably requires financial institutions "to make their own credit risk assessment and not solely and mechanically rely on credit ratings for assessing the creditworthiness of an entity or financial instrument."

In the CRA III Regulation, reducing sole or mechanistic reliance on credit ratings is seen as a long term and gradual process. Article 5c of the CRA III Regulation invites the Commission to continue reviewing the use of references to external credit ratings in Union law that trigger or have the potential to trigger sole or mechanistic reliance. It also foresees that provided that appropriate alternatives to credit risk assessment are identified and implemented, the Commission will consider, if appropriate, removing all remaining

¹³ EU Action Plan to reduce reliance on CRA ratings. Available at: http://ec.europa.eu/finance/rating-agencies/docs/140512-fsb-eu-response_en.pdf

¹⁴ REGULATION (EU) No 462/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 May 2013 amending Regulation (EC) No 1060/2009 on credit rating agencies

The CRA III Regulation also triggers action at the other levels such as the national sectoral competent authorities.

2.2.1.2 Changes to EU level sectoral legislation

The second layer involves changes to EU sectoral legislation. This legislation covers the following sectors:

- the asset management sector;
- the banking sector;
- the insurance sector; and
- central counterparties.

The table below provides an overview of the main regulatory provisions by sector. It can be seen from the table that references to ratings within EU sectoral legislation still remain (e.g. CRR and Solvency II Directives), although measures have been introduced to reduce sole and mechanistic reliance on ratings.

Table 3. References to external ratings in EU sectoral legislation

Sector	Reference text	Main references to ratings	Provisions mitigating risks of sole and mechanistic reliance
Banking	<p>The Capital Requirements Directive (CRD IV)</p> <p>The Capital Requirements Regulation (CRR)</p> <p><i>NB: CRD IV/CRR entered into force on 1 January 2014.</i></p>	<p>In the banking sector, there is a risk-based approach to calculating capital requirements. Capital requirements can be calculated in two ways (see Article 107 of the CRR): using the standardised approach (SA) (see Chapter 2 on the Standardised Approach in the CRR) or using an internal model approved by the relevant supervisor (see Article 143 of the CRR)</p> <p>CRR/CRD IV still refer to a large extent on external ratings under the SA to determine credit risk, counterparty credit risk, market risk, and for large exposures (see section 2 on risk weights of the Chapter 2 on the Standardised Approach in the CRR).</p> <p>With regard to securitisation exposures, the EU recalls the lack of sufficiently objective internal methodologies within banks and refers to the work of Basel Committee on Banking Supervision (BCBS) for future developments in this specific area (see page 9 of the EU Action Plan).</p>	<p>Mitigation measures include</p> <ul style="list-style-type: none"> • CRR/CRD IV encourage “sophisticated” credit institutions (i.e. institutions significant in terms of their size, internal organisation and the nature, scale and complexity of their activities) to have their own procedures for credit risk assessment. (Article 77 (1) of the CRD IV) • CRR/CRD IV require competent authorities to ensure that institutions do not rely solely and mechanistically on external credit ratings for the purpose of calculating regulatory capital requirements (Article 77 (2) of the CRD IV)
Insurance	<p>Solvency II (Directive 2009/138/EC) - as amended by Directive 2014/51/EU</p>	<p><i>NB: Solvency I did not contain references to ratings.</i></p> <p>The upcoming Solvency II moves to a risk-</p>	<p>Solvency II contains provisions specifying that sole and mechanistic reliance is forbidden.</p>

Sector	Reference text	Main references to ratings	Provisions mitigating risks of sole and mechanistic reliance
	<p>('Omnibus II')</p> <p><i>NB: the new Solvency II Directive will be applicable from 1 January 2016.</i></p> <p>Commission Delegated Regulation (EU) 2015/35 of 10 October 2014 supplementing the Solvency II</p>	<p>based approach to calculate capital requirements. Similar to the approach adopted in the banking sector, the capital requirements can be calculated in two ways: using a standard formula or, subject to supervisory approval, using a full or partial internal model (see Article 100 of the Solvency II Directive).</p> <p>Under the standard formula, capital requirements, in all different modules (market risk, spread risk, concentration risk), are derived from external ratings (see Article 4 of the Commission Delegated Regulation). They are also used to assess counterparty risk.</p>	<p>Insurers have to use additional assessments whenever practically possible, and necessarily for large and complex exposures (internal ratings cannot however overrule external ratings for those under the standard formula) (Article 4 of the delegated act)</p> <p>Solvency II introduces the Credit Quality Step terminology: it does not refer directly to external ratings but to Credit Quality Steps (against which the external ratings are mapped) (Article 109a of the Solvency II directive).</p> <p>There are mixed views on whether Solvency II has the potential to trigger sole and mechanistic reliance, despite the safeguards which have been introduced – see section 2.2.2.2.</p>
Asset management	<p>Directive 2013/14/EU amending</p> <ul style="list-style-type: none"> • Directive 2003/41/EC regarding Institutions for Occupational Retirement 	<p>The relevant EU level legislation in the investment fund management sector does not contain references to external credit ratings.</p>	<p>The main focus of the amendments passed in 2013 is to call on SCAs to better monitor, and where necessary, minimise the use of external ratings. Relevant actors are expected to strengthen their own credit risks assessments (see Articles 1, 2 and 3 of the</p>

Sector	Reference text	Main references to ratings	Provisions mitigating risks of sole and mechanistic reliance
	<p>Provision (IORPD)</p> <ul style="list-style-type: none"> • Directive 2009/65/EC regarding undertakings for collective investments (UCITS) • Directive 2011/61/EU on alternative investment funds managers (AIFMD) 		<p>Directive).</p> <p>In practice, the 2013 directive implies that the risk should be assessed against reliable and updated information, both quantitative and qualitative.</p> <p>Where no internal credit assessment is carried out, companies are still expected to check the consistency of external ratings with business indicators and market data.</p>
CCP	European Markets Infrastructure Regulation (EMIR) No 648/2012	<p>EMIR does not contain any references to external credit ratings.</p> <p>NB: for OTC derivative contracts not cleared through a CCP</p> <p><i>The draft Regulatory Technical Standard (RTS)^[1] outlining the framework of EMIR he RTS allows the use of internal-ratings-based (IRB) approaches to credit institutions authorised under the CRR. In the absence of an approved IRB for the collateral or if the two counterparties do not agree on the use of the IRB approach developed by one counterparty, the two counterparties can define a list of eligible collateral relying on the external credit</i></p>	EMIR requires CCPs to “employ a defined and objective methodology” and not to “fully rely” on external opinions (see Articles 41, 42, 44, 45, Annex I and Annex II)

^[1]Second consultation paper - draft Regulatory Technical Standards (RTS) on risk mitigation techniques for OTC derivatives not cleared by a central counterparty (CCP), 10 June 2015. Available at: <https://www.eba.europa.eu/-/esas-consult-on-margin-requirements-for-non-centrally-cleared-derivatives>

Sector	Reference text	Main references to ratings	Provisions mitigating risks of sole and mechanistic reliance
		<p><i>assessments of recognised external credit assessment institutions (ECAIs). The minimum Credit Quality Step (CQS) is set to two for most collateral types. The use of the CQS must be consistent with the Implementing Technical Standards (ITS) on the mapping of the credit assessments to risk weights.</i></p> <p><i>The current draft RTS allows the use of either internal models for the calculation of haircuts or the use of standardised haircuts.</i></p>	

2.2.1.3 Changes to European Supervisory Authorities' guidelines

Article 5b of CRA III provides that the European Supervisory Authorities (ESAs) "shall not refer to credit ratings in their guidelines, recommendations and draft technical standards where such references have the potential to trigger sole or mechanistic reliance on credit ratings by the competent authorities, the sectoral competent authorities, the entities referred to in the first subparagraph of Article 4(1) or other financial market participants".

Accordingly, the ESAs reviewed and removed all references to external credit ratings in existing guidelines and recommendations that had the potential to promote sole and mechanistic reliance on external ratings. To achieve this aim, the ESAs launched a Consultation Paper¹⁵ which set-out the joint view of the three ESAs on revision and removal of rating references and sought to gather external views on foreseen modifications. The purpose of the exercise was also to agree upon a definition of "sole or mechanistic reliance" mentioned in Art 5b.

The output of the exercise is the Final Report on Mechanistic references to credit ratings in the ESAs' guidelines and recommendations, published in February 2014¹⁶. The report summarises stakeholder response to the above consultation. It presents the following agreed definition of "sole or mechanistic reliance": "It is considered that there is sole or mechanistic reliance on credit ratings (or credit rating outlooks) when an action or omission is the consequence of any type of rule based on credit ratings (or credit rating outlooks) without any discretion". The report clarifies that the adoption of this formal definition is fully in line with the understanding shared by the European Parliament, the Council, and the Commission during the negotiations on the CRA III Regulation.

In addition, the report identifies provisions containing references to ratings that should not be viewed as "sole or mechanistic" as well as a set of provisions that would require revision. The following guidelines and recommendations (currently in force) were found to contain references to ratings which can be regarded as promoting sole or mechanistic reliance:

- *The guidelines detailing how CRR/CRD IV should be implemented*¹⁷. However, as mentioned above, the report does not propose any action and call for change with regards to mechanistic reliance on external ratings in the standardised approach. It nevertheless states that the risk of sole and mechanistic reliance on external ratings is minimised by the fact that exposure classes where external ratings may be used are precisely the exposures for which external ratings are not commonly available (e.g. corporate exposures related to smaller and medium-sized companies are typically unrated) and/or for which the CRR/CRD IV dis-incentivises the use external ratings.
- *The MMF Guidelines*¹⁸. The report emphasise the risks of mechanistic reliance on external ratings in the current investment guidelines such as cliff effects.

¹⁵ EBA, EIOPA and ESMA (2013) Joint Consultation Paper on Mechanistic references to credit ratings in the ESAs' guidelines and recommendations (JC CP 2013 02). Available at: http://www.esma.europa.eu/system/files/jc-cp-2013-02_mechanistic_references_to_credit_ratings.pdf

¹⁶ EBA, EIOPA and ESMA (2014) Final Report on Mechanistic references to credit ratings in the ESAs' guidelines and recommendations (JC 2014 004)

¹⁷ CEBS (2010) Revised Guidelines on the recognition of External Credit Assessment Institutions. Available at: <http://www.eba.europa.eu/documents/10180/16094/Revised-Guidelines.pdf>

¹⁸ http://www.esma.europa.eu/bg/system/files/10-049_cesr_guidelines_mmfs_with_disclaimer.pdf

Considering that the EU money market funds industry has about €1 trillion in assets under management, the impacts of such an event could be very detrimental. The ESAs proposed to keep a reference to external ratings, but instead suggested removing the reference to a certain threshold below which money market instruments are automatically excluded from the investment universe. The current version of the guidelines available online includes the proposed changes in track changes for information, even if the modifications have not yet formally been adopted.

Finally, the report also highlights the possible detrimental effects of the upcoming Solvency II regulation in the insurance sector (discussed further in section 2.2.2.2).

2.2.1.4 National sectoral competent authorities

The last layer of the EU's policy response refers to the implementation of sectoral legislation at the national level. Article 5a (2) of the CRA III requires national sectoral competent authorities to monitor the adequacy of the credit risk assessment processes of financial institutions, taking into account the nature, scale and complexity of their activities. In addition, sectoral authorities are also invited to assess the use of contractual references to credit ratings and, where appropriate, encourage them to mitigate the impact of such references, with a view to reducing sole and mechanistic reliance on credit ratings, in line with specific sectoral legislation.

2.2.2 The extent to which financial sector regulation is driving the use of external credit ratings

Despite the developments noted above, research carried out in the context of this study confirms that regulation remains a key driver behind the use of external ratings by market participants in following sectors: (i) banking (ii) insurance and (iii) asset management. Table 4 provides a high level summary of the research findings, while the sub-sections that follow elaborate these findings in further detail.

Table 4. Drivers of the use of external ratings by market participants

Type of Regulation	Credit Institutions/ Banks	Insurance/ Re- insurance companies	Asset Managers	Other Institutional Investors e.g. pension funds
Sectoral regulation, guidelines or standards	High (determining capital and liquidity requirements)	High* (determining capital requirements)	Low**	Medium***
Regulation from other sectors	Low (To a minor extent)	Low (To a minor extent)	High (Regulation applicable to investors)	N/A

* Under Solvency I, insurance companies in many countries had investment limits for specific asset classes defined in terms of ratings. This reference to ratings will disappear in 2016 when Solvency II will be applied.

**Within the MMF Guidelines there is no longer a threshold below which money market instruments are automatically excluded from the investment universe but references to external ratings remain, whereby "a downgrade below the two highest short-term credit ratings by any agency registered and supervised by ESMA that has rated the instrument should lead the

manager to undertake a new assessment of the credit quality of the money market instrument to ensure it continues to be of high quality".¹⁹

* In some countries, there are regulatory provisions stipulating minimum rating requirements or investment limits (defined with reference to external ratings) for pension funds – CRA III had the ambition to reduce overreliance in the pension fund sector.

2.2.2.1 Banking

Key messages:

- CRR/CRD IV still rely to a large extent on external ratings under the standardised approaches to determine credit risk, counterparty credit risk, market risk, and for large exposures
- Liquidity provisions within the EU regulatory framework also rely to some extent on external ratings
- In the Basel III securitisation framework, an Internal Ratings-Based Approach comes first in the hierarchy of approaches to credit risk assessment, but the complexity of securitisation transactions and data availability issues might act as a practical constraint

The use of CRA ratings in the banking sector is based on international standards set by the Basel Committee on Banking Supervision (BCBS). The Basel III framework is implemented within the EU via the Capital Requirements Directive IV (CRD IV).

Mirroring the Basel III framework, CRD IV still relies to a large extent on external ratings under the standardised approach (as indicated in Table 3). As part of the international efforts to reduce overreliance on ratings, the Basel Committee on Banking Supervision (BCBS) has set up a Task Force on Standardised Approaches. One of its objectives is to reduce sole and mechanistic reliance on external ratings. A public consultation was launched at the end of 2014²⁰. Comments on the proposal were open until March 2015. As outlined in the consultative document, the BCBS envisages replacing references to external ratings, as used in the current standardised approach, with a limited number of risk drivers that provide a meaningful differentiation for risk. Thus, for instance, bank or corporate exposures would no longer be risk-weighted by reference to the external credit rating of the issuer, but rather on the bank's capital adequacy and its asset quality or the firm's revenue and leverage, respectively.

The alternatives proposed by the BCBS task force were however, seen by some stakeholders as too simplistic and the complete removal of references to ratings was considered as unnecessary and undesirable. The Committee therefore, reintroduced the use of ratings, in a non-mechanistic manner, for exposures to banks and corporates in its second consultative document²¹. The revised proposal also includes alternative approaches for jurisdictions that do not allow the use of external ratings for regulatory purposes.

¹⁹ http://www.esma.europa.eu/bg/system/files/10-049_cesr_guidelines_mmfs_with_disclaimer.pdf

²⁰ BCBS (2014), Consultative Document - Standards Revisions to the Standardised Approach provides for credit risk. Available at: <http://www.bis.org/bcbs/publ/d307.pdf>

²¹ BCBS (2015) Revisions to the Standardised Approach for credit risk – second consultative document, December 2015. Available at: <http://www.bis.org/bcbs/publ/d347.htm>

The BCBS also finalised its revisions to the securitisation framework in December 2014²². This framework will come into force in January 2018. It, *inter alia*, seeks to reduce mechanistic reliance on external ratings. Securitisation is indeed one of the areas where the most extensive use of CRA ratings is made²³. The revision of the securitisation framework builds on two public consultations carried out in the years 2012-2014 and two quantitative impact studies.

The revised securitisation framework introduces a revised hierarchy of approaches to assess the risks of securitised products: Internal Ratings-Based Approach is now presented as the best option, provided that banks have the capacity and supervisory approval to use internal models. External Ratings-Based Approach and the standardised approach come next.

One large bank interviewed in the context of this study however, mentioned that the use Internal Ratings-Based Approach was feasible only for those transactions which are originated by the bank itself.

2.2.2.2 Insurance

Key messages:

- Ambiguous impact of the upcoming Solvency II regulation
- On the positive side:
 - Provisions prohibiting sole and mechanistic reliance on external ratings
 - Use of credit quality step terminology
- On the negative side:
 - Reliance on external credit ratings under the standard formula
 - Pro-cyclical capital charges increasing exponentially for lower rated assets, giving incentives to insurers to closely follow ratings and promptly divest downgraded assets

The insurance sector is currently transitioning to Solvency II, which come into force from 2016 onwards. Interviewees expressed mixed views regarding the potential of the Solvency II Directive to reduce sole and mechanistic on credit ratings²⁴.

One the one hand, it was highlighted that the Solvency II framework aims to prevent sole and mechanistic reliance on external ratings and there are several angles through which this objective is reflected in the Directive:

- Provisions relating to risk management processes of insurance companies / encouraging them to make own assessments.
 - Insurance companies have the option to develop their own internal models for calculating capital requirements. This model needs to be approved ex-ante by the regulator through a much scrutinised process. This includes scrutiny over the use of internal ratings and in some cases a comparison

²² BCBS (2014), Basel III Document - Revisions to the securitisation framework, 11 December 2014. Available at: <http://www.bis.org/bcbs/publ/d303.pdf>

²³ FSB (2013), Credit Rating Agencies Reducing reliance and strengthening oversight - Progress report to the St Petersburg G20 Summit. 29 August 2013. Available at:

http://www.financialstabilityboard.org/wp-content/uploads/r_130829d.pdf?page_moved=1

²⁴ Not all interviewees would agree that there is a problem associated with overreliance on credit ratings in the insurance sector.

with external ratings. Supervisors need to be satisfied that there is a good system of governance around how internal ratings have been derived. These models are developed with the perspective of lowering capital requirements and/or to better capture the risk profile of individual insurance companies (compared to what is captured by the standard formula). Developing an internal model to calculate capital requirements is however, a big step even for insurance companies which have an internal credit risk assessment models in place for facilitating investment decisions. Some insurance companies have therefore, developed partial models only. Many insurance companies use the standard approach which is primarily based on external ratings.

- Under the standard formula [Article 4 of the Commission Delegated Regulation (EU) 2015/35 of 10 October 2014 supplementing Solvency II]²⁵, insurance undertakings may use an external credit assessment for calculating capital requirements, provided it has been produced by a recognised CRA²⁶.
- Insurers may refer to external ratings, but sole and mechanistic reliance is forbidden [Article 259 (4) in the delegated act of Solvency II].
- Where external credit assessments are used, insurers have to use additional assessments whenever practically possible [see Art. 44 (4a) of the Solvency II Directive]. More specific requirements on the additional assessment will be included in an ITS [the final draft will be made available on the EIOPA website]²⁷.
- Insurance companies using the standard formula are also required to make an additional internal assessment for larger / complex exposures. [See Article 4 of the delegated act mentioned above].
- The same article stipulates that insurers have to nominate CRAs for each asset class, in order to prevent them from cherry-picking ratings for a specific investment. [See Article 4 of the delegated act].
- These provisions also require at least two ratings for securitization positions. Where only one rating is available, it would be treated as an unrated position (by implication, higher capital requirements would apply). [See Article 6 of the same delegated act].
- Solvency II requires all insurance companies to document the processes underlying their risk management strategy and their investment strategy [Article 44 of the Directive 2009/138/EC of the European Parliament and of the Council on the taking-up and pursuit of the business of Insurance and Reinsurance (Solvency II)]²⁸. Risk management systems of the companies will need to be approved by the governing bodies of the companies – while the national sectoral competent authority will check that these processes are documented and in line with the risk appetite of the company concerned.

²⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015R0035>

²⁶ The list of registered and certified CRAs can be found here:

<http://www.esma.europa.eu/page/List-registered-and-certified-CRAs>

²⁷ https://eiopa.europa.eu/Publications/Reports/EIOPA-BoS-15-117_Final_report_ITS_Assessing_credit.pdf

²⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02009L0138-20150331&qid=1440690085488&from=EN>

- Additional provisions regarding outsourcing of important functions apply also to CRAs [See article 49 of the Solvency II directive; section 4 of the delegated act. Section 11: Outsourcing of the Guidelines on systems of governance²⁹]. These provisions stipulate that it is the insurance company's responsibility to ensure that the service provider (i.e. the CRA) has proper risk management systems in place, makes use of qualified staff etc.
- Prior to Solvency II, in some EU countries, insurance companies had requirements relating to quality of assets and limits on exposures which were expressed in terms of external credit ratings. This was not the case in all EU countries (Solvency I was implemented in a fragmented manner across Europe). Now, with the risk based regulatory capital requirements introduced by Solvency II, this type of provision will not be necessary anymore. Insurance companies would have greater flexibility in determining their holdings in investment grade vs non-investment grade assets, provided that adequate capital is set aside to reflect the credit risk of their investments.
- Solvency II does not refer to external ratings but to credit quality steps. Insurance companies need to classify their assets according to the credit quality steps (*ex-ante* approval by the regulator is not requirement, but possibility of *ex post* checks as part of regular surveillance by the regulator).

On the other hand, it was argued by some interviewees that Solvency II contains references to ratings which may in fact induce sole and mechanistic reliance on external ratings:

- Solvency II, mentions credit quality steps, but these have been mapped against CRA ratings in the draft Implementing Technical Standards (ITS)³⁰.
- Insurance companies which use the standard formula need to make an additional assessment for large and complex exposures. The internal ratings produced in that context, however, cannot be used to determine capital requirements if they generate lower capital requirements, meaning external ratings override internal ratings [Article 4 of the delegated act].
- Although Solvency II stipulates that those insurers who will use an internal model will be able calculate capital requirements without referring to external ratings, insurance sector representatives believe that only a small group of the largest insurers in Europe may opt for an internal model, largely because of the higher costs of doing (as compared to the standard approach). Smaller insurance companies would most likely opt for the standard formula and would therefore, *de facto* rely more on external ratings. The amount of capital to set aside is basically defined by the spread risk, which is a function of the external rating. Similarly, the concentration risk module and the counterparty default risk module use CRA ratings. For companies using the standard formula, regulation would be a key driver for the use of ratings, which as noted by the interviewees, is in contradiction with the stated objective of reducing mechanistic reliance on external credit ratings.
- Some interviewees highlighted that there are incentives within the regulation (beyond the cost and resources issue) to continue using the standard formula.

²⁹ https://eiopa.europa.eu/Publications/Consultations/EIOPA_EIOPA-BoS-14-253-Final%20report_Governance.pdf

³⁰ Joint consultation Paper of the ESAs - Draft Implementing Technical Standards on the allocation of credit assessments of ECAIs to an objective scale of credit quality steps under Article 109 (a) of Directive 2009/138/EC, 6 March 2015. Available at: <http://www.eba.europa.eu/documents/10180/1006707/JC+CP+2015+001+%28Joint+CP+on+draft+ITS+on+mapping+of+ECAIs+under+SII%29.pdf> (mapping table on page 7).

For example, it has been decided that there is no spread risk charge for government bonds under the standard formula (lower capital requirement).

- In some countries, even insurance companies using a validated internal model need to provide the regulator with the calculation using the standard model. The regulator can use the standard formula calculation as a benchmark, for comparison, to check if there are any deviations.
- Solvency II is favouring external ratings in the sense that when there are no ratings, there are higher capital requirements. For example, unrated institutions which have an explicit guarantee from a public authority (e.g. social housing companies) are given the same treatment as unrated corporates under the standard formula (which is counter-intuitive and punitive in terms of capital requirements according to some market participants). It was suggested that a more logical and pragmatic approach would have been to assign the same rating to that entity as that of the public authority backing it.
- The capital charges under Solvency II are also pro-cyclical, with capital charges increasing exponentially for lower rated assets. For a 10 year bond, Credit Quality Step 2 is charged 10.5% capital (which corresponds to a CRA rating of 'A'), Credit Quality Step 3 (or 'BBB') is charged 20% capital and Credit Quality Step 4 (or 'BB') is charged 35% capital [see first table of article 176 of the delegated acts]. It was mentioned by some interviewees that these wide differences provide a strong incentive for insurers using the standardised approach to focus on external ratings, and would potentially encourage them to insert trigger clauses with selling commitments, to avoid the punitive capital requirements in case of a downgrade.

Considering that prudential supervision of insurance companies has traditionally placed only minor reliance on external ratings, Solvency II is perceived by many market participants as a step backwards in this respect.

2.2.2.3 Asset management

Key messages:

- In the asset management sector, significant progress has been made towards removing regulatory references to ratings
- Nonetheless, external ratings continue to be widely used in investment mandates and constitute a "common language" between investors and asset managers
- The use of ratings in investment mandates is primarily driven by sectoral legislation applicable to investors (e.g. banks, pension funds, insurance companies) and/ or the investor's internal rules

Asset managers in Europe are subject to extensive internal assessment requirements under UCITS and AIFMD³¹. These Directives require asset managers to carry out own internal risk management when assessing counterparty and credit risk of each potential investment with the aim of preventing sole and mechanistic reliance on ratings. These obligations apply to all asset managers regardless of their size.

³¹ See for UCITS: article 51 of the Directive 2009/65/EC (UCITS directive) and article 38-40 of Directive 2010/43/EU (the UCITS Level 2 Management Company Passport Directive). For AIFM, see Article 15 and 16 of the Directive 2011/61/EU (AIFMD)

UCITS / AIFMD directives foresee a system of checks and balances (described as proportionate by some interviewees) where external credit ratings are still used and accepted as evidence of an informed decision, but are not the sole basis for decision making. When documenting the credit risk assessment processes, both internal ratings and external ratings can be used. In case external ratings are used, funds have an obligation to make sure that they can rely on a specific rating (i.e. they have an obligation to assess the rating methodology and to perform a quality check).

The biggest challenge for asset managers is to move away from a mechanistic reliance on external credit ratings while still responding to their clients' demands, including the request to continue to use external ratings as an essential reference point. Moreover, ratings are often used as an instrument of governance by trustees in order to protect investors.

Asset managers manage assets on behalf of their clients in line with a defined investment mandate. An investor may impose investment restrictions linked to ratings within investment mandates that are derived from regulatory requirements or the investor's internal rules. For example, an investor that is a bank (subject to CRR/CRD IV) or an insurance company (subject to the Solvency regime) may determine its investment policy based on the capital cost incurred for holding specific asset classes.

Moreover, investors are sometimes constrained to only invest in or retain securities that are investment grade, according to ratings given by some specific CRAs. For example, in some jurisdictions, pension funds are required by law to restrict investment in assets that exceed pre-defined (CRA) rating thresholds. The extent to which certain categories of investors (notably pension funds and insurance companies), in different jurisdictions are restricted by law to invest only in securities rated above a particular threshold, or have investment limits (in terms e.g. of a percentage of assets under management) on securities rated below a particular threshold, is not known and beyond the scope of the present study to establish. However, stakeholder interviews provided some anecdotal evidence. For example, an interviewee reported that in Germany, insurance companies must invest in investment grade instrument only³² while in some other countries no restrictions were reported. It does however confirm that external ratings are used by regulators to limit risks as far as credit quality is concerned.

2.3 The use of external ratings by market participants

Table 1 provides an overview of the different purposes for which external ratings are used by market participants. Our research finds that the use of external ratings is widespread within the financial sector, but ratings are also used for a variety of purposes in the non-financial sector. A sector specific summary of the main uses of external ratings and their importance is provided below:

Banking sector

- Banks use external ratings in their classical lending business (corporate / SME lines of credit) only to a limited extent as the rating coverage of corporates and particularly SMEs is small. Classical bank lending is typically based on internal credit risk assessment by the bank.

³² In Germany, there were recent amendments to the insurance regulation which intend to facilitate the granting of loans to infrastructure companies and of high-yield loans to companies with a rating below investment grade (fort up to 5% of their assets). However, the borrower must have at least a speculative grade rating. See D&P (2015) New German Investment Regulation Adopted. Available at: <http://www.debevoise.com/~media/files/insights/publications/2015/03/20150316newgermaninvestimentregulation%20adopted.pdf>

- External ratings (where these exist) are however, taken into consideration in a commercial bank's investment decisions (i.e. when investing in bonds, structured finance products). Some credit institutions have introduced investment guidelines setting investment limits per rating grade and/or minimum rating requirements. External ratings are at times used to define those concentration limits, despite the fact that banks produce internal ratings to back their investment decisions.
- Investment banks use ratings to help price and place new issues at the time of offering.
- Largest banks are also issuers of debt securities which will typically be rated.
- When borrowing on the interbank market, external ratings are an important parameter.
- In the structured finance segment, ratings are instrumental in the structuring of the transaction.
- For banks, the main drivers for using ratings are to comply with regulatory requirements (Liquidity Coverage Requirements and capital requirements) and for accessing wholesale funding via capital markets or interbank lending market.

Asset management / investment funds/ hedge funds/ pension funds

In the asset management sector, external ratings are used for three primary purposes:

- Defining the investment universe and investment limits (to reflect investors' expectations, and also because investors use external ratings as a governance tool).
- Benchmarking i.e the performance of portfolios or funds is assessed against so called benchmarks that are defined in terms of ratings (e.g. investment grade benchmarks, high yield benchmarks).
- Ongoing monitoring and managing portfolio risk.

Additionally, asset managers use external ratings to assess the creditworthiness of their counterparties and of financial instruments. Funds themselves can also be rated. Finally, ratings are used for reporting / communication purposes, to describe the composition of the portfolio.

Insurance sector

- Insurance companies use external ratings when assessing investment opportunities. They also refer to ratings in their investment guidelines, for example, by saying that only investments with a certain minimum credit quality – expressed in terms of external ratings - can be made. If the asset management function is outsourced, then, those limits are reflected in investment mandates. Ratings are thus used to set investment restrictions/ limits which are then reflected in contracts with asset managers, and used to monitor and manage the performance of these contracts on an ongoing basis.
- The role of insurance companies as issuers is limited as very few insurance companies issue debt (as insurance companies receive upfront funding, namely receive premiums before paying claims).
- In reinsurance contracts, the ceding insurance companies often use external ratings as one reference point to assess counterparty risk. The rating of the company itself is therefore often more relevant for a reinsurer than for a direct insurer.

Table 5. The use of ratings by market participants

Type of use	Credit Institutions/ Banks	Asset Managers / Investment funds / Hedge funds	Insurance/ Re-insurance companies	Pension Funds	Non -financial corporations	CCPs	Central banks	Government (national/ sub-national)
To access finance (by demonstrating creditworthiness)	✓		✓	✓	✓			✓
Making investment decisions (assess creditworthiness)	✓	✓	✓	✓	✓			✓
Borrowing and lending activities	Offering trade credit							
	Credit enhancement / structured finance transactions	✓	✓	✓				
	Monitoring and managing credit risk	✓	✓	✓	✓			
	Disclosure, communication and reporting portfolio risk	✓	✓	✓	✓			
	Defining the investment universe		✓	✓	✓			
Collateral frameworks	Value and eligibility of collateral	✓	✓	✓		✓	✓	
	Haircuts					✓	✓	
Contractual uses (investor protection)	Investment mandates/ guidelines	✓	✓	✓	✓			
	Reinsurance arrangements			✓				
	Loan agreements, guarantees, letters of credit	✓						✓
	Derivative covenants/ OTC derivatives contracts	✓		✓		✓		
	Prospectuses (bonds, funds)	✓	✓		✓	✓		✓
	Fund rating		✓					
Regulatory uses	Collateral agreements (repo and swap transactions)	✓		✓			✓	
	Monitoring of systemic risk/ stress tests	✓		✓			✓	
	Determining capital requirements	✓		✓		✓	✓	
	Determining securitisation exposures	✓		✓			✓	
	Liquidity	✓		✓	✓			
	most common uses of external ratings							

Non-financial corporates

- From an issuer point of view, companies need ratings to access capital markets. Companies of a certain size (which are financed through bonds rather than bank loans) have ratings for each of their issuances. The issuer also frequently has a rating.
- Their short term instruments – e.g. commercial paper – are also rated (on a different scale by the CRAs).
- Corporates typically have a rating matrix / triggers in contracts (e.g. loan contracts with banks).
- However, the importance of credit rating for non-financial corporations goes beyond financial issues. Any business partner (e.g. suppliers, potential partners for a joint venture) can have an interest in their external credit rating.
- Ratings are an input into corporate decision making such as M&A decisions
- Ratings can also be helpful for a firm that is negotiating leases or other long term contracts.
- Auditing firms are also users of ratings. As per IFRS 9, impairment rules will be triggered by change in credit – and external ratings will be a source of information.

Central counterparties

CCPs use external ratings for a variety of purposes:

To determine membership eligibility

To become a clearing member (counterparty) of a CCP, the CCP will conduct a credit assessment. CCPs use external ratings in their credit assessment, but on a relatively small scale and typically as one input into their credit risk assessment methodology/model. A party can become a clearing member when the internal model of the CCP indicates that a party has at least a certain score. One CCP indicated that external credit ratings have a weight of less than 10% in their internal credit score.

To determine eligibility of collateral

Depending on the type of collateral, pledged assets have a certain rating, especially if not being cash. CCPs take external ratings into consideration when determining if certain collateral can be accepted.

To determine initial margin/ haircuts

The external rating of a party posting initial margin can be used as one of the input factors for the initial margin determination of the counterparty risk. The lower the rating, the higher the perceived risk and its corresponding margin.

The size of the haircut is determined by the perceived risk of the collateral. To determine the risk, credit ratings are taken into account.

Central banks

- Central banks use external ratings in their eligibility criteria for collateral (for lending facilities). For example, the ECB uses the Eurosystem Credit Assessment Framework (ECAAF) to determine which sources of credit assessment the Eurosystem would base the eligibility assessment of assets eligible as collateral for Eurosystem credit operations. This means that any asset that the ECB wants to add to its portfolio has to have at least two ratings by CRAs under ECAAF. In an effort to reduce reliance on external ratings, the Bank of England has however, removed references to external ratings in its collateral eligibility criteria.

- References to external ratings can be found in investment guidelines and mandates for foreign reserves operations.
- Central banks also use external ratings when conducting stress tests.

Government/ public authorities

- As the main issuers of debt on capital markets, governments/ public authorities use external ratings to demonstrate their creditworthiness to potential investors.
- Ratings are also used by governments to assess counterparty risk. For example, ratings are taken into account when governments provide loan guarantees to corporates to facilitate access to finance.

2.4 The use of external ratings in financial contracts

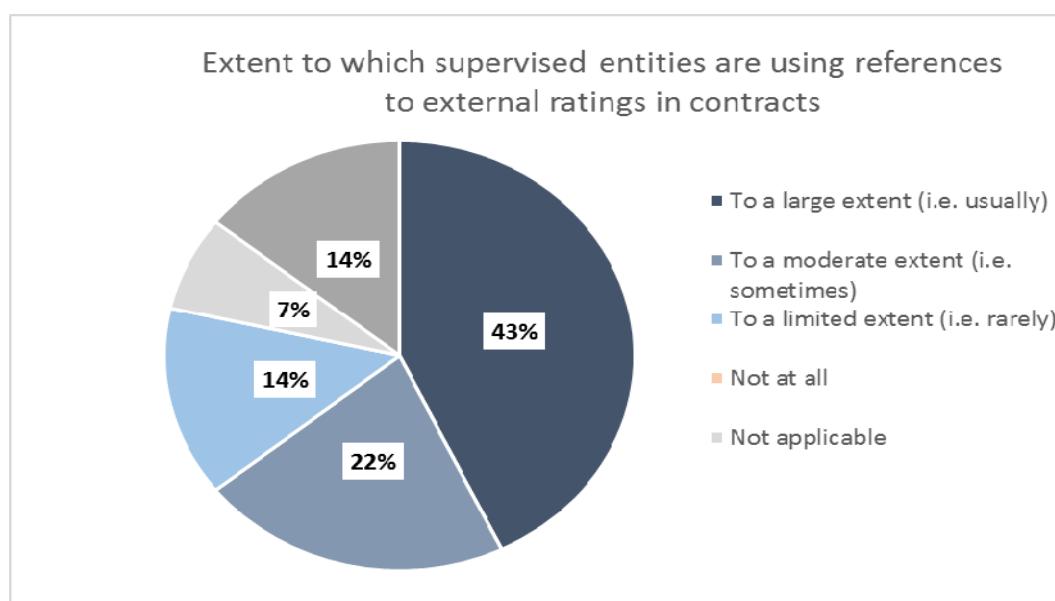
Key messages:

- External ratings are extensively used in private contracts such as investment guidelines, mandates, bond documentation, loan covenants
- Contractual references to external ratings vary in degree of impact from harmful to relatively benign. In its most harmful form, trigger clauses with the right to terminate credit availability/ selling commitments can result in serious liquidity crisis for the borrower or cliff effects
- Within the asset management sector, contractual references to external ratings can be more harmful if the approach to fund management is “passive”

2.4.1 Typology of uses in contracts

The use of references to external ratings in contracts was generally recognized by the market participants and confirmed by SCAs (Figure 8). SCA views on the use of external ratings in financial contracts by supervised entities.

Figure 8. Contractual references to external ratings



Source: ICF survey of SCAs; n=28

The main types of rating uses in contracts are described below.

Rating constraints and guidelines in investment mandates/ asset manager contracts.

Investment mandates and guidelines often specify minimum rating requirements. For example, investment mandates may constrain asset managers to only invest in or retain securities that are rated as investment grade by specific agencies (typically the Big 3). Alternatively, investment mandates may specify minimum rating criteria for a certain percentage of the assets under management.

Contractual references to external ratings are used by asset owners to convey their risk appetite and investment preferences. Ratings provide investors with a “common language” enabling them to compare different potential investments *ex ante* and the performance of different portfolios *ex post*. Market participants suggested that defining investment grade without reference to a common standard of credit risk is not an easy task. Some participants highlighted the potential downside of including contractual references to external ratings in investment mandates. According to them, ratings based portfolio constraints drive attention away from the true drivers of risk and return.

Rating triggers are often used in loan and bond covenants, swap transactions (e.g. swap termination events)

Rating triggers refer to contractual provisions that give counterparties and lenders the right to terminate credit availability, accelerate credit obligations or have the borrower post additional collateral in the event of specified rating actions. The associated changes can also be a change in the coupon in case of fixed income securities, or in the case of products structured finance products, a need to replace downgraded obligors by better rated obligors.

Loan agreements sometime include a pricing matrix, whereby the cost of borrowing / interest margin is linked to the borrower’s credit rating. One bank explained that this type of covenant is not standard, but reserved for special cases (e.g. syndicated loans for large corporates).

Finally, market participants mentioned covenants which are dormant when rating is above a certain level, and activate below the threshold. Covenants are related to actions the companies should /should not take in case of a downgrade (e.g. investments which can be made). It allows for a controlled dialogue to take place between the bank and the company, in case the situation gets difficult.

Collateral agreements/ frameworks, including for OTC derivatives.

Lenders impose minimum rating standards on securities accepted as collateral for a loan. This can be the result of voluntary lending policy guidelines or regulatory references to ratings. Similarly, central banks do not accept securities below investment grade as collateral for commercial bank borrowing.

Other contractual references include prospectuses, re-insurance agreements, letters of credit and specific documentation.

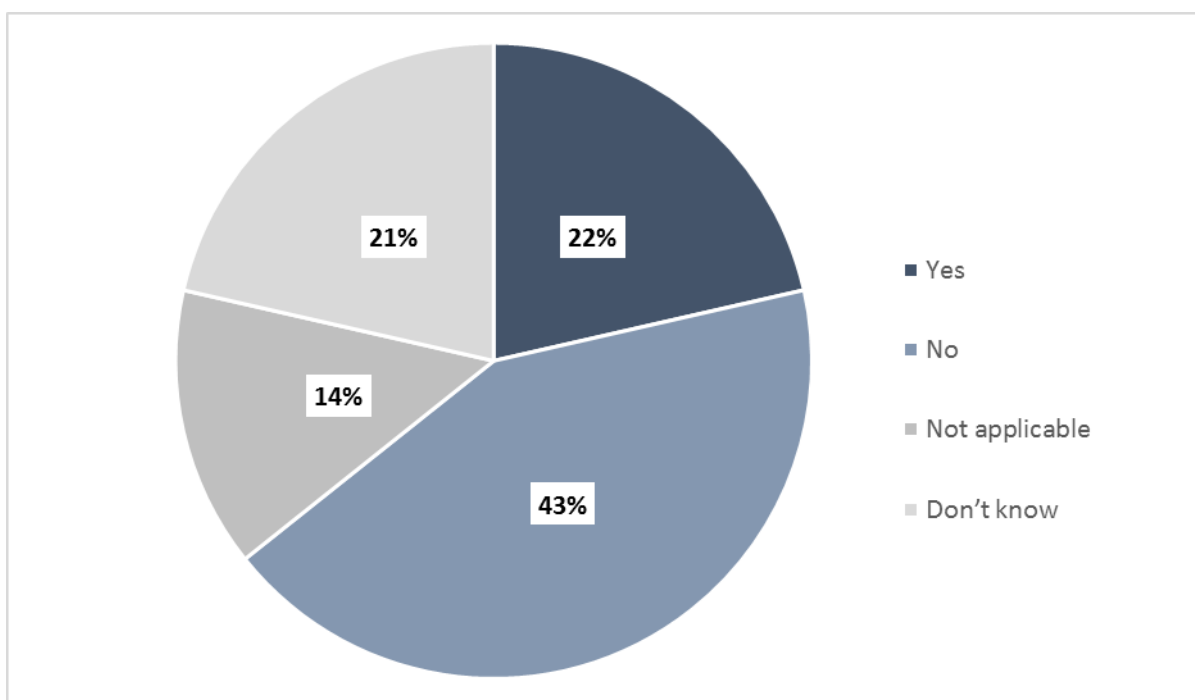
Prospectuses frequently include describe the risk of the portfolio with references to external ratings. These references are intended to better describe the investment policy that will be followed and the type and quality of assets that will be bought for the portfolio. Similarly, prospectuses for bond issues will mention the rating assigned to it by one or more CRAs.

Another concrete topical example involves the documentation related to hybrid bonds³³. Such documentation may contain provisions allowing the issuer to defer interest payments or delay redemption in case of a rating event.

2.4.2 Contractual references to ratings 'potential to trigger sole and mechanistic reliance

Stakeholders' views were mixed as regards to the extent to which these references had the potential to trigger sole and mechanistic reliance on CRA ratings. Most SCAs do not think that this is an issue (Figure 9).

Figure 9. SCAs' views on evidence of excessive or formulaic reliance on ratings in contractual agreements



Source: ICF survey of SCAs; n=28

Asset managers explained that the extent to which the minimum credit quality criterion represents a strict requirement (or rather an indicative target / a guidance) depends from client to client, from case to case. In practice, there appears to be some flexibility. There might be good reasons to decide to invest in a corporate bond, although it might not meet the minimum rating requirement (e.g. for an infrastructure project whose rating will improve after the construction phase) and the client might be willing to hear that.

³³ Hybrid bonds are best-known for their use in bank capital. Banks have been issuing hybrid bonds for a while, most recently as part of the effort to strengthen their balance-sheets after the financial crisis. Investors in such issues can be "bailed in" (their debt converted into equity) if the bank gets into trouble. But corporate hybrid bonds are different. Their main appeal is that they are treated by rating agencies as part-bond, part-equity, leading to lower assessments of indebtedness, and in turn, reduced borrowing costs. At the same time, issuing a hybrid bond is cheaper for the company than raising the same amount of money in the form of simultaneous bond and equity issues, partly because the interest on bond issues is tax-deductible for issuers, but the dividends on equity are not (Source: Economist (2013) Hybrid corporate bonds: the rating game)

A major area of is however, is trigger clauses with selling commitments. Clauses with selling commitment are to be avoided, as per the CRA regulation. It was however mentioned that pieces of legislation such as Solvency II encourages market participants to insert such clauses.

A distinction which was made by market participants was active asset management versus passive asset management. The risks for "sole and mechanistic" reliance on external ratings were seen as less prominent where asset management is active, as one core task for an asset manager is to understand the intrinsic value of the asset (beyond the external rating – which is one input factor), to see if it will outperform / underperform compared to what is reflected in the market data. In the passive management sector, however, analysts benefit from less room for maneuver; indices, which are based on ratings, need to be tracked. Now this type of management is increasingly developing over the recent years and e.g. favoured by the large sovereign wealth funds.

2.4.3 Mitigating measures

Key messages:

Mitigating measures include:

- Introduction of grace periods in contracts;
- Inclusion of a small high yield / unrated bucket in the mandate;
- Introducing the requirement to consult the investor before taking action following a downgrade;
- Introducing the requirement to conduct additional internal analysis or using additional measures before closing the position following a downgrade;
- Rating requirements which do not need to hold throughout the investment cycle;
- Defining investment grade in terms of internal ratings;
- Having the possibility to override external ratings;
- Use of multiple ratings, including the use of ratings by smaller agencies.

Asset managers interviewed in the context of this study seem to value flexibility and appeared keen to avoid very strict investment mandates and trigger clauses. They also stressed the need to act in the interest of the investor and, pointed out that when a security is downgraded, it may not be a good to sell.

One asset manager noted that in general, internal systems (commonly used by asset managers) are ahead of external ratings since unlike asset managers, CRAs have committees to go through before announcing a downgrade. In that sense, the number of cases where action by the manager has not preceded the downgrade is rather small. The capacity of an asset manager to react before a downgrade is also something which is sought after by asset owners when selecting asset managers, who draft selection criteria related to research capabilities going into that direction (requirement on the number and qualifications of analysts, independence from portfolio management).

In line with IOSCO good practices, the introduction of a grace period (flexibility in terms of timing for selling the asset) was also promoted, to protect against market disruption while still using the common language provided by external ratings. It is a frequently quoted mitigating factor. On this point, some interviewees suggested that the grace period should be "long enough". One interviewee mentioned a three-month timeframe during which he/she is not forced sell the downgraded asset in a way that harms the portfolio, with an option for open discussion at the end of the three-month

period. This is not yet a universal practice, with one investor admitting that managers only had “days to act”, in case a downgrade requires some action.

The inclusion of a few percentage point high yield bucket, or unrated bucket in the mandate was quoted as a mitigating factor. Assets downgraded below investment grade can move to that bucket. One manager explained how in case the prospect of forced selling materialises, there is always a possibility to negotiate with the client e.g. negotiate additional percentage points in high yield bucket for a certain period of time. Rather logically, the manager would engage in such a negotiation only if their internal credit assessment suggests that it would be better to hold the position than to sell. The outcome of such negotiations however, cannot be predicted. One asset manager reported one emblematic case where mandates were adapted to avoid mass selling during the sovereign debt crisis. An insurance company stated that they systematically insert a provision specifying the asset managers could temporally exceed the size of the high yield bucket, up to certain amount expressed in terms of Solvency II capital requirements. It was further explained that the extent to which insurance companies will be prone to use such mitigating factors will depend on several factors: whether the availability of own funds is a constraint for them, whether they use an internal model or not.

Besides, investment mandates specify requirements which do not necessarily need to hold throughout the investment cycle. It can be that the debt needs to be rated as investment grade at the time of investment only.

Recently, asset managers have been trying to define investment grade more in terms of internal ratings. Although many asset owners/ investors can be reluctant to accept internal measures, this could work if the methodology for producing internal ratings is transparent and recognized as sound by both parties. Investors might think that it will be burdensome for them to acquaint themselves with too many methodologies. To counter this argument, the asset managers will need to take a consistent view of the notion of investment grade and convince their clients that their investment policy has not changed despite the use of a new type of rating. One manager assumed it would be easier to persuade retail investors, compared to institutional investors (who might be constrained by regulatory requirements). Some asset managers stated that acceptance is also a matter of relationship and trust.

As another mitigating measure, some asset managers indicated they first check whether the internal system also detects a need for a downgrade, before taking action; although if there is a trigger clause with selling commitment they are obliged to take action, unless the internal rating is accepted as a reference. Contractual provisions can be inserted to allow asset managers to conduct additional internal analysis overruling the external rating. References to external ratings therefore, continue to be used for common language purposes, but the hands of the manager are not tied.

That said, even if the internal rating is accepted as a reference, some investors feared they would need to justify their actions / be held accountable, should they not follow the move of the CRAs and should that prove detrimental to the investor and explained that in that context it would be hard to overrule the CRA rating.

Finally, asset management companies directly owned by investors such as pension funds or insurance companies felt they had more discretion to invest in high yield assets and did not see a push from their owners to use external ratings. Investors mandating independent asset managers tend to be more incline to insert references to external ratings as an instrument of governance

3 Mapping and feasibility assessment of alternatives to external credit ratings

There are two broad approaches to credit risk assessment : (i) internal approaches and (ii) external measures and ratings. A basic alternative to CRA ratings is internal credit risk assessment carried out by investors/ lenders. Approaches to internal credit risk assessment vary across asset classes and market participants depending upon their size, sophistication and sector. Aside from CRA ratings, market participants use a variety of other external measures such as market based measures, accountancy based measures and credit risk assessments or ratings produced by other third parties. This section describes each approach in further detail along with a consideration of their relative strengths and weaknesses.

3.1 Approaches to credit risk assessment

Market participants typically use a variety of measures/ approaches to credit risk assessment - a high level summary of these approaches is presented in Table 6. Interviews and online surveys conducted as part of this study suggest that these approaches are not mutually exclusive and are rarely used in isolation. Instead, market participants (particularly, the larger and more sophisticated players) typically draw upon a combination of measures/ approaches.

Table 6. Classification of different approaches to credit risk assessment

Type	Approach	Description	Input data / sources of information	Application
Internal approaches to credit risk assessment – bulk of the analytical work is performed in house by the investor/ lender	Internal credit risk assessment – <i>purely based on statistical models</i>	Proprietary models or vendor solutions generating quantitative measures of risk such as probability of default (PD), Loss given default (LGD), Exposure at default (EAD)	Based on actuarial data i.e. historical data on defaulted and non-defaulted borrowers; recovery rates; losses etc. Transaction specific factors like the nature of the product, terms of repayment, collateral etc.	<ul style="list-style-type: none"> Used to assess risk across a portfolio of credits Structured finance products
	Internal credit risk assessment – <i>incorporating human judgement</i>	Credit risk assessment is carried out on the basis of a methodology comprising objective and subjective criteria A computational model may or may not be used to estimate PD, LGD, EAD Human judgement is used to include additional information in the model	Quantitative data such as <ul style="list-style-type: none"> Market-based measures Accounting-based measures Third party assessments Default statistics Qualitative information such as: Corporates: management and auditor quality, corporate strategy, competition etc.	Used for counterparty risk assessment and to assess risk of individual lending decisions Applicable to: <ul style="list-style-type: none"> Sovereign / sub-sovereign debt Corporate debt

Type	Approach	Description	Input data / sources of information	Application
		that is not reflected in the available data or applied afterwards to tweak or override the results of the model	Sovereign: e.g. political risk, institutional set-up etc.	
External measures and ratings	Market implied ratings (as proxy measures of risk)	Credit default swap (CDS) spreads	CDS markets	<ul style="list-style-type: none"> • Sovereign/ sub-sovereign debt • Corporate debt • Structured products
		Equity pricing data – volatility or the standard deviation, σ , of an obligor's stock price	Stock markets	<ul style="list-style-type: none"> • Corporate debt
		Bond pricing information/ bond spreads	Secondary markets	<ul style="list-style-type: none"> • Sovereign/ sub-sovereign debt • Corporate debt •
	Accounting based measures	Financial ratios e.g. profitability and leverage ratios	Data from sources such as Dun & Bradstreet, Amadeus, company website etc. is	<ul style="list-style-type: none"> • Corporate debt
		Financial data in combination with market indicators e.g. Leverage or total liabilities ÷ market value of assets	Market data + data from sources such as Dun & Bradstreet, Amadeus, company website etc	<ul style="list-style-type: none"> • Corporate debt
		Cash flow or EBITDA ÷ market value of assets		
	Third party assessment (<i>non-commercial</i>)	OECD country risk classification	Data collection and analysis is carried out by the OECD	<ul style="list-style-type: none"> • Sovereign debt
		Scoring by central bank based on central credit registers (CCRs) and central financial statements databases (CFSDs)	Data collection and analysis is carried out by the Central Bank	<ul style="list-style-type: none"> • Corporate debt
	Third party assessment (<i>commercial</i>)	Automated scorings based on computational models	Data collection and analysis is carried out by commercial entities (data providers, consultancies)	<ul style="list-style-type: none"> • Corporate debt

Type	Approach	Description	Input data / sources of information	Application
		Ratings produced by registered and certified credit rating agencies as recognised by ESMA	Data collection and analysis is carried out by rating agencies	<ul style="list-style-type: none"> • Sovereign/ sub-sovereign debt • Corporate debt • Structured products

The sub-sections that follow provide a detailed description and feasibility assessment of each of the approaches mapped above.

3.2 Internal credit risk assessment

A basic alternative to external credit ratings is investors' own internal credit risk assessment. Under this approach, the bulk of the analytical work is performed in-house by market participants. Internal credit risk assessment usually encapsulates a combination of sources and techniques and relies on both quantitative and qualitative analysis. For example, for a corporate, it involves analysing its financial statements and health, its management and competitive advantages, and its competitors and markets.

One market participant explained that they use the CAMELS rating methodology, which uses a standard set of parameters for assessing credit risk:

- (C)apital adequacy;
- (A)sset quality;
- (M)anagement Capability;
- (E)arnings;
- (L)iquidity;
- (S)ensitivity.

Market-based measures (e.g. equity/ bond pricing data, CDS spreads), accounting-based measures³⁴ and third party assessments, including the external ratings produced by the big three credit rating agencies, are often used as inputs into internal analysis.

Depending on the extent to which statistical models are used (see Table 7), internal analysis can be more or less automated, incorporating human judgement to different degrees. These models can be either developed internally or provided by financial-intelligence vendors. There are a number of vendors (e.g. Oracle, SAP, Sunguard etc.) producing and selling products that are designed to support credit-risk measurement and management functions within financial institutions.

³⁴ Accounting-based measures refer to financial ratios calculated based on publicly available financial statements. Examples of such ratios include liquidity ratios, profitability ratios, leverage ratios and efficiency, activity or turnover ratios. These ratios are usually analysed through a judgemental method (and are thus more subjective).

Unlike market-based methods, accounting-based measures are not forward looking. They are based on historical data and are thus not really applicable to new entrants.

In a more developed form, internal credit risk assessment is based on (internal) proprietary tools and methodologies, incorporating own research and analysis, externally sourced data and human judgement.

Table 7. Modelling based approaches to credit risk assessment

Type of model	Description	Underlying data
Probability of default (PD) models	For a group of borrowers with similar characteristics, predicts the number of borrowers that are likely to default over a specific time horizon e.g. one year	Based on borrower characteristics
Loss given default (LGD) models	Attempts to predict the amount of loss in a credit in the event of default	Based on the characteristics of facility e.g. collateral covenants
Exposure at default (EAD models)	Amount outstanding with the obligor at the time of default	Based on the characteristics of facility and borrower behaviour

Credit institutions use portfolio credit models (which quantify risk across portfolios of loans), generally in combination with other credit risk models (to assess risk of specific counterparties or lending decisions). Portfolio credit models serve a variety of purposes:

- Benchmarking total capital and general provisioning levels;
- Capital allocation (including by business unit, geography, product, distribution channel, customer and individual transaction);
- Risk-adjusted profitability measurement (using risk-adjusted return on capital and shareholder value added concepts);
- Performance-based remuneration;
- Risk-based pricing;
- Internal risk reporting; and
- Setting credit risk concentration limits.

Scope and sophistication of internal credit risk assessment approaches is a function of the size of the market player (larger credit institutions typically have more sophisticated internal approaches), available resources and regulatory context (Basel II and Solvency II can be regarded as driving external ratings' usage under the standardised approach / standard formula, but also as allowing the use of internally generated ratings where such models have been validated by regulators).

Most market participants also differentiate their approach to credit risk assessment according to product type.

- For instance, for sovereign bonds, the use of third party assessments is typically more prevalent and internal analysis lighter than for other classes. Building one's internal model for that asset class was seen as too costly considering the amount of information which needs to be analysed, for little added value, especially since it is accepted by the regulators to rely on ratings for sovereigns. In the few cases where companies reported doing a proper internal analysis on the sovereign debt, it was reported that the judgmental part in the analysis process is even more important than for other asset classes.

- For corporates, internal analysis was generally described as more thorough than for sovereigns. That said, one interviewee highlighted that the added value of the ratings was particularly important for that asset class – because of the insider information CRAs have in case of solicited ratings.
- For structured finance, for those companies where this type of investments are material, internal assessment can go further than for other asset classes because there is a need to understand the quality of the underlying assets, the structure of the transaction and the different levels of subordination. Internal assessment of such products is typically model based. It was reported that market participants not in a position to internally assess these products have not maintained their positions in that area after the crisis.

The differences in assessment processes can also be a function of ratings coverage. For many corporates and certain emerging countries, external ratings simply do not exist, which means that the investor has to rely on own analysis.

Generally, the following principle applies: the riskier the investment, the deeper the analysis. Beyond the asset class, *ex ante* credit quality can influence a party's approach to credit risk assessment. One company reported that for high yield/ unrated assets, own internal analysis is a prerequisite while for high credit quality, investment can be made prior to a formal internal assessment being made.

3.2.1 Strengths

Actual take up is high. Internal credit risk assessment was the most frequently cited alternative to external credit ratings in interviews and surveys conducted as part of this study. Internal approaches are already being widely used by market participants.

Incorporation of additional information in the assessment. An internal credit analysis can better reflect the risk profile of a specific borrower or security. The rationale is that a market participant has better knowledge of the specific characteristics and risk parameters of a particular borrower or security due to his/her experience and proximity with the sector and/or relations with the counterparty (e.g. internal approaches allow a bank to use its knowledge of its customers) . Such sector or counterparty specific information may not necessarily be adequately considered in the standard methodologies of external credit rating agencies.

Greater coverage. A vast majority of corporates (and SMEs in particular) are not rated by CRAs and any investment/ lending decisions involving these are subject to internal credit risk assessments by investors/ lenders.

Reliability and accuracy. Investors would have a strong incentive in conducting a robust own due diligence and therefore, internal credit risk assessments should typically generate accurate and reliable results. For regulatory purposes however, internal credit rating models may be designed to minimise capital requirements and as such, could potentially under-estimate the risks associated with certain portfolios of debt.

Acceptability to regulators. Since the introduction of Basel II, the use of internal credit risk models has been allowed in the banking sector for regulatory purposes (i.e. to calculate capital charges), provided that the models are approved *ex-ante* by the supervisor. A similar development is taking place in the insurance sector with Solvency II. Regulatory acceptability of internal ratings based approaches is a strong incentive for their take-up by market participants.

Increased risk sensitivity for regulatory purposes. Capital requirements based on internal ratings are tied to actual asset risk, meaning the higher the risk as captured by the parameters in a bank's internal risk model, the higher the capital charges. Capital requirements are therefore more risk sensitive compared to the standardised approach based on external ratings.

Lower risk of herding behaviour and lower systemic risk. The take up of internal ratings contributes to a diversity of assessments by market participants, thus reducing the risk of herd behaviour and financial instability.

Adaptability. Internal credit risk assessment approaches can be customised to reflect the specific requirements of an investor/ lender (e.g. asset class focus, geographic focus, sectoral focus etc.)

Relative advantages of vendor solutions

Cost compared to a fully-fledged proprietary model. For smaller entities it is probably cheaper than building a fully-fledged internal model.

Ease of use. The output of many vendor products includes not only the modelling results, but also other information to support interpretation and use, such as key factors that determine the final result, benchmarks for comparison or mapping between different risk scales (such as between ratings or scores and default probabilities).³⁵

3.2.2 Weaknesses

Costs to market participants. Internal credit risk assessments can be relatively costly as compared to external measures or ratings. The costs involved include:

- Cost of collecting and/or acquiring data;
- Cost of developing analytical tools such as computational models;
- Cost of employing trained credit risk analysts;
- Cost of validation and quality control of internal models.

Both, interviewed regulators and market participants (in particular insurance companies, but also representatives of banks and asset management industry) pointed to costs as an important concern, especially for smaller market participants who cannot justify the expense for significant internal resources and expertise. The cost issue might explain why, in practice, a minority of the credit institutions (in terms of number of institutions – the picture might be different in terms of market share) have obtained an approval for the use of the Foundation Internal Ratings Based approach (FIRB) or of the Advanced Internal Ratings Based approach (AIRB) – see the recent ESMA technical report³⁶.

Costs to regulators. Internal credit analysis also requires more resources from regulators as it shifts the emphasis from a “tick-the-box” delegation approach where regulators / supervisors rely largely on CRA -ratings toward a more resource consuming “examination-and-supervision” process.

Lack of availability of data and the expertise to analyse that data. The data and expertise required to conduct internal credit risk assessment may not be readily available to certain market players for certain asset classes such as structured products. Although initiatives such as simple standardised securitisation (STS) and the European Data Warehouse would improve data availability, market participants may lack the expertise or capabilities to analyse this data. Moreover, participants at the workshop organised in the context of this study made the point that making the data available is a step in the right direction, but is not sufficient. The data needs to be standardised, organised and structured to make it useful. Access to data, was also mentioned as a constraint to rate corporates, especially SMEs. Most SMEs in the EU do

³⁵ BIS (2010) Vendor models for credit risk measurement and management - Observations from a review of selected models, Working paper 17, February 2010

³⁶ ESMA. 2015. Technical Advice on reducing sole and mechanistic reliance on external credit ratings. Available at: https://www.esma.europa.eu/system/files/esma-2015-1471_technical_advice_on_reducing_sole_and_mechanistic_reliance_on_external_credit_ratings.pdf

not have to file financial statements and of those that do, many contain only abridged data. Enterprises have to file public financial statements only if required to do so by law. The 4th Company Law Directive³⁷ defines the types of enterprises which need to file statements. These types of enterprise vary by Member State but are typically enterprises with limited liability. Normally, enterprises without limited liability (most micro enterprises) do not file financial statements. Estimates by CSES showed that only around a quarter of enterprises are of a legal form that is covered by the 4th Company Law Directive, although there are significant differences between Member States. For instance, only 17% of enterprises in Italy (and 18% in Germany) have to file financial statements compared to 66% in Luxembourg. Even if an enterprise is of a legal form covered by the 4th Company Law Directive (“a company”), it may be a small company which is required to file only an abridged balance sheet and not a detailed profit and loss account. Abridged statements do not provide sufficient data for financial analysis. This small company exemption covers most companies and the CSES report estimated that only about a quarter of companies exceeded the small companies’ exemption limits. In some countries there are additional obligations, e.g. in France there is an obligation for all companies to publish their financial information and make it available to the commercial court. Overall, it is estimated that less than 10% of European enterprises have to file detailed financial statements³⁸.

Lack of applicability in certain types of financial contracts. Interviewees (particularly asset managers) highlighted that when it comes to various types of contractual arrangements with asset owners, internal credit ratings do not offer the comparability provided by external ratings. According to them, asset owners often prefer an independent third-party to carry out a credit risk assessment and to use ratings as a control tool, to make sure managers respect their investment mandate. References to CRA ratings are seen by asset managers and asset owners as a simple, objective and clear way of defining the acceptable level of risk.

Potential conflict of interest. Where credit assessment is performed by the same team of professionals who are making investment decisions within a financial institution, there might also be an inherent conflict of interest between the desired “objectivity” of the credit assessment and the interest of the professional in pursuing higher returns through less creditworthy investments. Although this conflict of interest is believed to be manageable through the use of adequate internal procedures.

Table 8. Feasibility assessment: internal credit risk assessment

Criteria	Assessment
Applicability	<p>Can be applied to all asset classes, namely</p> <ul style="list-style-type: none"> • Sovereign/ sub-sovereign debt • Corporate debt • Structured products <p>Can be applied to individual loans/ bond issues as well as across portfolios</p>
Coverage	<p>Market participants develop the scope and coverage of internal approaches based on their requirements.</p> <p>A vast majority of corporate debt is not rated by CRAs and hence, internally assessed by market participants</p>

³⁷ Fourth Council Directive 78/660/EEC of 25 July 1978. Available at: <http://eur-lex.europa.eu/legal-content/SK/ALL/?uri=URISERV:l26009>

³⁸ CSES (2014) Evaluation of Market Practices and Policies on SME Rating - Final report

Criteria	Assessment
A functioning alternative according to market participants	Yes Internal approaches pre-date external ratings
Reliability & accuracy of the approach in signalling the credit quality of the instrument / of the counterparty	High The method used to produce internal ratings should logically be sound. If the internal rating system is to be used for regulatory purposes, the reliability actually needs to be verified ex-ante by the supervisor. <i>With regards specifically to reliability and accuracy in the context of usage for capital requirements purposes:</i> The capital requirement differences across systems should not come to a large extent from non-risk factors. Recent EBA works ³⁹ show that about half of the differences in capital requirements can easily be explained, while the origin of remaining differences is still to be explored. In terms of knowing whether there are incentives to get the internal models right, there could be diverging perspectives within the same institutions (and therefore the need for internal system of check and balance). For example, while banks certainly have incentives to make the right investment decisions, they could at the same time be focussing on lowering regulatory capital requirements. The academic literature ⁴⁰ indeed suggests that the use of internal models for regulatory purposes can undermine the validity of such internal ratings. The paper illustrates how with internal ratings, the capital requirements for banks tend to be lower, while risks and losses increase, and the accuracy of the interest rate charged suggests the banks were aware of the actual riskiness of their positions.
Ability to compare and rank different instruments /counterparties according to their credit risk	High within the same internal system Low across systems, because of the heterogeneity of the rating systems across market players

³⁹ EBA (2013) Summary report on the comparability and pro-cyclicality of capital requirements under the Internal Ratings Based Approach in accordance with Article 502 of the Capital Requirements Regulation. Available at: <https://www.eba.europa.eu/documents/10180/15947/20131217+Summary+report+on+comparability+and+pro-cyclicality+of+the+IRB+Approach.pdf>; and EBA(2013) Interim results of the EBA review of the consistency of risk-weighted assets. Top-down assessment of the banking book. Available at: https://www.eba.europa.eu/documents/10180/15947/Interim-results-EBA-review-consistency-RWAs_1.pdf

⁴⁰ Behn, Markus and Haselmann, Rainer F. H. and Vig, Vikrant, The Limits of Model-Based Regulation (November 30, 2014). SAFE Working Paper No. 75. Available at SSRN: <http://ssrn.com/abstract=2523383> or <http://dx.doi.org/10.2139/ssrn.2523383>

Criteria	Assessment
Limitation of negative effects such as pro-cyclicality	<p>High.</p> <p>Different internal models come with different conclusions. Therefore, by definition, if all players look at different measures, the risk of herding behaviour as well as the risk of overreliance on one single measure is lowered.</p> <p>Internal models however are not necessarily designed to produce through the cycle ratings. Internal systems can e.g. define grades strictly in terms of their one-year probability of default, as opposed to taking a wider range of information into account, and thus produce ratings which vary over the course of a business cycle. Should those ratings be used for determining regulatory capital charges, it could affect the market player's behaviour and have pro-cyclical effects.</p>
Transparency	<p>Low to the outsider: internal models are not publicly available. This would not be possible to be fully transparent either as in many cases, the ratings are not based purely on quantitative models. Generally speaking, subjective risk factors and business judgments are important considerations in internal risk assessment approaches and these cannot be codified or shared externally (unless regulatory standards make it necessary to stick with the approved model).</p> <p>Medium to the supervisor: when used for regulatory purposes, internal models need to be approved ex ante by the regulator.</p>
Suitability for regulatory purposes	<p>High. Internal approaches are accepted for determining regulatory capital requirements in the banking sector. Solvency II allows internal approaches in the insurance sector as well</p>
Acceptability	<p>High for regulatory purposes</p> <p>High for investment decisions</p> <p>Low in financial contracts – particularly in the asset management sector</p>
Cost of using the alternative for supervisors	<p>High- supervisors have to approve internal approaches</p>
Cost of using the alternative for market participants	<p>High – duplication of efforts across participants</p> <p>High costs of collecting and analysing data</p>

3.3 External measures and ratings

3.3.1 Market implied ratings

Market-based measures encompass:

- Credit default swap (CDS) spreads. A CDS is an insurance contract against a default by a particular corporate or sovereign entity. CDS spreads is the cost per year of protection against a default by a particular entity. The higher the risk of default, the higher the spread.
- Bond pricing information/ bond spreads.
- Equity pricing information.

Market based measures are typically analysed as follows to determine risk:

- Calculating bond spreads i.e. the difference between the yield to maturity of a particular bond and the yield to maturity of a government bond of similar structure and maturity (US or German bonds are typically used);
- Mapping of spreads of instruments with a given ratings to identify a range of spreads, which then determines a market implied rating based on the observed spread;
- Comparing the size of issuer bond spreads to the yields of some objective market index, such as the Markit CDX series of indices. The larger the spread, the higher the risk weightings assigned to the debt;
- Comparing the size of issuer bond spreads with spreads of comparable securities ("peer group");
- Measuring the volatility or standard deviation of stock prices;
- Model based analysis of spreads data e.g. correlations/ regressions to identify relations between spread, recovery and ratings.

3.3.1.1 Strengths

Timeliness (compared with accounting based measures or external ratings). A key feature of market-based measures is that they reflect available information in a timelier manner. It has been demonstrated that during the financial crisis, CDS responded to events quicker than external credit rating agencies, and reflected rising systemic and institutional risks⁴¹.

Data availability. Market data on CDS, bonds and equity prices are readily available from a variety of sources e.g. Bloomberg, Reuter etc.

Easy to analyse and interpret. It is quite easy to analyse bond pricing or CDS data by calculating spreads (although interpretation needs to be nuanced to reflect the structural features of bonds such as callability and amortization).

Low cost involved. The costs involved in collecting, analysing and interpreting market data are much lower as compared to the costs of internal approaches or CRA ratings.

Moreover, market based measures are objective, forward-looking, and allowing for specific risk weightings to be assigned to a given asset.

3.3.1.2 Weaknesses

Volatility. Most commonly mentioned weakness was market measures' volatility. Prices typically reflects the market sentiment or simply changes in the demand and supply. Yet, those may capture vast type of signals with some having very little or no relation to the actual default risk of a given asset. Current market sentiment can be overly pessimistic or overly optimistic, depending on market conditions. In extreme cases, market measures can be strongly affected even by one particular news story, or become highly skewed because of the particularly high risk appetite / aversion of a major player.

Risk of moral hazard. Market participants could potentially trade strategically, i.e. attempt to influence the prices in order to generate and benefit from a regulatory consequence.

It is however, argued that lagged measures such as 30 or 90 day rolling averages can be constructed to smooth out volatility. Rolling averages would also reduce moral

⁴¹ See for instance: Mark J. Flannery , Joel F. Houston and Frank Partnoy, Credit Default Swap Spreads as Viable Substitutes for Credit Ratings, University of Pennsylvania Law Review, Vol. 158, 2010, San Diego Legal Studies Paper No. 10-031
http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1666350

hazard by making it more difficult for market participants to trade strategically to influence a bond price in an advantageous manner.

Pro-cyclicality. A few interviewees pointed also to the highly pro-cyclical character of market based measures and the negative implications if used in regulations in replacement external ratings.

Encompasses information beyond the fundamentals. Market prices reflect not only the fundamentals, but also, inter alia, time-varying risk and liquidity premiums. According to an interviewee the interpretation of market measures is vulnerable to issues including those caused by opaque markets, investor herding, varied investing strategies, illiquidity and asymmetrical information flows. Both CDS spreads and bond pricing information are therefore, not easy to interpret.

Potential incoherent signals from various market measures. Although CDS spreads and bond spreads measure equivalent credit risk, there are many factors which can cause their prices to diverge such as: documentation, convertible issuance and the market's expectation of debt buybacks, as well as macro factors such as liquidity differences and segmentation between markets, low bond market supply and structured credit flows.

Narrow focus. Market-based measures have a rather narrow focus and, in contrast to external ratings, do not capture vast types of other relevant information.

For the above reasons, market based measures are typically used as an early warning or surveillance tool. They are rarely used in isolation to make investment / lending decisions.

Specific weaknesses of CDS spreads

Applicability limited to highly liquid instruments. High liquidity is a pre-condition for robust usage of CDS spreads. A recent Wall Street Journal article based on proprietary research indicated that CDS markets are thinly traded and therefore may not be the best indicators of actual default risk⁴². Low liquidity of some CDS spreads or simply their absence for some assets (e.g. thinly traded corporations) is a highly limiting feature in terms of their usefulness. Some empirical research suggests that the risk of pricing errors increases substantially for illiquid markets. For instance, value of insight derived from the CDS spread of thinly traded corporate bonds may be highly reduced because less frequent trading typically translates into higher spreads, sometimes irrespective of the actual default risk.

Low availability of CDS spreads in some geographical markets. In some geographical areas, e.g. Central and Eastern Europe, CDS spreads are scarce and therefore the replacement of external ratings by CDS spreads would be very problematic.

Non availability on primary markets. Another specific drawback of CDS spreads is that these are not available on primary markets and the applicability to different products is therefore restricted.

Undue correlation within industries. Because spreads reflect the current market assessment that may lack more nuanced distinction, some interviewees pointed to high correlation of spreads between particular names within certain class of assets such as corporations from the same industry. Though, this correlation may occur despite the fact that the fundamentals and actual default risk may remain very different. The correlation can also stem from chains of OTC derivative contracts. Although this problem has been reduced due to the much reduced market of OTC derivatives after the crisis, it is still a fact that if institutions are tied up to each other through chains of OTC derivative contracts, a fall in one institution can substantially

⁴² Mollenkamp, Carrick and NG, Serena (2011) A Fear Gauge Comes Up Short, 28 September 2011, Wall Street Journal

raise CDS spreads on another. This can make it difficult for investors to separate the credit risk of the debtor from the credit risk of the CDS counterparty risk.

Not a good indicator of default risk. Representative from one large European insurance company quoted the company's own research that showed low correlation of spread experience with default experience over a range of time horizons e.g. 1 yr/3yr/5yr⁴³. For instance, while substantial spikes in CDS spreads were observed in 2008, the default rate was only slightly above the average, even when taking into account rolling default losses. From that perspective, CDS spreads are an indicator of supply and demand and not of the fundamentals and therefore not of default risk.

Table 9. Detailed feasibility assessment – market based measures

Criteria	Assessment
Applicability	<ul style="list-style-type: none"> Sovereign debt Corporate debt (for highly liquid instruments) Structured products (for highly liquid instruments)
Coverage	<p>Limited coverage: instruments that are traded at a sufficiently wide scale (especially sovereigns and large corporations)</p> <p>Limited coverage is an issue for the securities which are not covered but also because it would imply the use of multiple assessment systems and methodologies, depending on data availability.</p>
A functioning alternative according to market participants	<p>No.</p> <p>It is rather a complementary source of information. Examining market based measures serves a different purpose than looking at external or internal ratings. A different type of information is reflected in market based measures.</p> <p>Market based measures are rather point in time indications, while external or internal rating systems tend to assign the rating across the cycle. The fact that ratings are valid throughout the duration of the instrument / through the cycle is valued by investors and issuers – as many investors primarily intend to hold the security up to maturity to match their liability. In that sense, the lack of responsiveness is a positive point.</p>
Reliability & accuracy of the alternative in signalling the credit quality of the instrument / of the counterparty	<p>Low – high levels of volatility</p> <p>Market movements give a notice, but as those movements are not necessarily linked to credit quality, this is not a good basis on which to make a decision.</p>
Ability to compare and rank different instruments /counterparties according to their credit risk	<p>Medium</p> <p>By nature, spreads are comparison tools. That said, because of limited coverage and correlation, their ability to compare and rank different instruments is limited.</p>

⁴³ Using POINT data for historical spread movements and Moody's data on default experience.

Criteria	Assessment
Limitation of negative effects such as pro-cyclicality	<p>Low</p> <p>For regulatory purposes, replacing reliance on external ratings with another single measure would not serve the intended purpose: the aim is not to align the opinions of all market participants but rather to maintain a diversity of opinions.</p> <p>Relying on market based measures entails pro-cyclical effects: in case some nervousness in the market make bond prices fall, investors could all start selling despite the fact that these movements are not necessarily linked to fundamentals. This would accelerate the downward trend.</p>
Transparency	<p>High</p> <p>Transparency is high as the data is available publicly or easily accessible from market data providers but ease of interpretation, from a credit risk assessment perspective, less so as there is a need to filter out irrelevant movements.</p>
Suitability of the alternative for supervisory purposes	<p>Medium</p>
Acceptability	<p>Low for regulatory purposes</p> <p>Low for investment decisions</p> <p>Low in contracts</p> <p>The high volatility would require constant updates and the type of information provide does not serve the appropriate information needs.</p>
Cost of using the alternative for supervisors	<p>Low - data is available publicly or easily accessible from market data providers</p>
Cost of using the alternative for market participants	<p>Low - data is available publicly or easily accessible from market data providers</p>

3.3.2 Accounting-based measures

Accounting-based measures refer to financial ratios calculated based on (often publicly available) financial statements. Examples of such ratios include liquidity ratios, profitability ratios, leverage ratios and efficiency, activity or turnover ratios.

Accounting based measures are sometimes combined with market based measures to compute the following 'hybrid' measures:

- $\text{Leverage or total liabilities} \div \text{market value of assets}$.
- $\text{Cash flow or EBITDA} \div \text{market value of assets}$

3.3.2.1 Strengths

One key element of the traditional financial analysis. Traditional financial analysis typically relies on the successive examination of financial ratios and their comparison with industry benchmarks.

Can be used as (one of the) predictor(s) of probability of default. Statistical scoring models can be built based on accounting measures and tailored to best discriminate between healthy and sick firms. Accounting-based measures and market-based data are often used in combination and aggregated into indexes.

Widespread use of financial ratio covenants: Financial ratios are widely used in covenants, especially in certain types of contracts (e.g. syndicated loans). In a

database of syndicated private loan agreements from US firms, close to 80% of the deals include a financial covenant⁴⁴. The five types of most common financial ratio covenants are: (i) Minimum Coverage (earnings / periodic debt-related expense); (ii) Maximum Debt to Cash Flow (total debt / earnings); (iii) Minimum Net Worth (assets – liabilities = shareholders' equity); (iv) Maximum Leverage (total debt / total assets); (v) Minimum Current (current assets / current liabilities).

In contracts, the lender and the borrower can agree on the financial ratio(s) which are the best predictor of credit risk based on the current situation of the firm (for instance for loss firms, ratios related to earnings are not good predictors, net worth ratio is better suited).

Reliability. In a recent academic working paper, credit ratings by Standard & Poor's dating back to 1986 are outperformed by a simple model in predicting corporate default⁴⁵. Components of the model measure profitability, leverage, past returns, volatility of past returns, firm size, firm cash holdings, and firm valuation. This approach has the benefit that each of these measures is readily available and easily calculated.

3.3.2.2 Weaknesses

Requires skilled analysts with sectoral expertise. Interpretation requires an element of judgement. For instance, profitability ratios or turnover ratios may differ fundamentally between corporations reflecting specific characteristics of their sectors (i.e. manufacturing versus high-tech sector) and hence may be hardly comparable. In addition, ratios for the same firm may be discordant (e.g. a poor profitability ratio but an above-average liquidity ratio), which may lead to divergence of opinions across analysts. Interpretation of ratios without sufficient contextual knowledge by less experienced market participants may therefore be difficult.

Backward looking. Unlike market-based methods, accounting-based measures are not forward looking.

Access to information. Although many interviewees have observed a meaningful increase in transparency and availability of various types of data over recent years, the access to financial data can be still problematic. Accounting-based measures may in some countries still not be easily available for non-listed companies (i.e. due to lower reporting standards/obligations).

Limited applicability. While accounting-based measures are typically suitable for corporations, they are not suitable for sovereign debt and for many structured products. In addition, they are based on historical data and are thus not really applicable to new entrants.

Narrow focus. Financial ratios have a rather narrow focus and, in contrast to external ratings, do not capture vast types of other relevant information.

Not suitable for regulatory purposes. Financial ratios have limited value for the calculation of capital requirements. As financial ratios may often reflect distinctive features of countries, sectors or asset classes, having a consistent framework would be difficult in practice and would probably require some arbitrary policy choices.

⁴⁴ Peter R. W. Demerjian (2007) Financial Ratios and Credit Risk: The Selection of Financial Ratio Covenants in Debt Contracts. Available at:

https://www.gsb.stanford.edu/sites/default/files/documents/Demerjian_Financial.pdf.

⁴⁵ Hilscher, Jens and Wilson, Mungo (2013) Credit Ratings and Credit Risk

Table 10. Detailed feasibility assessment – corporate debt

Criteria	Assessment
Applicability	<ul style="list-style-type: none"> Corporate debt
Coverage	All corporates (provided access to information)
A functioning alternative according to market participants	No (only in specific cases e.g. loan covenant)
Reliability & accuracy of the alternative in signalling the credit quality of the instrument / of the counterparty	<p>Medium to High (a sophisticated approach combining several measures has proven to be demonstrably superior)</p> <p>Financial ratios are informative of credit risk. Financial ratios can e.g. measure earnings and operating performance, leverage and short-term liquidity of the firm. These indicators are linked to the probability to default on debt obligations and to the availability of assets to make payments.</p> <p>Financial ratios are one of the indicators used by credit rating agencies, but they make up only part of the information which is examined as other factors play a role as well.</p>
Ability to compare and rank different instruments /counterparties according to their credit risk	<p>Medium</p> <p>Needs financial skills to compare across sectors</p> <p>Low across countries (different accounting rules)</p>
Limitation of negative effects such as pro-cyclicality	<p>Medium</p> <p>Because of potential divergence of opinions when interpreting the same financial ratios, the risk of herding behaviour is limited.</p> <p>There are however around whether accounting rules themselves could be pro-cyclical. It is e.g. said that with market value accounting, increases in asset prices during economic booms means stronger capital for financial institutions, which, in turn, fuels demand for these assets and a further increase in their prices⁴⁶.</p>
Transparency	Medium – providing data is available publicly, financial ratios can easily be calculated. There is however a need to be aware of the underlying accounting rules.
Suitability of the alternative for supervisory purposes	Low – difficulty to have a consistent framework across sectors and countries
Acceptability	<p>Low for regulatory purposes</p> <p>Low for investment decisions</p> <p>High in contracts</p>
Cost of using the alternative for supervisors	Medium - data is often available publicly but requires skills for interpretation
Cost of using the alternative for market participants	Medium - data is often available publicly but requires skills for interpretation

⁴⁶ Jean-Pierre Landau, Deputy Governor of the Bank of France (2009), Remarks at the Bank of Spain's conference on Procyclicality and the Role of Financial Regulation; Madrid, 4 May 2009. <http://www.bis.org/review/r090805d.pdf>

3.3.3 Third part assessments (non-commercial): OECD Country Risk Classifications

OECD Country Risk Classifications were developed by the OECD in an effort to align premiums charged by different export credit agencies for the same country, and avoid subsidisation. There are eight categories (from the least risky 0 to the riskiest 7). A given country is reviewed "whenever a fundamental change is observed and at least once a year".

However, country risk classifications cannot be interpreted in the same way as sovereign risk classifications. OECD Country Risk Classifications are based on two dimensions⁴⁷:

- Transfer and convertibility risk (i.e. the risk that a government will impose capital or exchange controls that prevent an entity from converting local currency into foreign currency and/or transferring funds to creditors located outside the country); and,
- Cases of force majeure (e.g. war, expropriation, revolution, civil disturbance, floods, and earthquakes).

OECD country risk classifications are based on a much narrower criteria than the sovereign ratings produced by CRAs. With its strong emphasis on political risk and risk related to capitals and exchange controls being imposed by the sovereign authorities, which would affect the private agent to convert local currency into foreign currency and/or transfer to non-resident creditors, they are more like transfer and convertibility risk indicators rather than default risk indicator. And indeed, the OECD clearly states that: "The country risk classifications are not sovereign risk classifications and should not, therefore, be compared with the sovereign risk classifications of private credit rating agencies (CRAs). Conceptually, they are more similar to the "country ceilings" that are produced by some of the major CRAs."

3.3.3.1 Strengths

Expertise of the OECD. The OECD possesses high country expertise and often has unique access to national authorities. As such the OECD is very well placed to gather and analyse wide range of data and qualitative information, which may not be available to CRAs or investors.

Current acceptability for regulatory purposes. Under CRR, banks have the possibility to use OECD country classifications (or the credit assessment of an Export Credit Agency provided this agency subscribes to the OECD agreed methodology, its assessment is published and can be translated into one of the eight OECD categories) to derive risk weights (see article 137 (2) CRR). A similar approach is in place in the US.

Overall good country coverage. OECD Country Risk Classifications currently cover 140 countries⁴⁸ (against 132 by S&P⁴⁹).

3.3.3.2 Weaknesses

Not a measure of sovereign credit risk. OECD country risk classification does not intend to take into account the risks associated with the fiscal situation of the government (i.e. the risk of default); it measures purely the country risk. While for some countries, country risk and sovereign credit risk are broadly equivalent, in other countries, the difference coming from the assessment of the fiscal situation can be quite large.

⁴⁷ <http://www.oecd.org/tad/xcred/crc.htm>

⁴⁸ <http://www.oecd.org/tad/xcred/cre-crc-current-english.pdf>

⁴⁹ https://www.standardandpoors.com/en_US/web/guest/entity-browse

Potential political pressure. Assessments performed by an international institution like the OECD is perceived as potentially being subject to political pressure exercised by the members of the organisation while issuing ratings of sovereign bonds.

Application limited to sovereign debt. The OECD is relatively well placed to assess country risk but it would be outside its mandate to assess risk of municipal, structured products or corporate debt orphaning those credit buyers.

Not covering High Income OECD and High Income Euro Area countries since 2013. Prior to that date, high Income OECD and High Income Euro Area countries were automatically assigned to the Country Risk Category Zero, without the Country Risk Classification Methodology being applied to them. As the methodology was not regarded as being applicable to them (not designed for reserve currency countries), this automatic classification was terminated to avoid create any confusion, especially in a context where the country risk classification continues to be used as an indicator of sovereign credit risk⁵⁰.

Table 11. Detailed feasibility assessment – OECD country risk classification

Criteria	Assessment
Applicability	Sovereign debt
Coverage	Many countries with the exception of High Income OECD and High Income Euro Area countries
A functioning alternative according to market participants	Yes (with some limitations however), especially by public sphere players Market participants were less prone to use OECD country risk classification / have an opinion on that matter
Reliability & accuracy of the alternative in signalling the credit quality of the instrument / of the counterparty	No the large limitation is that the OECD country risk classification, by definition, does not take into account the risks associated with the fiscal situation of the government: it is not intended to measure the sovereign credit risk but rather the country credit risk
Ability to compare and rank different instruments /counterparties according to their credit risk	High to compare and rank country credit risk Low to compare and rank sovereign credit risk
Limitation of negative effects such as pro-cyclicality	Medium For regulatory purposes, replacing reliance on external ratings with another single measure would not serve the intended purpose: the aim is not to align the opinions of all market participants but rather to maintain a diversity of opinions. The results of a research report by RATINGPLATFORM, an initiative supported by the European Association of Credit Rating Agencies ("EACRA") ⁵¹ tend to suggest that the OECD country classification and the CRA ratings exhibit similar transition rates (i.e. changes of assessments across the business cycle).

⁵⁰ For more information, see <http://www.oecd.org/tad/xcred/cat0.htm>

⁵¹ RATINGPLATFORM (2014) "Sovereign Assessments: Comparison between the Sovereign Ratings of 12 CRAs and the OECD Country Risk Classification - ECAI rules and Risk Weights analysis"

Criteria	Assessment
Transparency	Medium. The methodology behind the OECD country risk classification is explained in much detail in the document called the Arrangement (see article 25) ⁵² . However the OECD publishes the results of the classification without any accompanying reports. The deliberations of the group of country risk experts assigning the ratings remain confidential.
Suitability of the alternative for supervisory purposes	High
Acceptability	High for regulatory purposes (CRR and US experience) Medium for investment decisions Medium in contracts
Cost of using the alternative for supervisors	Low (check the box approach)
Cost of using the alternative for market participants	Low (publically available free of charge)

3.3.4 Third party assessments (non-commercial): Scoring / assessment by Central Banks

Central credit registers (CCRs) and central financial statements databases (CFSDs) are central databases owned or managed by central banks collecting, processing and analysing credit exposure (in case of CCRs) and credit quality of counterparties to which banks are exposed (in case of CFSDs) respectively.

They work under a more or less compulsory regime by which contributors must abide. Input data are based on primary information from creditors for CCR and public information in the case of CFSD. They are used mostly for corporate debt products. Central banks produce ratings based on the information collected in analysis process combining human thinking (judgmental rating) and computer processing (automated rating). As they allow / advise, these should be primarily used to determine eligibility/non-eligibility status to trade bills and other corporate debt instruments. In some countries, the usage is wider and includes the prudential review of banking portfolios or additional input for the creditworthiness analysis conducted by credit institutions. Both are typically updated on a monthly basis.

3.3.4.1 Strengths

Expertise and credibility of the CBs. The central banks have high credit analysis expertise and credibility.

3.3.4.2 Weaknesses

Limited country coverage. Not all countries have fully operational CCRs and CFSDs⁵³. The ECB is working towards establishing a Euro area level central credit register by the end of 2017, the so-called analytical credit dataset or AnaCredit⁵⁴.

Limited asset coverage. They are also limited in application to corporate debt, and in some countries there is only negligible coverage of non-financial corporations.

⁵²

[http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=tad/pg\(2015\)7](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?doclanguage=en&cote=tad/pg(2015)7)

⁵³ For an overview of European credit reporting systems, see Nicola Jentzsch* (2007) Do we need a European Directive for Credit Reporting? Available at:

http://www.ecri.eu/new/system/files/55+CESIFO_Reportdicereport2007.pdf (Table 1)

⁵⁴ ECB(2015) Financial Integration in Europe. Available at:

<https://www.ecb.europa.eu/pub/pdf/other/financialintegrationineurope201504.en.pdf>

Limited access to the data. Sometimes significant data protection obligations in respect of corporate/personal information held on the CCRs and CFSDs may also constrain the access to the data. In fact, the CFSDs and CCRs remain unavailable to many market participants in many countries. These findings from interviews have been confirmed by a recent fact-finding mission concluding that CCR raw data often remains restricted for supervisory purposes⁵⁵. The FIBEN⁵⁶, the French Central Credit Register provided by the Bank of France, has only recently expanded its access to non-banking institutions and insurers.

Possible competition with the private sector. Private vendors sometimes provide similar services to CFSDs (e.g. Dun & Bradstreet).

Limited cross-country comparability. The CCRs and CFSDs may still differ substantially from country to country due to different reporting populations, partial coverage (i.e. interbank lending, collateral, currency, and maturity), non-harmonised concepts and definitions (i.e. concept of exposure, definition of maturity) or different thresholds for reporting (between EUR 0 and EUR 1.5 million) used by many European central banks. Consequently, it makes the latter unlikely to be very useful in assessing the creditworthiness of smaller entities handling smaller transactions (i.e. SMEs).

Assignment of a rating only in a few cases. Finally, while the classification of the risk of default used by CRAs (AAA, BBB, etc.) and its common understanding is an undisputable advantage of external credit ratings, CCRs very rarely provide a similar feature. One of the exceptions is the French CCR (FIBEN) which also assigns the credit ratings with a simple and easily understandable rating scale⁵⁷. The EIB is also said to be involved in the development of a common methodology for the credit scoring of midcaps and SMEs, building on the information which will be available following EU level initiatives. The idea is to produce a scoring which would limit the sovereign risk bias across borders to focus on the fundamentals of the rated companies and grant access to key corporate and credit data on SMEs⁵⁸.

Table 12. Detailed feasibility assessment: Scoring / assessment by CB

Criteria	Assessment
Applicability	<ul style="list-style-type: none"> Corporate debt
Coverage	<p>Varies from country-to-country, not for smaller entities because of too high thresholds in some countries</p> <p>Expected to improve as from 2018 with AnaCredit</p>
A functioning alternative according to market participants	<p>Yes where available and accessible</p> <p>This is considered as viable alternative especially by public sphere players as market participants were less prone to have access to it yet.</p> <p>Having a European version of those systems which exist in some countries is planned for end 2017.</p>
Reliability & accuracy of the alternative in signalling the credit quality of the instrument / of the counterparty	<p>Medium</p> <p>Data is considered as highly reliable. Some further analysis by the user is encouraged.</p>

⁵⁵ Violetta Damia and Jean-Marc Israël (n.d.) Standardised granular credit and credit risk data. Available at: http://www.bis.org/ifc/events/7ifcconf_damia_israel.pdf (page 4)

⁵⁶ <http://www.fiben.fr/>

⁵⁷ From 3++, 3+, 3, 4+, 4, 5+, 5, 6, 8 to 9 where 3++ stands for 0.00% default and failure rate and 9 for default

⁵⁸ Eurofi (2014) Stimulating EU corporate bond and equity markets. Available at: <http://www.eurofi.net/wp-content/uploads/2014/09/Stimulating-EU-corporate-bond-Web.pdf>

Ability to compare and rank different instruments /counterparties according to their credit risk	High within one system, low across countries Expected to be high with AnaCredit
Limitation of negative effects such as pro-cyclicality	Medium Can be considered as one input to the internal rating system
Transparency	Medium
Suitability of the alternative for supervisory purposes	Medium
Acceptability	Medium for regulatory purposes Medium for investment decisions Medium in contracts
Cost of using the alternative for supervisors	Low
Cost of using the alternative for market participants	Low

3.3.5 Third party assessments (commercial): Automated scorings based on computational models

Other third party scorings include those produced e.g. by D&B or new players such as BIPE. Unlike external ratings, third party scorings are based purely on computational models and therefore cheaper to produce. Unlike the vendor solutions mentioned above, they consist of buying a rating, the output of an assessment process, and not the tool to produce the rating itself.

3.3.5.1 Strength

Important for ESIs / SMEs in the context of their greater access to the financial markets. The importance of having such scorings available is currently seen as critical in the context of an increasing number of ESIs / SMEs in Europe needing to access the financial markets and the development of Euro PP.

Quality dependent on scope of input data, increasing with the inclusion of sectoral data. The quality of the scoring necessarily depends on the input data on which it is based. One important criteria seems to include information on the sector in which the scored SMEs are active, since compared to larger companies, SMEs are typically more dependent on the sector in which they are active.

3.3.5.2 Weaknesses

More backward looking and entirely based on quantitative data. One downside which was raised is that they are backward looking and do not take into account qualitative information. They can predict default but not long before it happens and were therefore seen as more adequate for short term investors. Long term investors, on the other hand, need ratings which look five years ahead like the external ratings. Credit scorings of such types are useful / have a purpose to serve e.g. for short term investors. However, for long term investments, the indication they provide are not very helpful; good at picking up default just before it happens but that it is irrelevant for longer term investors who need to predict five years ahead.

Table 13. Detailed feasibility assessment: Other third party scoring

Criteria \ Alternative	Other third party scoring
Applicability	<ul style="list-style-type: none"> Corporate debt
Coverage	<ul style="list-style-type: none"> Focus on small and mid caps, to be an alternative to external ratings where these are not available / too expensive
A functioning alternative according to market participants	No (except for small and mid caps)
Reliability & accuracy of the alternative in signalling the credit quality of the instrument / of the counterparty	<p>Medium</p> <p>Varies across providers</p> <p>Based only on quantitative information</p>
Ability to compare and rank different instruments /counterparties according to their credit risk	Medium (only among small and mid caps)
Limitation of negative effects such as pro-cyclicality	<p>Medium</p> <p>For regulatory purposes, replacing reliance on external ratings with another single measure would not serve the intended purpose: the aim is not to align the opinions of all market participants but rather to maintain a diversity of opinions.</p>
Transparency	Medium
Suitability of the alternative for supervisory purposes	Medium
Acceptability	<p>Low for regulatory purposes</p> <p>Low for investment decisions (large caps), medium for investment decisions (small and mid caps)</p> <p>Medium in contracts</p>
Cost of using the alternative for supervisors	Low
Cost of using the alternative for market participants	Low

3.3.6 Third party assessments (commercial): ratings produced by registered and certified credit rating agencies as recognized by ESMA

CRA's issue creditworthiness opinions to help overcome the information asymmetry between those issuing debt instruments and those investing in these instruments. They carry out analyses and issue opinions on the probability of default or expected losses of companies ("corporate credit ratings") and governments ("sovereign credit

ratings⁵⁹). They also rate more complex financial products, including structured finance products⁶⁰.

All of the major CRAs use an alphabet based rating scale, the highest and safest being AAA, with lower grades moving to double and then single letters (AA or A) and down the alphabet from there (B, C and D). Although grading between the CRAs may differ slightly (i.e. Ba1 in Moody's corresponds to BB+ in S&P and Fitch), in general the symbols and associated definitions are very similar, for the sake of simplicity, comparability and transparency⁶¹.

A credit rating is a relative measure of risk, i.e. BB is a higher risk than A, but lower than BBB. It is not intended to be an absolute measure of risk; therefore, it does not mean that a specific rating, e.g. BBB, which for structured finance securities has had an average default rate of 0.18 per cent between 1987 and 2007, is a mathematical prediction of the future probability of default⁶².

3.3.6.1 Strengths

Independence and objectivity. In theory, CRAs provide the market with an objective and independent evaluation of a borrower or security's creditworthiness. However, the impartiality of CRAs came under sharp scrutiny during the financial crisis as it became apparent that the issuer-pays model was resulting in conflict of interest and thus, undermining rating independence – see the sub-section on disadvantages below.

Comparability. CRAs measure risk in a consistent way, across geographic and product segments. This makes it easy for investors to compare different potential investments. The common language function was cited as one of the most important benefit of CRA ratings by various market participants interviewed. It is also the main reason, why references to CRA ratings are widespread in financial contracts, particularly investment mandates. For some agents, even the inclusion of contractual references to external ratings is seen as rational, either driven by client demands (for transparency purposes); or demands by industry players, i.e. asset manager, external manager / portfolio managers, who want to secure access to accurate information.

Transparency. Ratings are publicly available. Moreover, the underlying rating methodologies are also typically publicly available. Since the financial crisis, CRAs have undertaken additional measures to enhance transparency such as organising meetings with companies and investors to explain their methodology, providing more information and supporting research/ narrative so market participants can see the underlying analysis and justification behind a particular rating, making more methodological documentation available on their websites

Cost effectiveness. CRAs benefit from economies of scale when evaluating credit risk. This benefit was mentioned often by small insurance and asset management companies who do not have the resources or the expertise to invest in internal approaches.

Reliability. It was suggested by market participants that CRAs have access to more and better data, in particular more access to the management of the rated entities. A few interviewees even indicated that the rating agencies assessments are more credible as compared to other approaches. CRAs typically publish regular (quarterly and/or annual) reports providing data on accuracy and stability of their ratings. This contributes to building trust and confidence in CRA ratings.

⁵⁹ Sovereign ratings include ratings of countries, regions and municipalities.

⁶⁰ European Commission (2009) Commission Staff Working Paper - Impact Assessment SEC(2011) 1354

⁶¹ System of grading used by CRAs has been sometimes criticised for too simplistic approach which does leave enough room for nuanced categorisation.

⁶² ESME (2008) *Role of Credit Rating Agencies*, ESME's Report to the European Commission

Added value offered by CRAs. Market participants explained that they value the analysis provided by CRAs and see this as a key component of their added value.

Regulatory acceptability. As previously mentioned in section 2, there remain references to CRA ratings in key European regulations, particularly CRR / CRD IV and Solvency II. These references *de facto* assign a quasi-regulatory status to CRA ratings. CRA ratings thus, have a high level of regulatory acceptability.

Disadvantages

Conflict of interest. The financial crisis highlighted the conflict of interest inherent in an issuer-paid model (before 1974 the rating agencies were paid by the investors). By accepting payment from an issuer, a rating agency potentially sacrifices its independence as it has a vested interest in the success of a bond/ debt offering and in the welfare of the issuer. CRAs argue that preservation of their reputational capital prevent them from issuing high ratings in order to secure business. And that rating decisions are made by committees, not individual analysts, and that employees are not compensated based on their ratings.

Ratings through the cycle. One of the biggest criticisms of rating agencies is that they are reluctant to make rating changes based on cyclical considerations even though the number of default rises during recessions. At the same time, a switch in approach would reinforce pro-cyclicality.

Sluggishness. A related criticism is that CRAs often lag behind events. This may be reflective of the fact that ratings do agencies do not offer frequent monitoring of each issuer. While the agencies will look at a company once or twice a year, a credit analyst at a financial intermediary will monitor daily developments at each company s/he covers

Credibility issues. Trust and confidence in CRAs has been significantly dented since the 2008-09 financial crisis as structured finance products, which were initially rated investment grade were sharply downgraded later on. In the US, the scale, magnitude and timing of the downgrade of these mortgage backed securities were extraordinary. In the third quarter of 2007, CRAs downgraded US\$ 85 billion 'worth' of mortgage backed securities, followed by US\$ 237 billion in the fourth quarter, an additional US\$ 739 billion in the first quarter of 2008 and US\$ 841 billion in the second quarter of 2008. Overall, US\$ 2 trillion 'worth' of previously top-tier 'AAA' rated mortgage backed securities were downgraded to a 'subprime' or 'junk' status in a short span of 12 months⁶³. In 2007, as US housing prices began to tumble, Moody's alone downgraded 83 percent of the US\$ 869 billion in mortgage backed securities it had rated at the AAA level in 2006⁶⁴.

Pro-cyclicality of CRA ratings. Since CRA ratings are used for regulatory purposes and embedded in capital requirement legislation, rating agencies' widespread downgrades in recessions raise capital requirements, creating a negative spiral. Procyclical effects are also generated by having references to external credit ratings in contracts, which brings inflexibility and entails systemic risk.

Contagion effect of ratings. It has been empirically proven that rating agencies' opinions independently affect market spreads. As argued by Grande and Presley⁶⁵, downgrades of sovereign rating in one country may result in repercussions in another.

⁶³ Barnet-Hart, K. (2009) *The story of the CDOs Market Meltdown: an empirical analysis*. Available at: <http://www.hks.harvard.edu/m-rcbg/students/dunlop/2009-CDOmeltdown.pdf>

⁶⁴ Segoviano, M., Jones, B., Lindner, P. and Blankenheim, J. (2013) *Securitization: Lessons Learned and the Road Ahead*, IMF working paper, WP/13/255. Available at: <http://www.imf.org/external/pubs/ft/wp/2013/wp13255.pdf>

⁶⁵ Gande, A., and D.C. Parsley, 2005. News spillovers in the sovereign debt market, *Journal of Financial Economics*, 75, 691-734. P. 12

An event study analysis by Cantor and Packer⁶⁶ shows that the announcements of changes in the agencies' sovereign risk opinions are followed by statistically significant bond yield movements in the expected direction. In other words, ratings' downgrades have a direct effect on access to credit and borrowing costs.

More recent studies by the International Monetary Fund⁶⁷ or the European Central Bank⁶⁸ confirm the above. The IMF study found that sovereign rating downgrades have statistically and economically significant spillover effects both across countries and financial markets. In other words, rating agencies downgrades were found to have fuelled financial instability during the European debt crisis. In addition, the ECB study specifically examined the issue of causality between ratings changes and yields/CDS spread over the short-term and concluded that there is "two-way causality". This tend to illustrate that although rating agencies are lagging behind markets in their judgment regarding sovereign bonds, they still amplify negative spirals

Costs. SMEs are not willing to pay for a rating by the CRAs as it is too expensive compared to the size of their issuance.

Anglosaxon view and restricted focus on financial parameters only. A Nordic financial association argues that the Anglosaxon view of companies of CRA is also a problem. Their ratings focuses on credit risk only and do not look at other parameters like business model, job creation, environmental criteria, long term value that the company creates for society and different stakeholders: many big investors – such as labour market pension funds – look for more diverse information from a company, in particular on their environmental and societal approach.

Table 14. Detailed feasibility assessment: ratings produced by registered and certified credit rating agencies as recognized by ESMA

Criteria \ Alternative	Assessment
Applicability	<ul style="list-style-type: none"> • Sovereign debt • Corporate debt (of large companies) • Structured products
Coverage	<ul style="list-style-type: none"> • Wide coverage but for corporates- mainly cover big companies

⁶⁶ Cantor, R. and Packer, F. 1996, Determinants and Impact of Sovereign Credit Ratings. Federal Reserve Bank of New York. Economic Policy Review / October 1996

⁶⁷ Arezki, R. Candelon, B. & Sy, A. (2011), Sovereign Rating News and Financial Markets Spillovers: Evidence from the European Debt Crisis. IMF Working Paper. WP/11/68. Available at: <https://www.imf.org/external/pubs/ft/wp/2011/wp1168.pdf>

⁶⁸ Afonso, A., Furceri, D. and Gomes, P. (2011) Sovereign Credit Ratings And Financial Markets Linkages Application to European Data. ECB Working Paper Series No 1347 / June 2011

Criteria \ Alternative	Assessment
A functioning alternative according to market participants	N/A
Reliability & accuracy of the alternative in signalling the credit quality of the instrument / of the counterparty	<p>High for corporates⁶⁹ Low/ Medium for sovereigns⁷⁰ and structured finance⁷¹</p> <p>The referenced literature shows how sovereign ratings repeatedly failed to anticipate sovereign crisis. It also showed ratings for structured finance performed badly for structured finance during the last financial crisis, while performance for corporates remained high.</p> <p>Prior to the 2007/08 subprime market turmoil and resulting financial crisis, the confidence in the reliability of external ratings was higher.</p> <p>The confidence in CRA ratings remains higher for corporate ratings (compared to sovereigns and structured finance). Corporate ratings are perceived as traditional business segment of CRAs, where they have more experience and methodological expertise.</p>
Ability to compare and rank different instruments /counterparties according to their credit risk	Perceived as high by market participants. This is especially true that CRAs use the same rating scale across asset classes. This is however challenged by the academic literature ⁷² , which highlights that structured products typically receive more generous ratings.
Limitation of negative effects such as pro-cyclicality	<p>Low</p> <p>CRAs have designed their methodology to produce through the cycle ratings. This should in theory limit pro-cyclical effects.</p> <p>The pro-cyclical effects of external ratings mainly comes from their embeddedness into legislation and contracts. It forces market participants to rely on one single measure and suppresses the diversity of opinions.</p>
Transparency	<p>High</p> <p>The methodology of CRAs is available to users and CRA ratings are accompanied by a detailed research report.</p>
Suitability of the alternative for supervisory purposes	<p>High</p> <p>CRA ratings have largely been embedded into legislation across jurisdictions.</p>
Acceptability	<p>High for regulatory purposes</p> <p>High for investment decisions</p> <p>High in contracts</p>

⁶⁹ See for instance: Efraim Benmelech, Jennifer Dlugosz (2010) The Credit Rating Crisis. Available at: <http://www.nber.org/chapters/c11794.pdf>

⁷⁰ See for instance: Bhatia AV (2002). Sovereign Credit Ratings Methodology: an Evaluation. IMF Working Paper 02/170, IMF. Available at: <https://www.imf.org/external/pubs/ft/wp/2002/wp02170.pdf>

⁷¹ See for instance: Committee on the Global Financial System (2008), CGFS Papers No 32 Ratings in structured finance: what went wrong and what can be done to address shortcomings? Available at: <http://www.bis.org/publ/cgfs32.pdf>

⁷² See for instance: Cornaggia, Jess and Cornaggia, Kimberly Rodgers and Hund, John, Credit Ratings across Asset Classes: A Long-Term Perspective (November 10, 2015). Available at SSRN: <http://ssrn.com/abstract=1909091> or <http://dx.doi.org/10.2139/ssrn.1909091>

Criteria \ Alternative	Assessment
Cost of using the alternative for supervisors	Low
Cost of using the alternative for market participants	Low (with the limitation that users are typically expected to pay for subscriptions)

3.4 Summary overview

The table below provides summarises the above discussion with respect to the relative strengths and weaknesses of CRA ratings and alternative approaches.

Table 15. Summary of the relative strengths and weaknesses of different approaches to credit risk assessment

Criteria	Alternative approaches					CRA ratings
	In house analysis	Market based measures	Accounting based measures	OECD country risk	Central Credit Registers	
Applicability to different asset classes	High - can be applied to all asset classes <ul style="list-style-type: none"> • Sovereign/ sub-sovereign debt • Corporate debt • Structured finance products 	High - can be applied to all asset classes, although there are some limitations Suitable for highly liquid instruments (corporate debt, structured finance products)	Limited – applicable to corporate / sub-sovereign debt (although similar ratios can be calculated at a sovereign level e.g. debt to GDP ratio)	Limited – applicable to sovereign debt only	Limited – applicable to corporate debt only	High - can be applied to all asset classes
Coverage	Investors/ financial institutions' can adapt coverage to their needs	Instruments that are traded on the markets	High Databases such as Amadeus cover a vast majority of EU enterprises Sovereign/ sub-sovereign data is typically available publicly (national	Many countries except High Income countries	Limited - very few Member States have such registers Expected to improve as of 2018 with AnaCredit	High – sovereign/ structured finance Limited coverage of sub-sovereign Limited coverage of corporate debt – CRAs mainly cover large companies and those accessing capital markets via public issues
A functioning alternative to CRA ratings according to market participants	Yes	No (seen as a complementary measure)	No (only in specific cases e.g. loan covenants)	Yes (with some limitations)	Yes, where available and accessible (EU level version planned for end 2017)	N/A

Criteria	Alternative approaches					CRA ratings
	In house analysis	Market based measures	Accounting based measures	OECD country risk	Central Credit Registers	
Reliability & accuracy	Empirical data is not available to independently determine reliability and accuracy, but logically speaking it should be high	Perceived to be low due to high levels of volatility	Accounting measures in isolation would be insufficient to predict default	A measure of country risk; not sovereign risk	Not possible to make a judgement on basis of available information	High for corporates and sovereigns Low for structured finance
Ability to compare and rank different instruments /counterparties according to their credit risk	High within the same internal system Medium across systems	High	Medium Low across countries	High - country credit risk Low - sovereign credit risk	High within one system, low across countries Expected to be high with AnaCredit	Perceived as high by market participants, but challenged by the academic literature ⁷³
Limitation of negative effects such as pro-cyclicality	High – as internal approaches would most likely yield different results across investors/ financial institutions and there will also be differences in interpretation of data	Low – due to risk of herding behaviour	Medium– as there will be differences in interpretation of data	Medium– as there will be differences in interpretation of data (OCED shows country risk; investors will have to draw their own conclusions as to the extent to which it corresponds to sovereign risk)	Low within one country; but high	Low – the financial crisis provided evidence of herding behaviour and cliff effects if ratings are used in a mechanistic way
Transparency	Low to the outsider, Medium to the supervisor	High	Medium	High	Medium	High
Suitability of the alternative for supervisory purposes	High	Medium	Low	High	High	High

⁷³ See for instance: Cornaggia, Jess and Cornaggia, Kimberly Rodgers and Hund, John, Credit Ratings across Asset Classes: A Long-Term Perspective (November 10, 2015). Available at SSRN: <http://ssrn.com/abstract=1909091> or <http://dx.doi.org/10.2139/ssrn.1909091>

Criteria	Alternative approaches					CRA ratings
	In house analysis	Market based measures	Accounting based measures	OECD country risk	Central Credit Registers	
Acceptability	High for regulatory purposes High for making investment decisions Medium in contracts	Low for regulatory purposes Low for investment decisions Low in contracts	Low for regulatory purposes Low for investment decisions High in contracts	High for regulatory purposes (CRR and US experience) Medium for investment decisions Medium in contracts	Medium for regulatory purposes Medium for investment decisions Medium in contracts	High for regulatory purposes High for investment decisions High in contracts
Cost of using the alternative for supervisors	High- supervisors have to approve internal approaches	Low	Low	Low	Low	Low
Cost of using the alternative for market participants	High for investors/ lenders (although there are some less costly options such as vendor solutions) Low for borrowers	Low for all market participants	Low for all market participants	Low for all market participants	Low for all market participants	High for issuer Low to medium for investor/ lender – ratings are freely available, but market participants have to obtain paid subscriptions in order to use

4 The US experience

In 2010, the Dodd Frank Act was passed, which requires all U.S. agencies to remove references to external credit ratings in their legislation. This section describes the U.S. experience of implementing the Dodd-Frank Act with the aim of drawing lessons for Europe.

4.1 The Dodd-Frank Act

4.1.1 The key provision of the Dodd Frank Act related to external credit ratings

In the US, the foundation legislation strengthening financial regulatory rules in the aftermath of the financial crisis is the Dodd-Frank Wall Street Reform and Consumer Protection Act⁷⁴, which was signed in July 2010. Section 939A of the Dodd-Frank Act was intended to reduce regulatory overreliance on external ratings. It instructed all Federal Government agencies to review all regulations that required the “*the use of an assessment of the creditworthiness of a security or money market instrument*” and to modify such regulations so as “*to remove any reference to or requirement of reliance on credit ratings (...)*”. The statutory date for action was one year after the date of enactment (i.e. July 21, 2011).

The regulation aims to reduce the influence of the three largest CRAs in determining which securities could and could not be bought (invested in) by prudentially regulated institutions. The main federal agencies that are affected by this mandate are the Fed, the OCC, the FDIC, the NCUA, the SEC, the CFTC, and the DOL.

Table 16 summarises the market segments for which these federal agencies have regulatory and/or supervisory responsibilities.

Table 16. Overview of federal supervision of key financial services sectors

Market segment	Responsible federal agency
Banks	The Federal Reserve Board (Fed), the Federal Deposit Insurance Corporation (FDIC) and the Office of the Comptroller of the Currency (OCC) collectively have responsibility for regulating and supervising the activities of the banking sector. National Credit Union Administration (NCUA) is also involved.
Investment firms, investment managers, broker-dealers, money market mutual funds	Securities and Exchange Commission (SEC) Commodities Futures Trading Commission (CFTC)
Occupational pensions	The Department of Labor (DOL)
Insurance / reinsurance	The insurance industry is regulated at a state rather than federal level, and so exempt from Article 939A of the Dodd-Frank Act. However, there is support for a reduction in reliance on CRAs, and state-level regulatory review is coordinated by the National Association of Insurance Commissioners (NAIC) ⁷⁵
Central counterparties	The Securities and Exchange Commission (SEC) and the Commodities Futures Trading Commission (CFTC)
Other	The Federal Housing Finance Agency

⁷⁴ Available at: <http://www.sec.gov/about/laws/wallstreetreform-cpa.pdf>

⁷⁵ Whilst the insurance industry is regulated at a state level in the US, NAIC provides coordination functions in terms of standard-setting and regulatory support

4.1.2 Regulatory developments prior to the enactment of the Dodd-Frank Act

Prior to the enactment of the Dodd Franck, most federal agencies were using CRA ratings in their investment rules and, to some extent, capital rules (although the reference to rating in capital rules -typically the largest set of regulation for the banking regulation - were not as embedded in US regulation as in Europe).

Beginning with banks in 1936, and expanding since then, the major CRAs' ratings started being woven into government prudential regulation of US financial institutions. In 1936, federal bank regulators mandated that commercial banks—if they wanted to invest in bonds—could invest only in investment grade bonds; they could not invest in speculative (i.e., high-risk) bonds. The determination of what constituted "investment grade" was specified with reference to "recognised rating manuals" or in simple words, CRA ratings.

This decision by federal bank regulators is understandable. A central regulatory function of bank regulation is "prudential regulation": the regulatory effort to keep banks solvent. If a bank were to invest in bonds, the prudential regulator would want the bonds to be "safe". Apparently, the federal regulators believed that the major CRAs' ratings were reliable and could accurately distinguish between investment grade and speculative bonds. In this context, "outsourcing" this safety determination to the CRAs made sense and probably economized on the regulators' own resources, because these determinations wouldn't have to be made in-house by the regulators.

During the following decades, the state regulators of insurance companies also began to incorporate the major CRA ratings into their prudential regulation of their respective insurance companies. In 1975, the SEC revised its "net capital" rule for broker-dealers (i.e., securities firms); this was, essentially, prudential regulation of these firms. The capital levels that the SEC required broker-dealers to maintain were linked to the safety of the assets in the broker-dealers' portfolios as determined by CRAs' ratings: Higher-rated securities were considered to be safer and therefore required less capital.

Similarly, in 1991 the SEC mandated that bonds and other debt instrument that were held as assets by money market mutual funds (MMMFs) had to have a CRA rating of AAA/Aaa or AA+/Aa1. And the DOL, in its regulation of pension funds, has imposed similar suitability restrictions.

Thus, as a general matter, this regulatory reliance meant that prudential regulators were effectively relying on the CRAs' ratings for prudential regulatory purposes. This reliance provided an easy "tick-the-box" way for the banks to demonstrate that they were meeting this safety requirement and for the prudential regulators to ascertain that the banks were meeting the requirement. But this reliance also meant an assumption that the CRAs' judgments were generally correct.

With respect to securitisation, there were no direct regulatory requirements that involved ratings. However, getting high ratings was very important for the profitability of the issuers/packagegers in the securitisation process and regulation of many bond buyers (through capital requirements, and suitability) influenced the demand for the bonds and thus the issuers'/packagegers' profitability (see Box 2).

Box 2: The case of securitisation

The importance of the ratings for profitability of the issuers/packagegers in the securitization process prior to Dodd Franck is illustrated below

- a) The issuers'/packagegers' profit came from the difference between the price that they paid for the mortgages and the price that they received for the packaged bonds/securities that they sold. Other things being equal, higher rated bonds could be sold at a higher price.
- b) Because of lower regulatory capital requirements on higher-rated bonds, regulated bond buyers were willing to pay higher prices for higher-rated bonds.

c) Because of regulatory suitability requirements, higher ratings meant that more regulated entities would be eligible to buy.

d) Because of internal guidelines as well as marketing/promotional positioning for some institutions, such as bond mutual funds ("We invest only in AAA bonds!"), higher rated bonds would be more attractive to some institutions that were not regulated with respect to their capital or with respect to suitability.

Accordingly, ratings were at "the center of the world" for the securitization process, even though there were no regulatory requirements that directly involved ratings for securitization.

4.1.3 Implications of the Dodd Frank Act

In an important sense, the Dodd-Frank requirement that the prudential regulators move away from the mandated uses of ratings for the determination of suitability is relatively easy. For instance, banks make a wide variety of loans that do not involve CRAs' ratings. These categories include: residential mortgage loans, credit card loans, loans to small and medium-sized business, etc. Instead of relying on the "external" CRA ratings (which don't exist) for judgments about the suitability of these kinds of loans, the banks typically collect information about the borrower and make internal assessments as to whether to grant the loan: i.e., whether the loan is "suitable" for the bank. The information that is used may be generated internally or a bank may make use of information about the borrower that has been obtained from third parties (e.g., credit scores). And prudential regulation in this context involves an examination of the bank's "rulebook" for the origination of these kinds of loans and some sampling of actual loans that have been made to check whether they do indeed conform to the rulebook.

Prudential regulatory scrutiny is necessary, of course, because the bank might be inclined to have a riskier standard for "suitability", since (under a legal system of limited liability for the owners of a corporation) the bank's owners get all of the "upside" from risk-taking, whereas they are limited (because of limited liability) in their exposure to the downside consequences. The bank prudential regulator's standard for suitability should be taking into account the full downside consequences, including any systemic effects.

In this context, the effort to move away from regulatory reliance for the purposes of determining the suitability of bonds for a bank's portfolio is not all that radical. In essence, it is asking the banks to do for bonds what they have already been doing for other (unrated) loans that they make: Use their internal data gathering and assessment processes – perhaps supplemented by some externally supplied information (for bonds, this could be CRAs' ratings) – to make their suitability decisions with respect to the bonds that they choose to hold in their portfolios. And prudential regulation similarly should involve checking the "rulebook" that the bank develops for the suitability of bonds and sampling some bonds to determine whether they conform to the rulebook. In addition, the prudential regulator should be asking the bank to justify its choice of external supplier of information.

The "leap" may be a bit greater for MMMFs, which have tended to invest only in short-term rated debt securities. But, in principle, the senior management of any MMMF should have been using the CRA ratings of a debt security only as an input into the decision as to whether any specific debt security was suitable for that MMMF. Under the new regime, the primary focus for senior management will have to be on suitability (not "tick the box"); and, again, external ratings can be an input into that decision.

The same kind of leap may be present for securities firms and other kinds of regulated institutions (e.g., by the CFTC or the SEC), where issues such as suitable collateral for

transactions were previously being specified in terms of the CRAs' ratings and now will have to be specified in terms of more nuanced assessments. But, again, the CRAs' ratings can continue to be an input into that suitability assessment; but, also again, the primary focus for senior management decisions (and for regulators' assessments of those decisions) will have to be on suitability and not on "tick the box".

Since regulators (and their regulated institutions) had been using ratings for decades prior to the Dodd-Frank mandate to cease the tick-the-box reliance on ratings, there is likely to be a transition period – which could extend for years, since long-standing "culture" will have to be modified – during which the institutions and the regulators will have to figure out how to ascertain suitability in a way that is more nuanced than just "tick-the-box". During this transition period there will surely be various suggestions for the kinds of inputs – internal and external – that should enter the suitability decision. Among the external sources of information, in addition to external ratings, can be credit spreads, reports by debt analysts (e.g., who are employed at securities firms), etc. There may well be a "trial-and-error" process whereby various ideas for ascertaining suitability are suggested – and some succeed, while others fall by the wayside.

The important thing is that a prudentially regulated financial institution should have a reasoned basis for its suitability decision process, including its choice of the kind of information that is used as an input into that decision process and its choice of the specific source for that information; and the prudential regulator should have a reasoned basis for its oversight of those decisions and choices.

In principle, the same considerations apply to the issue of the use of ratings for the determination of banks' capital requirements. In an important sense, capital requirements are just a more nuanced version of suitability. A suitability requirement establishes a lower bound on what is appropriate for a bank to hold. But, above this lower bound, there can be gradations in the riskiness of "suitable" assets that capital requirements should be taking into account.

If prudential regulatory capital requirements for banks are to steer clear of any mandated use of ratings, then there are two possible tracks that could be followed: a) The regulator develops for all banks a "standardized" model of assets and their riskiness (including the cross-correlations of risk across assets) and specifies the appropriate capital levels that accompany those assets (again, including their cross-correlations); information that would be used to ascertain riskiness could include external ratings; or b) In addition to the standardized model, larger, more sophisticated banks might be able to provide their own models – subject, of course, to regulatory scrutiny.

Again, a crucial concept is that the bank has to have a reasoned basis for its determination of its capital requirements; and the regulator has to have a reasoned basis for its review of those capital levels. And, also again, because of limited liability, the bank's owners will tend to favor skimpier capital levels than should a prudential regulator that is taking into account the full consequences of adverse outcomes for a bank.

And, finally, just as will be true for the transition to suitability standards that are not mandated by ratings, the transition to capital requirements that do not involve regulatory reliance on ratings will involve changes in culture and will require time; and a "trial-and-error" process is likely to be involved.

However, an extra complication is that the BCBS wants to continue its use of ratings in the determination of banks' capital requirements for the prospective "Basel III" prudential regulatory framework. And U.S. prudential regulators are supposed to be in conformance with the BCBS – but also in conformance with the Dodd-Frank mandate to eliminate regulatory reliance on ratings (see also section Table 6).

4.2 Implementation of Article 939A of the Dodd-Frank Act

Study findings confirm that by end 2015, the federal agencies have largely met the Dodd-Frank obligation to remove regulatory the implementation of Article 939A of the Dodd-Frank Act. The timing initially foreseen by the Dodd-Frank Act, extremely ambitious, was not respected, rulemaking deadlines have often been met with delays (after 2011), but after five years spam, most rules have now been finalised.

The latest changes relate to the SEC's recent elimination of references to NRSROs in the regulation of money market mutual funds (MMMFs). This was considered as one of the major areas where a federal government regulatory agency was "dragging its feet".

The U.S. Department of Labor (DOL), as the regulator of pension funds, now remains as the sole large federal area where such references have not been withdrawn. The rule remains in the proposal stage since 2013.

Table 6 presents an overview of the implementation of Article 939A of the Dodd-Frank Act. A complementary annex goes into the details of each identified rule

Table 17. Summary of federal regulatory changes implementing Article 939A of the Dodd-Frank Act

Regulation by	Related piece of legislation	Final rule	Proposed rule	Summary
The Office of the Comptroller of the Currency (OCC)	Alternatives to the Use of External Credit Ratings in the Regulations of the OCC, Final rule, Federal Register / Vol. 77, No. 114 (June 13, 2012)	✓		<ul style="list-style-type: none"> • Banks need to make their own assessments of a security's creditworthiness • Guidance note published to assist the banks in their due diligence process • The risk is to be determined by the credit quality, the complexity of the structure and the size of the investment
Securities and Exchange Commission (SEC)	Security Ratings Release No. 33-9245; 34-64975; File No. S7-18-08 (September 2, 2011)	✓		<ul style="list-style-type: none"> • Replace security ratings with alternative requirements for securities offering or issuer disclosure rules • Forms S-3 and F-3 will no longer refer to security ratings by an NRSRO
Securities and Exchange Commission (SEC)	Removal of certain references to credit ratings under the Securities Exchange Act Of 1934. Release No. 34-71194 (Jan. 8, 2014)	✓		<ul style="list-style-type: none"> • Relates to the minimum regulatory capital requirements applicable to broker-dealers • The eligibility of asset classes for haircuts are no longer based on credit ratings • Non-exhaustive and non-mutually exclusive list of alternatives: <ul style="list-style-type: none"> - Credit spreads - Securities-related research - Internal or external credit risk assessments - Default statistics - Inclusion on an index

Regulation by	Related piece of legislation	Final rule	Proposed rule	Summary
				<ul style="list-style-type: none"> - Priorities and enhancements - Price, yield, and/or volume - Asset class-specific factors
Securities and Exchange Commission (SEC)	Removal of Certain References to Credit Ratings Under the Investment Company Act Release Nos. 33-9506; IC-30847 (February 7, 2014)	✓		<ul style="list-style-type: none"> • Replaces reference to required NRSRO credit ratings in rule 5b-3 for certain held by funds as collateral for repurchase agreements with an alternative standard that is designed to retain a similar degree of credit quality • Eliminates the use of NRSRO in Forms N-1A, N-2, and N-3 • Adopts a credit quality standard
Securities and Exchange Commission (SEC)	Removal of Certain References to Credit Ratings and Amendment to the Issuer Diversification Requirement in the Money Market Fund Rule. Release No. IC-31828 (Sept. 16, 2015)	✓		<ul style="list-style-type: none"> • Addressed to Money Market Fund • Provisions which would remove references to credit ratings and establish the eligibility of a security as one that has been determined to have minimal risk • Any money market fund which invests in securities subject to a guarantee will carry a 10% diversification requirement on the part of the guarantor as well as a 5% diversification requirement for the issuer.

Regulation by	Related piece of legislation	Final rule	Proposed rule	Summary
The Commodity Futures Trading Commission (CFTC)	<p>Investment of Customer Funds and Funds Held in an Account for Foreign Futures and Foreign Options Transactions, 76 FR 78776 (Dec. 19, 2011)</p> <p>Removing any reference to or reliance on Credit Ratings in Commission Regulations; Proposing alternatives to the use of credit ratings, 76 FR 44262 (July 25, 2011)</p>	<p>✓</p> <p>✓</p>		<ul style="list-style-type: none"> • Changes to the list of permitted investments • Clarification of the liquidity requirement • Removal of rating requirements • Expansion of concentration limits including asset-based, issuer-based, and counterparty concentration restrictions • Federal agencies should establish “uniform standards of credit worthiness” for use by the respective agencies
The National Credit Union Administration (NCUA)	<p>Alternatives to the Use of Credit Ratings, 77 FR 74103 (Dec. 13, 2012)</p>	<p>✓</p>		<ul style="list-style-type: none"> • Implements alternatives and appropriate standards of determining credit worthiness • Credit institutions should conduct and document internal and external credit analyses to determine that an issuer of financial instruments holds a certain capacity to meet its financial requirements • Credit union may consider any of the following factors: credit spreads, securities related research, default statistics, inclusion of an index, priorities and enhancements, price, yield, and volume, as well as asset class-specific factors
The Federal Housing Finance Agency (FHFA)	<p>Removal of References to Credit Ratings in Certain Regulations Governing the Federal Home Loan Banks, 78 FR 30784 (May 23, 2013)</p>		<p>✓</p>	<ul style="list-style-type: none"> • Removes a number of references and requirements affecting the Federal Home Loan Banks and adopts new provisions that require Banks to apply internal analytic standards and criteria to determine creditworthiness of a security or obligation • Removes references and requirement related to credit rating agencies contained in the capital

Regulation by	Related piece of legislation	Final rule	Proposed rule	Summary
				<p>regulations applicable to the Banks</p> <ul style="list-style-type: none"> • Banks determine that a security has a level of credit risk that is equivalent to or less than that of outstanding consolidated obligations before the security can be used to fulfil the negative pledge requirement • Use of credit standards collectively developed by the Banks in consultation with the Office of Finance. • Requires Bank to maintain a rating of at least the second highest from an NRSRO
<p>Office of the Comptroller of the Currency (OCC) and Board of Governors of the Federal Reserve System (FED)</p>	<p>Regulatory Capital Rules: Regulatory Capital, Implementation of Basel III, Capital Adequacy, Transition Provisions, Prompt Corrective Action, Standardized Approach for Riskweighted Assets, Market Discipline and Disclosure Requirements, Advanced Approaches Risk-Based Capital Rule, and Market Risk Capital Rule. Final Rule. Federal Register / Vol. 78, No. 198 (October 11, 2013)</p>	<p>✓</p>		<ul style="list-style-type: none"> • Revise their risk-based and leverage capital requirements for banking organizations • Country Risk Classifications (CRC) as a basis for new risk-based capital requirements, instead of sovereign ratings • Zero percent risk weight to exposures for certain Supranational Entities and Multilateral Development Banks • The percentage risk weight for different financial asset was determined • Alternatives to credit rating were considered for corporates but seen as having significant drawbacks, such as operational complexity, or insufficient development

Regulation by	Related piece of legislation	Final rule	Proposed rule	Summary
The Federal Deposit Insurance Corporation (FDIC)	Permissible Investments for Federal and State Savings Associations: Corporate Debt Securities Federal Register /Vol. 77, No. 142 (July 24, 2012)	✓		<ul style="list-style-type: none"> Prohibits insured savings associations from acquiring or retaining a corporate debt security unless the issuer has adequate capacity to meet all financial commitments Federal and state savings associations are allowed to invest only in corporate debt securities that meet creditworthiness standards established by the FDIC External credit assessment must be supplemented with due diligence processes and analyses
The Federal Deposit Insurance Corporation (FDIC)	Regulatory Capital Rules: Regulatory Capital, Implementation of Basel III, Capital Adequacy, Transition Provisions, Prompt Corrective Action, Standardized Approach for Risk-weighted Assets, Market Discipline and Disclosure Requirements, Advanced Approaches Risk-Based Capital Rule, and Market Risk Capital Rule, FIL-18-2014 (April 25, 2014)	✓		<ul style="list-style-type: none"> Relates to the risk-based and leverage capital requirements for FDIC-supervised institutions Changes are technical revisions designed to ensure that the rule conforms to the final rules issued by the FED and the OCC
The Department of Labor (DOL)	Proposed Amendments to Class Prohibited Transaction Exemptions to Remove Credit Ratings Pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act, 78 FR 37572 (June 21, 2013)		✓	<ul style="list-style-type: none"> Requires the Department to remove any references to or requirements of reliance on credit ratings and use appropriate alternatives to determine creditworthiness Affects the employee benefit plans including participants and beneficiaries, fiduciaries, financial institutions that engage in transactions with, or provide services or products to, the plans Numerous factors should be considered when conducting when assessing the creditworthiness

Regulation by	Related piece of legislation	Final rule	Proposed rule	Summary
				of a financial instruments or establishments <ul style="list-style-type: none"> • Alternatives to consider follow the recommendations of the SEC
National Association of Insurance Commissioners (NAIC)#				<ul style="list-style-type: none"> • Established a Rating Agency Working Group evaluate state-level regulatory use of the credit ratings⁷⁶. • NAIC reports that it has eliminated a reliance on credit ratings provided by rating agencies for residential and commercial mortgage-backed securities but still continues to rely on rating agencies for other asset classes. (see box The case of the insurance sector in the US)

Source: list compiled by ICF

Note # not a federal agency but provides national coordination of state-level insurance regulation

⁷⁶ http://www.naic.org/cipr_topics/topic_rating_agencies.htm

4.3 Analysis of the proposed alternatives in the US context

The table below summarises the formulations and alternatives which have been adopted by the federal agencies to actually remove the regulatory references to external ratings.

Table 18. Overview of alternatives

Alternative proposed	Description	Comments
Vague formulation, including vague formulations referring to the situation existing prior the removal of references to external credit ratings	<ul style="list-style-type: none"> • “use of appropriate alternatives to determine creditworthiness” • investing only in “a security determined to have minimal risk” • use of “an alternative standard that is designed to retain a similar degree of credit quality” • need to have a reasonable belief that it would have been eligible according to the rules in existence prior to the new rules 	Quite subjective
Reference to a benchmark	<ul style="list-style-type: none"> • a security which has a “level of credit risk that is equivalent to or less than that of outstanding consolidated obligations” 	Quite subjective
Promotion of internal analyses and guidance on how to conduct sound internal assessment processes	<ul style="list-style-type: none"> • Example of list of factors to consider: <ul style="list-style-type: none"> - Credit spreads - Securities-related research - Internal or external credit risk assessments - Default statistics - Inclusion on an index - Priorities and enhancements - Price, yield, and/or volume - Asset class-specific factors • Guidance available in documentation, publications, articles, videos produced by the federal agencies 	Refresher of due diligence best practices, capacity building
OECD Country Risk Classifications (CRC)	for new risk-based capital requirements (US implementation of Basel III) Instead of sovereign ratings, for non-US sovereigns	Lack of frequent update Limited coverage
A 100 percent risk weight for all	for new risk-based capital requirements (US implementation of Basel III) For corporate exposure	May overstate the credit risk associated with some high-quality bonds. No risk sensitivity.
US Simplified Supervisory Formula Approach (US SSFA)	for new risk-based capital requirements (US implementation of Basel III)	Not compliant with Basel III

	For securitisation exposure, use of standardised risk weights and actual delinquency rates of the underlying asset pool.	
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- Note: for example of outreach and guidance documents, see for instance the material produced by the FDIC :
- Video on Evaluation of Municipal Securities:
<https://www.fdic.gov/regulations/resources/director/technical/municipal.html>
- Supervisory Insights Journal Article on credit risk analysis and Chapter on Investment Securities in Examination manual:
<https://www.fdic.gov/regulations/capital/investments/resources.html>
- FDIC Guidance from 2009 on risk management of structured credit products:
<https://www.fdic.gov/news/news/financial/2009/fil09020.html>
- 1998 Interagency Guidance on Securities and End-User Derivatives:
<https://www.fdic.gov/news/news/financial/1998/fil9845.html>

4.4 The US approach and the international standards

Following the Dodd Franck Act, new rules issued do not promote sole and mechanistic reliance, even when implementing international standards that do heavily refer to ratings. For example, an OCC, FED and FDIC regulation, namely Liquidity Coverage Ratio: Liquidity Risk Measurement Standards Federal Register Vol. 79, No. 197 (October 10, 2014), implements a quantitative liquidity requirement consistent with the liquidity coverage ratio standard established by the BCBS, but without references to ratings as a standard of creditworthiness, or a standard to distinguish high-quality liquid assets.

Although U.S. regulators have made efforts to demonstrate that their non-ratings-based approach to capital requirements is the rough equivalent of the ratings-based Basel III framework, it is far from clear as to how this conflict will eventually be worked out.

The Basel III regulatory consistency assessment for the US⁷⁷ indicates that there is some data, albeit limited, suggesting that on average the US alternatives produce higher risk weights - and therefore higher capital requirements - than the Basel ratings-based approaches. In one area however, namely securitisation, the US agencies have been judged as materially non-compliant with the Basel framework.

4.5 Remaining regulatory references to ratings in the US

The DOL is the federal agency which is not in conformity with Article 939A of the Dodd-Frank Act by end 2015. Beyond that, there remains some scattered references to ratings in some remaining federal bank and securities regulations but they merely specify that ratings can be one potential source of information amongst others and mention there should not be any sole and mechanistic reliance.

More worryingly, references to ratings remain within State level rules, which were not covered by the Dodd Franck Act and which govern several important areas such as investment by public funds as well as state banking regulations,

⁷⁷ Available at: http://www.bis.org/bcbs/implementation/l2_us.pdf

as listed under the recent ESMA technical advice report⁷⁸. The insurance sector is another example regulated by state rules where references to ratings remain. Plans which were initiated to reduce overreliance on credit ratings in the insurance sector have only been partially implemented (see Box 2).

Box 3: The case of the insurance sector in the US

Insurance in the United States historically has been and currently is regulated at the state level. There can be an element of federal regulation (because some agencies like the SEC promulgate rules for certain financial transactions no matter what kind of institution engages in it and because of the potential systemic risks), but it remains so far tangential. State regulators coordinate through the National Association of Insurance Commissioners (NAIC), a voluntary not for profit association of the insurance commissioners of the 50 states, the District of Columbia, and the U.S. territories.

The situation of the insurance sector in the US is fairly unique as for decades, there has been functioning public entity emitting credit rating for the sector. The Securities Valuation Office (SVO), an organization within the NAIC created in 1907, has been charged with assessing the credit risk of insurance company investments. The SVO maintains its own ratings called designations. The SVO is remunerated via a fee charged to the insurance companies on their issuances. Insurance companies have to use the designation in reporting back to regulators.

Little by little over the last decades however, regulators opted for underusing the existing rating capability the NAIC had and increased reliance on credit ratings. This is notably illustrated in the 2004 "filing exempt" rule (FE Rule), authorising, for certain securities, the mechanic conversion of a CRA rating (produced by a recognised agency called NRSRO in the US) into a SVO designation.

The main types of assets which are rated by the SVO nowadays are those which are not rated by external credit agencies (unrated corporate bonds, unrated municipal/ state debt).

Following the crisis, regulators re-broadened the mandate NAIC to move away from ratings as far as structured financed securities are concerned. In 2009, the NAIC initiated its Structured Securities Project, which aimed at developing a new methodology to determine RBC requirements for the residential (RMBS) and commercial (CMBS) mortgage-backed securities held by insurers. The chosen approach to implement this project is an "outsource and oversight model", whereby vendor which provides the assessment from which designations are derived, with the NAIC in charge of the quality assurance and oversight.

Insurance regulators thus continue to rely on rating agencies for many asset classes (except for those unrated securities by the SVO, and RMBS and CMBS)

More ambitious calls for reforms made in the aftermath of crisis to reinforce the capacities of the SVO/ expand its mandate or transform it into an NAIC-run / state regulated rating entity (which would have applied for the NRSRO recognition) were later abandoned.

Additionally, in the insurance sector, several pieces of legislation still drive the

⁷⁸ ESMA. 2015. Technical Advice on reducing sole and mechanistic reliance on external credit ratings. Available at: https://www.esma.europa.eu/system/files/esma-2015-1471_technical_advice_on_reducing_sole_and_mechanistic_reliance_on_external_credit_ratings.pdf

use of external ratings, including:

- State investment laws that impose limits on types of assets investors can invest in and define investment grade securities in terms of external ratings
- NAIC and state capital requirements which foresee higher capital charges on lower rated assets.
- Credit for reinsurance laws which indicate that for lower rated, more collateral is required.

4.6 Changes in market practices and impact of the Dodd Frank Act

US interviewees were generally of the opinion that the regulatory changes made following the Dodd Frank Act had limited impact on the market participants. It was not its primary objective either.

Similar to the picture painted in the EU, it was claimed that many market participants were already doing their own assessment even prior to the regulatory changes and that they were making a sensible use of ratings.

Some interviewees however recognised that Dodd Frank act was a wake-up call for some players who, despite being already supposed to make their own due diligence, were not meeting their obligations prior to the crisis.

Another finding is that the impact of the regulatory changes are different depending on the size of the financial institutions. Schematically, the impacts are as follows:

- W.r.t. to their investment portfolio, smaller banks have an incentive to shift to safe assets – treasury bonds or local securities which are backed by a guarantor.
- Intermediate players opt for outsource their credit risk assessment to specialist firms.
- Larger banks do their own analysis and pay additional efforts to documenting their processes, with most of the changes made in the securitisation business.

In terms of contractual references to ratings, this was not an area which was targeted by Dodd Frank and not an area over which regulators can have control, according to the message conveyed by interviewees. Some interviewees acknowledged these references could potentially lead to liquidity problems, while others did not find supportive evidence for risks of cliff effects and herding behaviours. It is recognised that contractual references to ratings are used e.g. by asset owners to define the investment universe or in reinsurance contracts saying e.g. that if the reinsurer is downgraded below a certain level, there is a need for full collateralisation. Quoted mitigating factors were similar to ones in the EU (see section 3).

Generally the feeling in the US is the same than in the EU: building up internal credit risk assessment processes is the natural alternative to reliance on credit ratings and beyond that, there are not many alternatives. This relative lack of alternatives is said to lead, to some extent, to a switch in regulatory focus, from looking for alternatives to reforming the NRSRO market.

5 Main findings and conclusions

The scale and scope of application of external credit ratings

External credit ratings (mainly CRA ratings) are used extensively by market participants for a range of purposes, most notably:

- Investment and risk management
 - Making investment and lending decisions;
 - Assessing and monitoring credit /counterparty risk;
 - Signalling creditworthiness (bond issuers, borrowers);
 - Determining collateral eligibility, haircuts and margins (Central Banks and CCPs);
 - Communicating and reporting of risk;
- Regulatory purposes (e.g. determining capital requirements, monitoring systemic risk);
- Contractual purposes (see the section below on contractual references to external ratings).

The use of external credit ratings for investment and risk management

External credit ratings – by providing independent, objective and comparable assessment of credit/ counterparty risk – play an important role in reducing information asymmetries between borrowers and lenders/ investors, but they are rarely used in isolation by market participants when making investment or lending decisions. The weight placed on external ratings depends on the sector, size and sophistication of the market participant and the types of products that they invest in.

Sector

External ratings do not play an important role in credit institutions' lending business as many of their clients are not externally rated. External ratings however, are used to varying degrees in their investment or security deposit businesses.

In the insurance sector - where credit risk assessment is not the core purpose of these undertakings - the use of external ratings is relatively common as it is not considered feasible for insurance/ reinsurance undertakings (except perhaps for the larger ones) to invest in internal credit risk analysis.

Similarly, the use of external ratings is quite common within the asset management sector – particularly among smaller players and those investing in 'plain vanilla' products.

CCPs tend to conduct their own internal analysis to determine counterparty creditworthiness and collateral eligibility. External ratings are used by them for comparison and quality assurance.

Size

Larger financial market participants typically conduct their own internal credit risk assessment, using external ratings as an input into or as a reference point for complementing/ cross-checking their own analysis; whereas smaller, less sophisticated players tend to rely more heavily on external credit ratings due to lack of resources and expertise to invest in internal approaches.

Asset class

The use of external ratings is typically more prevalent in the case of sovereign bonds and structured finance products (although for latter, reliance on external ratings has reduced since the financial crisis).

Regulatory and contractual references to external ratings

References to external credit ratings continue to be embedded in a number of regulatory and contractual provisions throughout the financial system:

- References to external ratings still remain within key EU sectoral legislation, namely CRR/ CRD IV (banking sector) and the forthcoming Solvency II Directive (insurance/ re-insurance sector), although measures have been introduced to reduce sole and mechanistic reliance on ratings.
- Outside of EU legislation, references to external ratings can be found in:
 - The Eurosystem Credit Assessment Framework and the collateral assessment framework of several national central banks;
 - Private contracts such as such as investment guidelines and mandates, bond documentation, prospectuses, collateral agreements, credit agreements and loan covenants.

The extent to which the use of external ratings is driven by regulatory references or market practices varies by sector. For example:

- For banks and insurers, the main drivers for using external are to comply with regulatory requirements (most notably, capital requirement calculations) and for accessing finance from capital markets;
- Within the asset management sector, the use of external ratings is driven by market practice and contractual references as investors/ asset owners prefer the common language function of external ratings.

Alternatives to external credit ratings

There exist a wide range of alternative approaches and measures to CRA ratings:

- Internal measures and ratings (purely model based or incorporating human judgement);
- Market implied ratings;
- Accountancy-based measures;
- Third party assessments conducted by non-commercial entities such as the OECD and Central Banks as an alternative to CRA ratings.

The table below summarises the main findings of this study with respect to the current scale and scope of application of each of these alternatives. It also provides a high level assessment of the feasibility of using a particular alternative as a substitute for CRA ratings.

Table 19. Mapping and feasibility assessment of alternatives

Alternative	Current scale and scope of application	Feasibility of replacing CRA ratings with the alternative
Internal measures and ratings	<ul style="list-style-type: none"> • Widely used by market participants (particularly in the banking sector) in assessing credit risk of counterparties and 	High, although following issues need to be taken into consideration <ul style="list-style-type: none"> • Costs – costs may not be justified for small investors

Alternative	Current scale and scope of application	Feasibility of replacing CRA ratings with the alternative
	<p>securities</p> <ul style="list-style-type: none"> • Can be applied to all asset classes • CRR/ CRD IV and Solvency II allow the use of internal rating based approaches • Internal ratings and measures are also already being used in financial contracts, albeit to a limited extent 	<p>or those investing in plain vanilla products</p> <ul style="list-style-type: none"> • Regulatory barriers – banking and insurance regulation disincentivises participants from using internal measures and ratings for regulatory purposes • Market practices – investors’ preferences for using external ratings in financial contracts
Market implied ratings	<ul style="list-style-type: none"> • Limited application- essentially used as an early warning signal / monitoring tool by market participants. • The study did not find any examples of application in financial contracts • Not very suitable for regulatory purposes such as determining capital requirements <p>Application is also limited to certain instruments – liquid bonds and securities</p>	<p>These are complementary measures</p> <p>Market based measures are not seen as substitutes to external credit ratings, for various reasons including reflection of information beyond credit risks, pro-cyclicality, risk of moral hazard, short term nature, volatility, limited coverage and need to consider other types of information. Rolling averages are not considered as a way to mitigate all those downsides</p>
Accountancy-based measures	<ul style="list-style-type: none"> • Are already being used as an input – particularly by banks – in assessing credit/ counterparty risk • Application limited to corporate debt and sub-sovereign entities • There are examples of use of accountancy based measures in financial contracts (instead of CRA ratings) 	<p>These can be used as supplementary information for investment and risk management purposes as new corporate issuers may not have historical data to enable informed decisions</p> <p>Can be used as alternatives to CRA ratings in financial contracts</p> <p>Not very suitable for regulatory purposes</p>
OECD country risk classification	<ul style="list-style-type: none"> • Application is limited to sovereign debt • Even so, current usage is very limited 	<p>Can be used as a complementary source of information for sovereign debt, rather than an alternative as it does not measure default risk</p>
Central Credit Registers	<ul style="list-style-type: none"> • Application limited to 	<p>This is considered as viable alternative if market participants can</p>

Alternative	Current scale and scope of application	Feasibility of replacing CRA ratings with the alternative
	corporate debt <ul style="list-style-type: none">• Very limited use as these exist in only a handful of Member States	be provided access Having a European version of those systems is planned for end 2017

The overriding conclusion of this study is that there are a range of alternatives that are currently being used by market participants, either as complementary tools or as substitutes for CRA ratings. The range of available approaches means that CRA ratings need not be the default choice of regulators or market participants. Each approach –including CRA ratings – has certain strengths and weaknesses in specific contexts and applications. Both, regulators and market participants should therefore, be encouraged to adopt the most suitable tool or combination of tools based on a consideration of their needs and circumstances, as well as the relative strengths and weaknesses of available approaches.

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