EIOPA IRSG – Strategic Sub-Group Infrastructure as a Long Term Investment

28 April 2015

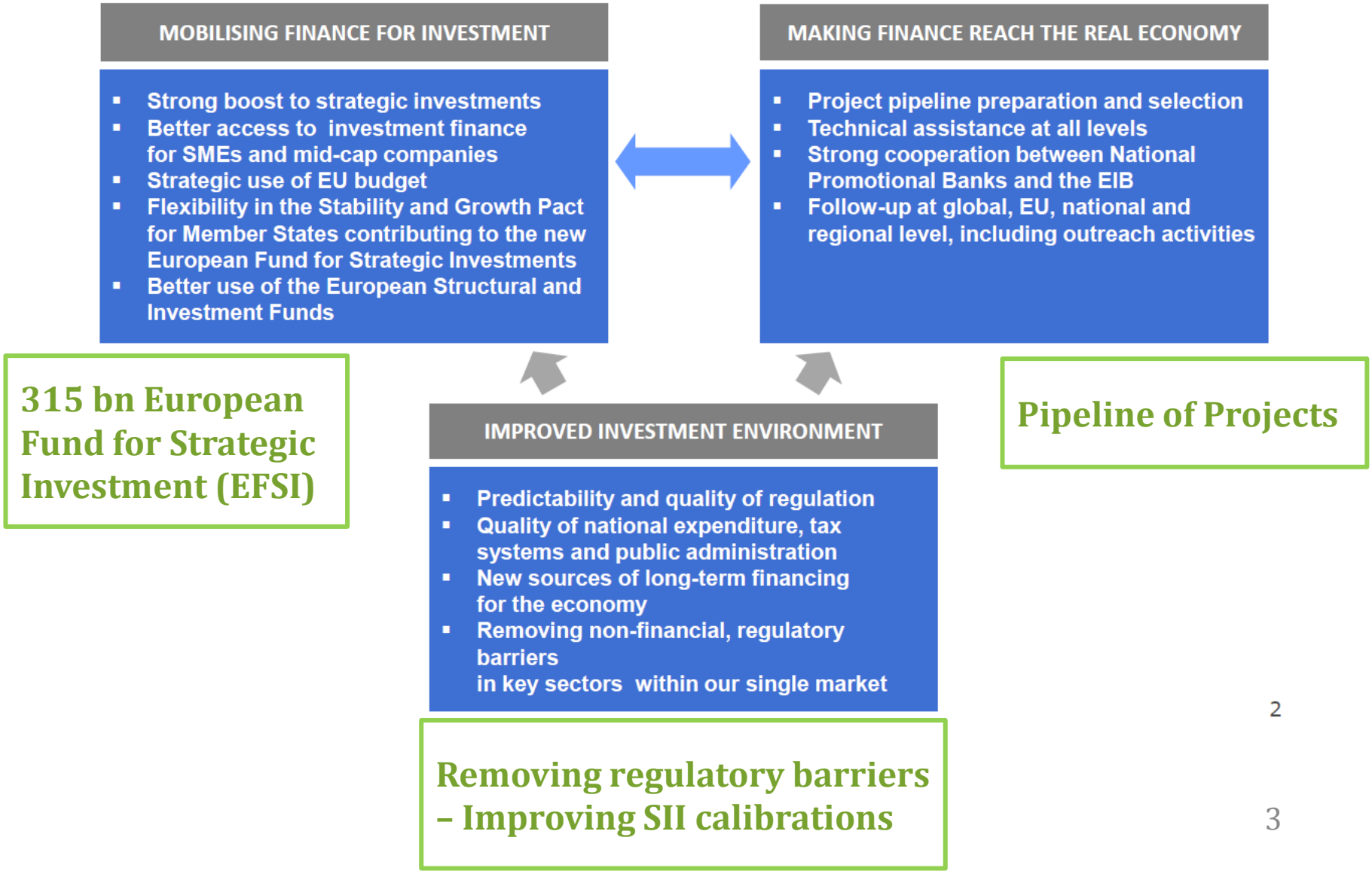
Frankfurt

Proposed Agenda

- Background information - Juncker Plan and background on infrastructure
- Summary of 27 Feb Roundtable on infrastructure investments by insurers
- Key issues - definition and calibration
- Key elements of IRSG response to EIOPA discussion paper

The "Juncker" Investment Plan

Key elements for insurers



Why infrastructure investment is so important

- Benefits for European Economy
  - Fills huge funding gap for much needed infrastructure
  - Rapid way to create jobs and growth locally
  - Leads to further growth
- Benefits to policyholders
  - Attractive diversified returns - especially attractive now given low interest rates
- Benefits to insurers
  - Provides long-term assets to match long-term liabilities
  - Attractive diversified returns - especially attractive now given low interest rates

- Insurers are largest institutional investors with Euro 8.5 trillion assets

- Currently less than 1% invested in infrastructure but growing and interest is very high among many insurers

- Insurers are one of the few investors who are both willing and able to invest in such long-term illiquid assets

Ways to Invest

- Debt
  - Bonds – corporate bonds, project bonds (listed or unlisted, private placement)
  - Loans
- Equity
  - Listed (corporate equity, listed infrastructure funds)
  - Unlisted (private equity, unlisted equity funds)

Issuance Volumes – Europe, 2013

- €66 bn of which (vs €44bn in 2013):
  - €51 bn in loans (€32bn, 2013)
  - €15 bn in bonds (€12bn, 2013)

- Sector composition of projects financed by bonds globally:
  - Oil & Gas: 36%
  - Infrastructure (inc. Transportation): 36%
  - Power: 22%
  - Social Infrastructure: 3%
  - Petrochemicals: 3%

- European Private Public Partnerships (PPP) transactions: €18.7 bn across 82 transactions

Source: PFI Thomson Reuters (Financial League Tables) and the European PPP Expertise Centre (EPEC)

Types of Infrastructure Projects

- Availability
  - Revenue is not subject to a material element of price or volume/traffic risk, provided the asset is available to contracted standards
  - Most projects would be rated A or BBB

- Economic/User-Pay
  - Contains revenue risk i.e. price and volume risks are a key consideration
  - More variability

Private vs Public Sector Projects

- Private Sector
  - Corporate Finance
    - Listed infrastructure debt, whole business securitisations
  - Project Finance
    - PPP/PFI Projects (availability-based)
    - Non PPP/PFI Projects (typically user-pay)
    - EU 2020 EIB Project Bond Cr Enhancement
  - Government guaranteed financing

- Public sector – government financing

Project finance risk characteristics

- Financial ratios
- Stress analysis
- Useful life of project
- Debt repayment profile
- Legal enforceability
- Regulatory environment
- Completion guarantees
- Operations and maintenance contract
- Offtake risk
- Nature of supply contract
- Strength of sponsor
- Security and covenant packages

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Call for Advice from Commission

- It is acknowledged by the Commission that institutional investors do play an important role in supporting the real economy. Although the Commission thinks that it have been done major steps to facilitate long-term investments by removing national restrictions on the composition of insurers' asset portfolios stakeholders are nevertheless calling for a more tailored regulatory treatment of infrastructure investments.
- The commission seeks advice on whether and how it would be appropriate to amend the Solvency II ***standard formula*** for the calculation of the SCRs regarding investments in infrastructure (**Risk Sensitive Refinement of the Standard Formula**). EIOPA has received a formal request for technical advice on the identification and calibration of infrastructure investment risk categories in the Delegated Act 2015/35 supplementing the Solvency II Directive 2009/138/EC (04. February 2015)
- Scope of Advice:
    1. clear and conclusive definition(s) of debt and equity infrastructure investment to allow for several categories "infrastructure risk".
    2. calibration for those new categories, in line with the 99.5% value-at-risk measure provided by the Solvency II Directive
    3. assessment of how the new categories could fit into the existing structures of the market risk module or counterparty risk module of the standard formula, whether new sub-modules should be created
    4. Identification of any obstacles in the Delegated Act which are not prudentially justified and needs remedies

Status Quo & Objectives

- Given the formal request for advice EIOPA hosted a roundtable on Infrastructure Investments by Insurers on 27 February 2015 in its premises Frankfurt, Westhafen Tower
- The objectives of the roundtable were twofold:
- develop a definition of infrastructure investments that offer predictable long-term cash-flows and whose risk can be properly identified, managed and monitored by investors.
- analyse the prudentially and sound treatment of the identified and defined investments with the standard formula of Solvency II.
- With regard to the definition of infrastructure investments criteria shall be explored for a specific class of high quality infrastructure assets, covering standardisation and transparency
- Participants have been representatives from public authorities, insurance industry, infrastructure industry, asset management and academia.
- Agenda Points:
    1. the market of infrastructure investments and the potential role of insurers
    2. definition of an infrastructure asset class
    3. risk management requirements, transparency and standardisation
    4. regulatory capital requirements for infrastructure investments

List of participants and agenda can be found @ https://eiopa.europa.eu/regulation-supervision/insurance/investment-in-infrastructure-projects

Course of Discussion – 27 Feb Roundtable

- The market of infrastructure investments and the potential role of insurers
  - presentations given by bank industry, insurance industry, asset management and academia as introduction
  - main product of infrastructure debt investments are loans not bonds because of the needed flexibility of funding on the project side
  - delivery method, e.g. format of financial instrument is key for investors
  - investors prefer buy & hold investments (maturities > 20 y)
  - open question whether insurers want / shall invest in construction phase (greenfield) also
  - infrastructure investments can take up to 15% of the asset allocation of an insurer: 10% debt and 5% equity
- Definition of an infrastructure asset class
  - key feature of infrastructure projects are contracted revenues leading to stable, predictable cash-flows
  - coming up with a precise definition seems to be difficult as the industry is focussing on not excluding projects which should be in the definition whereas the authorities are focussing on not including something what should not be in the definition
  - in relation to the definition of a high quality infrastructure investment any kind of EIB involvement seems to be a key element

Course of Discussion – 27 Feb Roundtable

- Risk management requirements, transparency and standardisation
  - individuality of financial instruments is key for projects, e.g. the smaller one
  - standardisation is only needed for documentation but not for risk profiles
  - active risk-management is key-element, i.e. risk shall be actively monitored and evaluated
  - risk awareness of AMSB – prepare management board for infrastructure investments
  - minimum expertise is crucial – real estate expertise could be levered
  - solvency II framework is sufficient to cover risk-management requirements for infrastructure investments
- Regulatory capital requirements for infrastructure investments
  - calibration of infrastructure investments needs to be compliant with Solvency II rules of the standard model
  - infrastructure investments are illiquid financial instruments, i.e. there are no sufficient data series of observed market prices. As a consequence market conform prices to estimate 99,5% VaR values with a time horizon of 1 year is not doable in the context of spread risk sub-module
  - standard model allows for calibrating risk within the counterparty risk sub-module for debt and with strategic participation for equity
  - urgent need to accept NSA approved internal ratings as well as external ratings for the purpose of pillar 1 SCR calculation

Next Steps – 27 Feb Roundtable

- Two further roundtables in May 2015 and July 2015 envisaged (with different participants)
- Minutes of first roundtable to be published on the website
- Public consultation in April 2015
- Submission of the technical advice to the Commission in summer 2015
- Second Roundtable 15 May 2015 to discuss preliminary ideas developed by EIOPA on the basis of the recently published discussion paper

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Current infrastructure calibrations are a barrier to greater investment

- Current calibrations of the SCR are very high:
  - Infrastructure equity – 57% (same as hedge funds – 49% + 8% symmetrical adjustment)
  - Infrastructure debt - 38% (for 25 year unrated corporate debt)

Even after allowing for diversification the impact on the required yield from infrastructure can be significant and therefore create disincentives for investment

- In addition to the explicit SCR, there will be a need for companies to hold additional implicit solvency capital buffers to cope with the volatility in Own Funds created because of the way Solvency II can require assets to be valued - using volatile market inputs, even if (as is often the case for infrastructure) the asset has no market price and will not be traded.

- This is especially important for very long-term debt such as infrastructure because the valuation approach will be particularly volatile for them. For example, the Solvency II valuation of an infrastructure bond with a 20 year duration could have changed by more than 50% during the crisis (because even AAA spreads increased temporarily by 250 basis points)

- Addressing the valuation issue is more difficult than improving the SCR calibrations, given the short time available but it makes improving the SCR calibrations even more important to reduce discentives for investment

EC call for advice to EIOPA

EC call for advice on identification + calibration of infrastructure in Solvency II (4 Feb 2015)

The call for advice noted that:

- Current SII calibrations do not account for the specific nature of infrastructure investments
- Should ensure that European legislation does not present unjustified obstacles to insurers

Scope of advice:

- Provide one or several definitions of debt and equity infrastructure investment
- Assess if appropriate infrastructure calibration could fit within existing structures of market risk (spread) module or counterparty default risk module of the SII standard formula or whether new sub-modules should be created
- Identify any (other) existing obstacles and suggest remedies

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Definition – Proposed approach

Key definition:
"Infrastructure" means a long term, capital intensive undertaking the purpose of which is to utilise certain assets, facilities, equipment, systems, networks or part thereof to provide services that are essential for the maintenance of societal functions, health, safety, security, economic or social well being of the population.

Recital wording could include, for example, the following sectors:

(a) water, electricity, gas, telecommunications, sewage, waste or other related services;
(b) energy or renewable equipment or facilities;
(c) roads (including bridges and tunnels), railways (including rolling stock) and railway facilities, ports, airports or other transportation facilities;
(d) health or medical equipment and facilities;
(e) education, employment or training facilities;
(f) courts, prisons or custodial facilities;
(g) defence equipment or facilities;
(h) sporting, recreational or social facilities;
(i) flood defences; and/or
(j) housing.

Definition – Proposed approach

Additional criteria to align with the project finance definition of CRR and to help ensure the refined solvency treatment is limited to suitable assets could be:

(a) the exposure is to an entity which was created specifically to finance or operate physical assets or is an economically comparable exposure

(b) the contractual arrangements give the lender a substantial degree of control over the assets and the income that they generate

(c) the primary source of repayment of the obligation is the income generated by the assets being financed, rather than the independent capacity of a broader commercial enterprise

(d) if the exposure has the form of equity, then the exposure is not listed;

(e) the initial maturity at issuance is 5 years or longer;

(f) if the exposure includes a construction phase, the construction risk is appropriately mitigated and passed through under one or more comprehensive engineering, procurement and construction (EPC) contract;

(g) the assets are located in a political reliable jurisdiction or there is sufficient protection to mitigate such risks

Definition – Proposed approach

Other criteria discussed in EIOPA paper should not be included because

- would be too restrictive
- too difficult to define
- duplicates pillar 2
- part of the credit assessment process rather than part of definition of infrastructure
- The "slotting" criteria mentioned in discussion paper as being used by banking apply to internal models, not the standard formula for banks, and are still under development/consideration by officials. The slotting categories and figures however are included in the CRR.

Standard formula – Proposed approach

- Unlisted Infrastructure Equity:
  - New sub-module which applies 22% calibration in line with that used already within SII for long-term equity and strategic equity investments
  - Correlation to reflect diversification

- Debt
  - Treated under counterparty risk module with appropriate calibrations to reflect taking into account risk of defaults and recoveries
  - This recognises that with infrastructure investments insurers are not exposed to spread volatility but rather default and recovery risks and is similar to risks when investing in mortgages
  - Lack of available actual price performance data

Moody's Infrastructure Data Studies

- Moody's has published studies on the credit performance of two distinct infrastructure-relevant data sets:

(1) A data set comprising $1.6 trillion of unrated project finance bank loans (report titled "Default and Recovery Rates for Project Finance Bank Loans, 1983-2013", March 2015), and

(2) A data set comprising $3.3 trillion of Moody's-rated infrastructure debt securities (report titled "Infrastructure Default and Recovery Rates, 1983-2014", March 2015)

- Moody's research in relation to unrated project finance bank loans demonstrates that certain characteristics of project finance bank debt are different from corporate bank debt - in particular, (i) default risk for project finance bank loans diminishes over time from financial close, which is not the case for corporate loans; and (ii) ultimate recovery rates for project finance loans average approximately 80% despite features such as high gearing and long tenor that are generally associated with higher risk corporate debt.

- Moody's research in relation to Moody's-rated infrastructure debt securities demonstrates that certain characteristics of infrastructure debt are different from debt raised by non-financial corporates - in particular, (i) the credit quality of corporate infrastructure credits has been more stable than that of general corporate debt; and (ii) on average, corporate infrastructure debts have exhibited higher post default recovery rates that those of general corporates. The consequence of these two factors are that 10-year credit loss rates for corporate infrastructure debt securities are materially lower than for like-rated non-financial corporates.

Appendix

- Current EU and Basel banking regulatory approach to "specialised lending exposures" in the CRR

- Potential sources of debt and equity data for calibration

EU Bank definition - prudential treatment of specialised lending exposures (SLE)

- **SLE Definition (CRR Article 147 § 8)**

a) the exposure is to an entity which was created specifically to finance or operate physical assets or is an economically comparable exposure

b) the contractual arrangements give the lender a substantial degree of control over the assets and the income that they generate

c) the primary source of repayment of the obligation is the income generated by the assets being financed, rather than the independent capacity of a broader commercial enterprise

- **Standardised Approach**
  - No specific treatment – the relevant corporate risk weight given under the Standardised Approach is used

EU Bank prudential treatment of specialised lending exposures

- **IRBF and IRBA**
  - Firms model the PDs (IRBF & IRBA) and LGDs (IRBA only) SLEs
  - These are inputs into the supervisory function that determines the risk weight for the corporate asset class
  - They are required to obtain supervisory approval for applying the IRB approaches first
  - Firms not able to estimate PDs or who do not meet supervisors' IRB requirements must use the following **slotting table** using factors listed in CRR Article 153 § 3, as a percentage of 8%:

Regulatory RWs for SLEs	Cat1 (strong)	Cat2 (good)	Cat3 (satis)	Cat4 (weak)
CRR, M<2.5 yrs remaining	50%	70%	115%	250%
CRR, M>2.5 yrs remaining **(& Basel)**	70%	90%	115%	250%

EU Bank prudential treatment of specialised lending exposures

- No slotting criteria have been agreed at the EU level, although in 2006 the Basel Committee published suggested criteria

- **Possible future changes to the SLE treatment:**

  - The EBA is reviewing the factors/criteria that firms need to apply when conducting the slotting process
  - The Basel Committee is reviewing the Standardised Approach – a specific risk weighting treatment for SLEs may be introduced
  - The Basel Committee may consider using the risk weights provided under the slotting table as a restriction (floor) to IRB approaches

Possible Sources of Data for Debt Calibration

- Counterparty Credit Default Module
  - Contains default and recovery data
  - Dataset compiled by Moody's or S&P on their rated loan/bond universe and/or
  - Broader dataset compiled by Moody's for 30-bank consortium, as part of Basel monitoring
- Credit Spread Module – MTM proxies
  - Lack of comprehensive loan or bond indices
  - Most loan/bond price performance indices are compiled under contract by specific investors and are not public
  - Markit iBoxx Utility Indices
  - Further research required on composition and availability

Possible Sources of Data for Debt Calibration

- Credit Spread Module – DSCR
  - LTIIA/EDHEC approach – analyse actual debt service coverage ratios for a universe of projects to project MTM performance of both debt and equity

Credit and Recovery Performance – Moody's Bank Loan Overall Study

- Cumulative Default Rate (CDR)
  - Consistent with BBB/Ba
  - 10 yr CDR 6.4%
  - 10 yr CDR 4.5% for infrastructure (mainly social and transportation)
  - 10 yr CDR 3.9% for PFI/PPP (availibility); consistent with 10 yr CDRs for Baa corporate issuers
  - Most projects would be rated A or BBB

Credit and Recovery Performance – Moody's Overall Study

- Marginal annual default rates
- Higher marginal default rates during the construction phase (1.2% to 1.6%pa in the initial 3 yr period) vs Baa 0.20% to 0.41% in the initial 3 yr period
- Towards levels consistent with A rating by yr 10
- 381 defaults analysed by project phase:
- Construction 51 defaults, average years to default 2.7
- 381 defaults analysed by project phase:
    - Construction 51 defaults, average years to default 2.7
    - Operations 330 defaults, average years to default 3.8
- PFI/PPP – borderline IG for the initial 5 yrs after financial close and post 5 yrs consistent with Baa corporate issuers

Moody's Bank Loan Study – Very High Recovery Rates

- Average recovery rate 80.3% (ultimate recovery);
- PFI/PPP average ultimate recovery 81.5%
- Project phase:
- Construction phase recovery 69%
- Operational phase recovery 82%
- Average years to emergence – construction 2.3 yr/operations 2.2 yrs
- Similar average recoveries in OECD (80.1%) vs non-OECD (80.9%)

Possible Sources of Data for Equity Calibration

Index	Start date	Companies
UBS Global Infrastructure & Utilities	1995, September	243
MSCI World Infrastructure	1998, December	153
NMX30 Infrastructure Global	1998, December	30
Macquarie Global Infrastructure	2000, July	243
INFRAX	2000, September	50
S&P Global Infrastructure	2001, November	75
Dow Jones Brookfield Global Infrastructure	2002, December	85

- Others?