



# Green bond: Mobilising bond markets for a low-carbon transition

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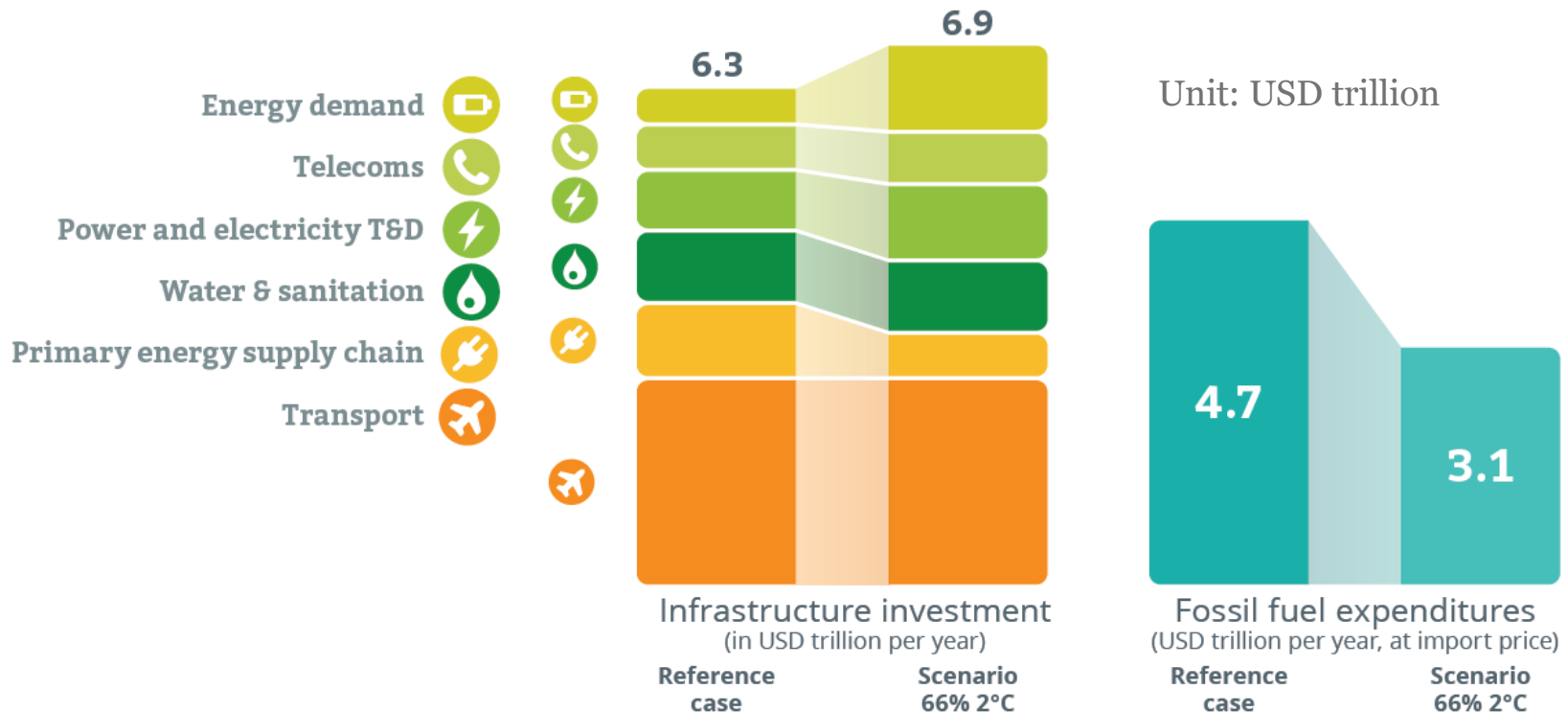
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*This presentation represents the views of the author alone and does not necessarily represent views of the OECD or its member countries.*



# Significant redirection of investment is needed for a low-carbon transition

- ✓ To make infrastructure climate-compatible, \$6.9tn/year investment is needed 2016-30 on average
- ✓ Incremental costs are not very high vis-à-vis reference case
  - ✓ However, significant upfront capital is needed

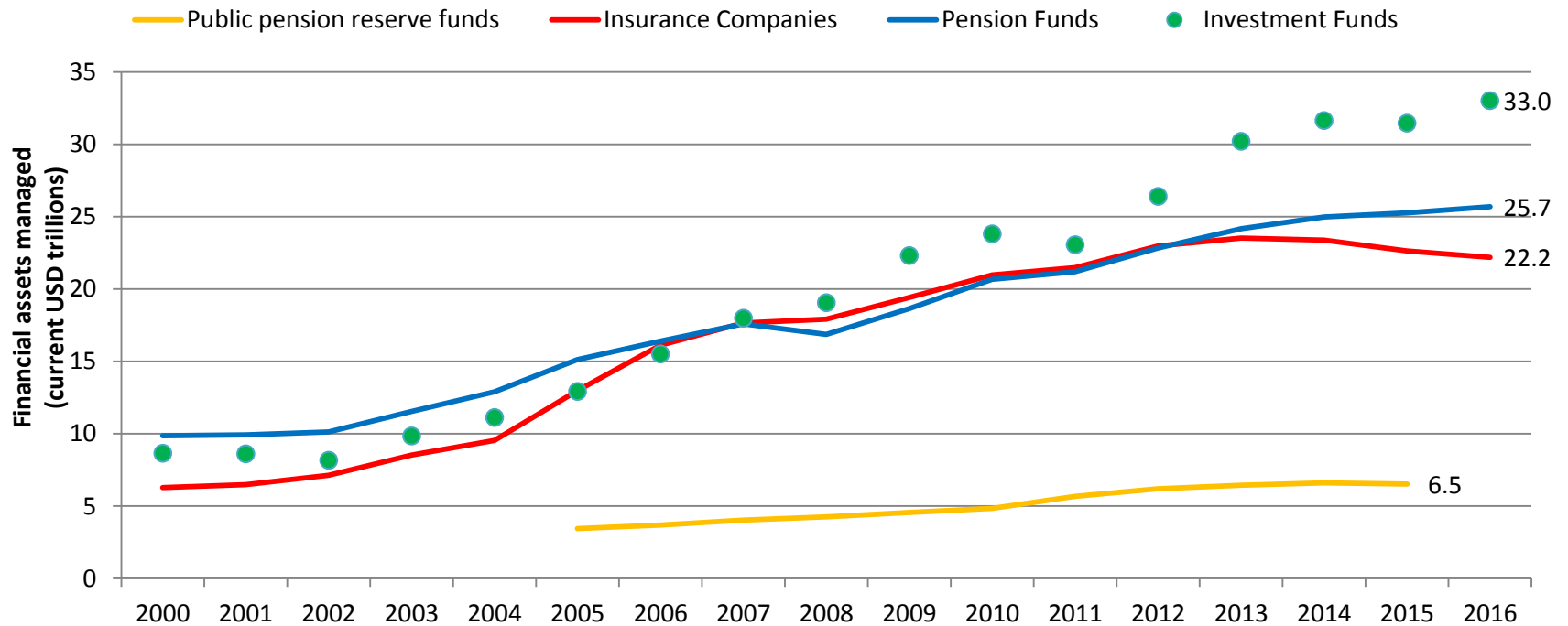


Source: OECD (2017) *Investing in Climate, Investing in Growth*



# Aligning the trillions

OECD institutional investors alone manage ~\$54 tn, but...



Only 1% of large OECD pension fund assets invested directly in infrastructure \*  
And only a fraction of that 1% invested in green infrastructure \*\*

Source: OECD Global Pension Statistics, Global Insurance Statistics and Institutional Investors databases, and OECD staff estimates. (1) Public Pension Reserve Funds, (2) Other forms of institutional savings

\* 2015, direct unlisted equity investment by large OECD pension funds, covering \$10+tn

\*\* BNEF estimates



# OECD report (April 2017): *Mobilising Bond Markets for a Low-Carbon Transition*



<http://dx.doi.org/10.1787/9789264272323-en>

## Contents

1. Overview of the development of the green bond market
2. Review of barriers, policy actions and options for green bond market development
3. Quantitative analysis of the potential role of bond markets in a low-carbon transition

### **Building on previous papers contributed to the G20 Green Finance Study Group**

- *Green Bonds: Country Experiences, Barriers and Options* (Sept 2016, with ICMA/CBI/GFC)
- *A Quantitative Framework for Analysing Potential Bond Contributions in a Low-carbon Transition* (Oct 2016)



# Development of the green bond market

## Rationale for green bonds

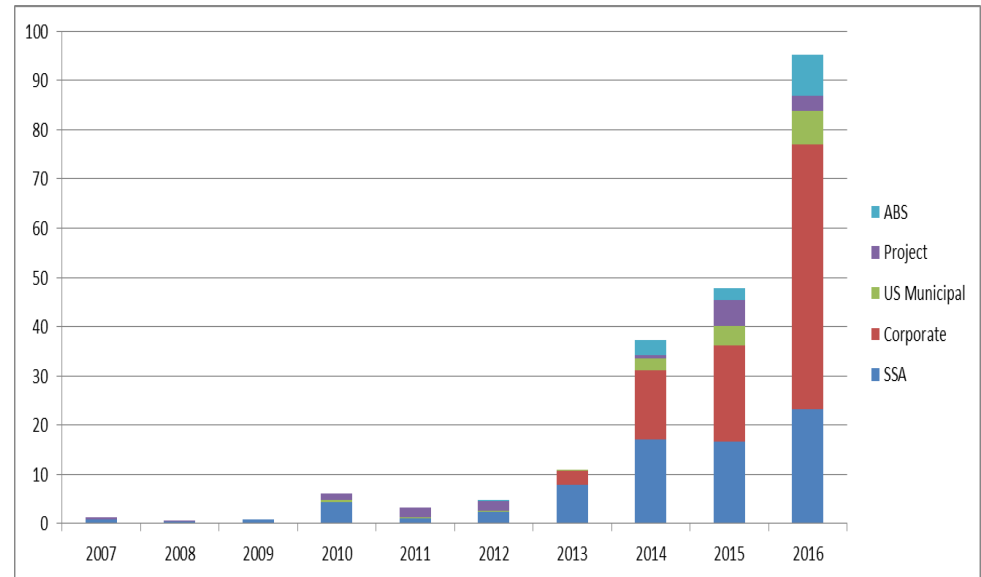
### Issuers:

- ✓ Investor base diversification (more funding source, lower volatility)
- ✓ Enhanced credibility of environmental strategy
- ✓ Lower cost of capital?

### Investors:

- ✓ Satisfies demand for environment-friendly investment without sacrificing return
- ✓ Enhanced information about issuer
- ✓ Hedging climate risk in low carbon scenario

Annual issuance of green bonds (USD billion)



Source: SEB analysis provided to OECD, based on Bloomberg data

### Some recent developments

- *Diversification of players / countries*
- *International and country-specific guidelines*
- *Emergence of “sovereign” green bonds*



# Barriers and policy actions

## Barriers

- ✓ General challenges to bond market development
- ✓ Lack of awareness
- ✓ Lack of supply of bankable green projects
- ✓ Additional issuance costs
- ✓ Definitions and standards

## Policy actions

- Establish preconditions
- Communication and promotion
- Green investment policies
- Public intervention (risk mitigants / transaction enablers)
- Public sector issuance
- Greater standardisation

✓ However, balance between market confidence and transaction costs is critical



# Quantitative analysis: Steps taken in developing a quantitative model and analytical framework

## Investment need

- classify investment needs by sectors and regions
- use technology and project profile to classify as needing public, private, multilateral finance
- determine projects' life-cycle, risk-return profile (technology maturity, competition, policy and supporting measures (Fit and PPA)
- determine projects' possible capital structure under different scenarios

## Debt finance

- determine debt finance from capital structure identified above
- determine portion which can be refinanced by debt across project life cycle
- determine refinancing and restructuring needs

## Bond Market

- identify scope for bonds (new finance and refinance) by type (Corporate, Project, SSA, Sovereign and Municipal)
- use past trends and potential future policy developments to derive scenarios by bond type
- use bond maturity profile by type of bonds to derive recycled and new injection of funds in bond market needed each year

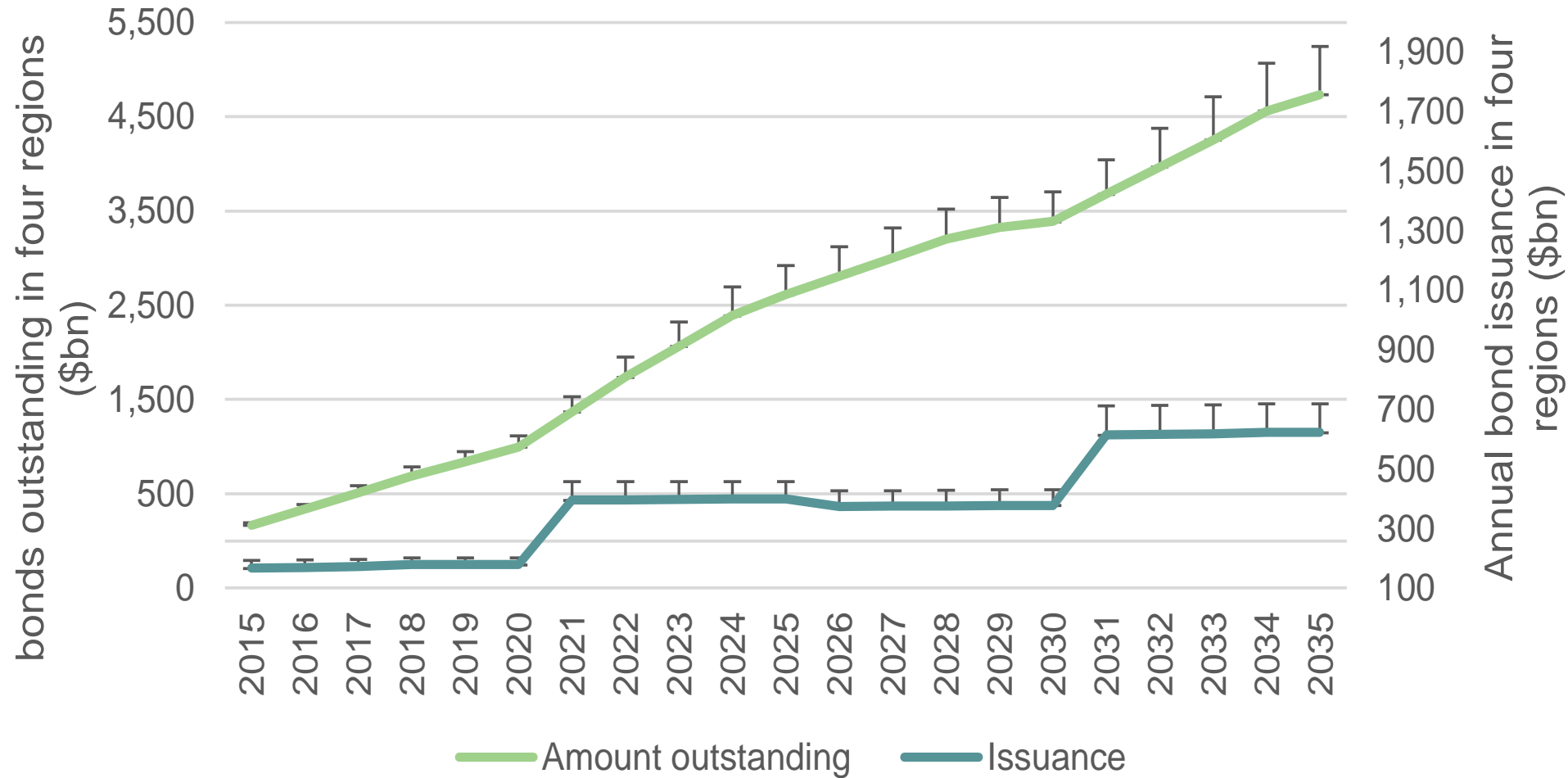
## Implication for II asset allocation

- analyse needs of Institutional Investors in the context of expanding green bond investment opportunities
- propose relevant policy measures to enable greater participation of Institutional Investors



# Potential for low-carbon bond issuance to 2035 in a 2 degree scenario:

*In China, Japan, EU and US (in the renewable energy, low-emission vehicle and energy efficiency in buildings sectors)*

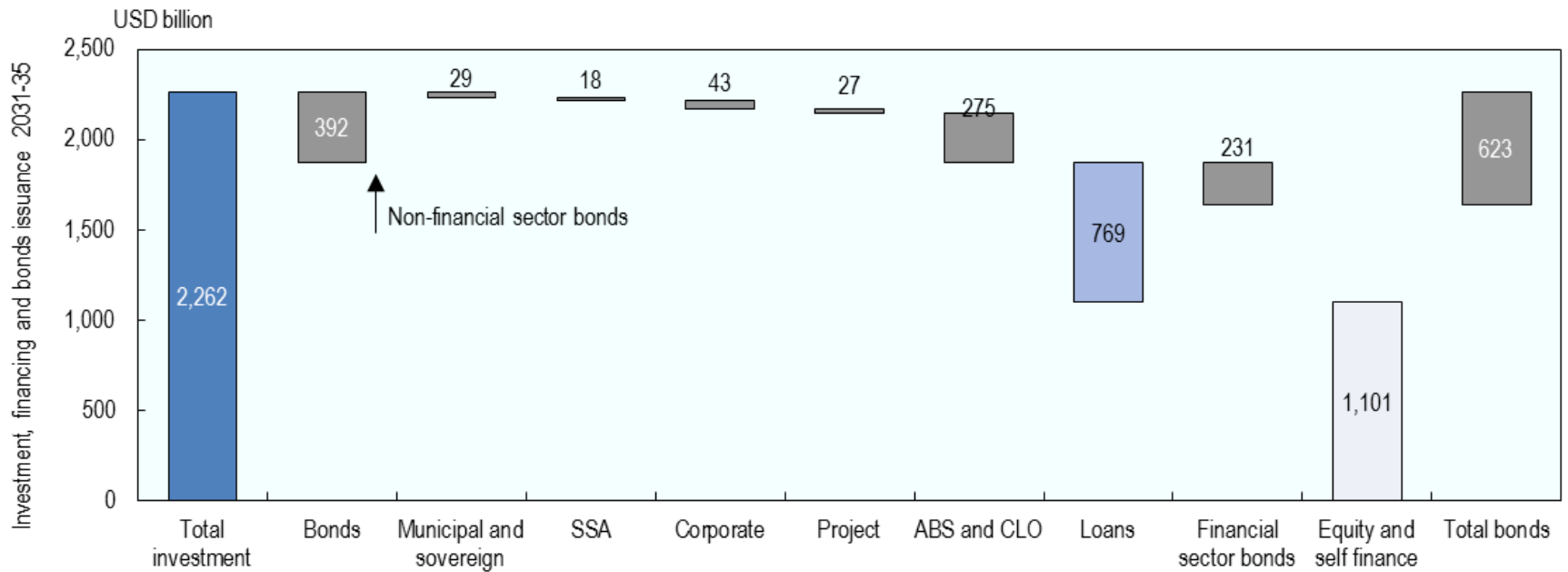






# Financing by type of capital and bond (USD billions)

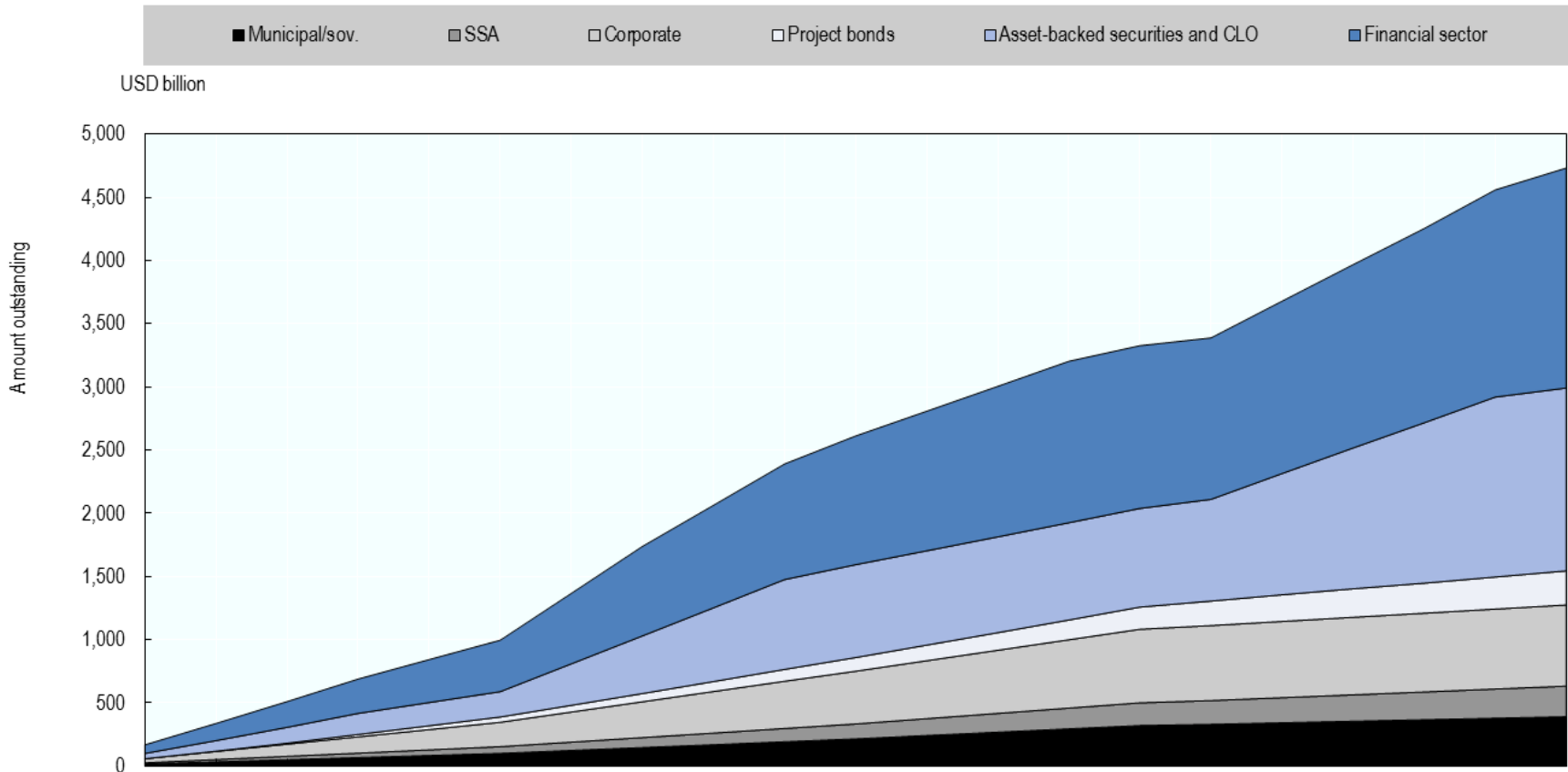
## Annual basis in the 2031-2035 period





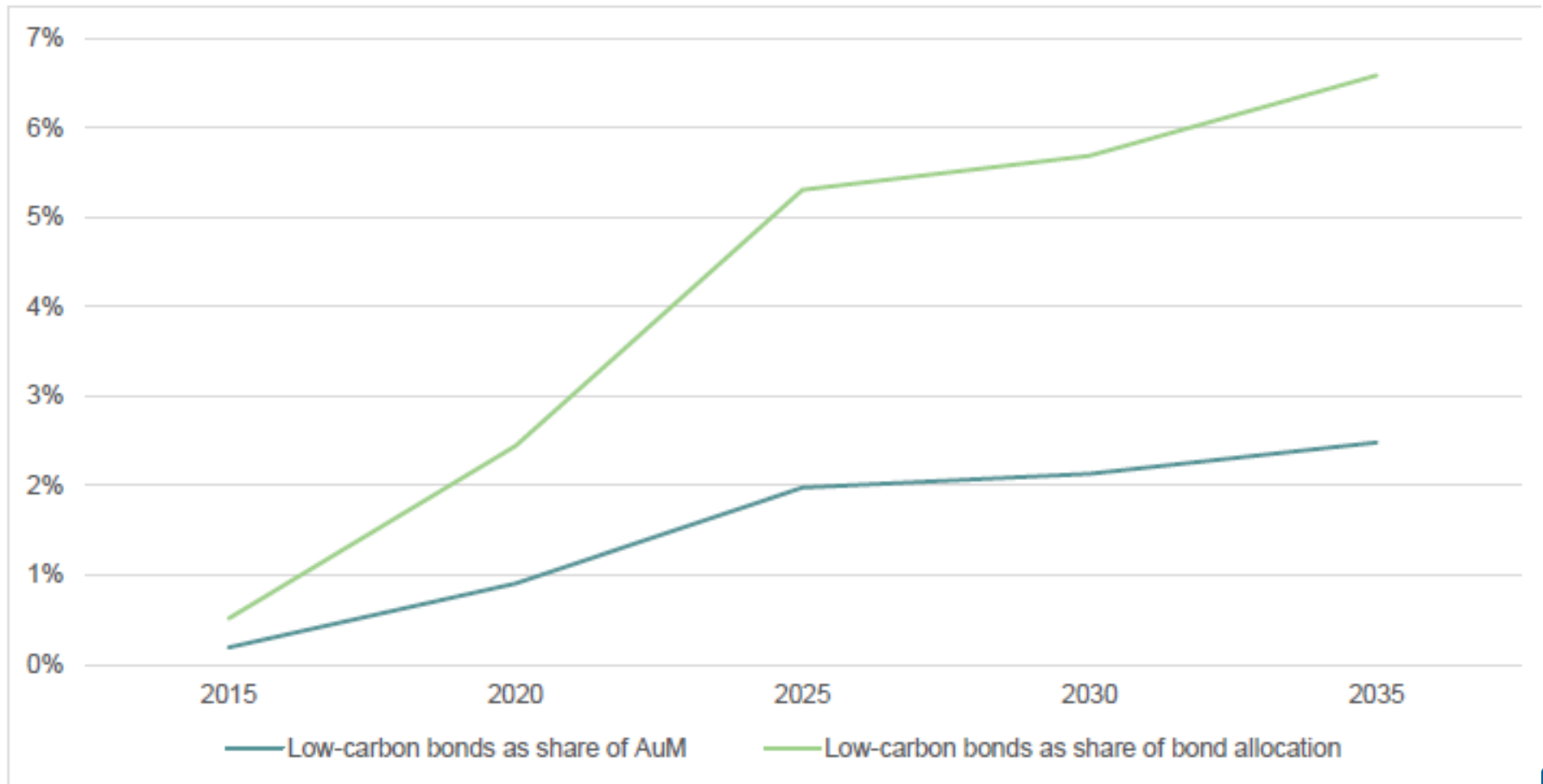
# Asset-backed and financial sector bonds have the largest potential to scale

Low-carbon bonds outstanding in US, EU, China, Japan (baseline scenario)





# OECD institutional investor asset allocation to low-carbon bonds as modelled under the base case scenario



Source: Asset allocation statistics drawn from OECD institutional investor database.

## *The context for understanding quantitative analysis results*

USD 19 tn  
2014 total bond issuance  
Region: China, Japan, EU, US

USD 2.26 tn  
2035 annual low-carbon  
investment needs  
Region: China, Japan, EU, US

USD 1.16 tn  
2035 annual low-carbon debt financing  
needs  
Region: China, Japan, EU, US

USD 620-720 bn  
2035 annual low-carbon  
bond issuance potential  
scenarios  
Region: China, Japan, EU, US

USD 42 bn  
2015 green bond issuance  
Region: Global



# OECD Centre on Green Finance and Investment

**FORUM 2017**  
24-25 October 2017  
OECD, Paris  
<http://oe.cd/forumgfi>  
#OECDgfi  
OECD  
BETTER POLICIES FOR BETTER LIVES

- New global platform for scaling up the green finance work
- Current planned work of the Centre includes:
  - Green infrastructure project pipelines
  - Country-level clean energy finance and investment policy reviews and implementation support

## OECD Forum on Green Finance and Investment

- The main annual global event for the OECD Centre on Green Finance and Investment
- Gathers senior policy makers and key actors in green finance and investment from around the world

### Centre Webpage

<http://www.oecd.org/cgfi>