The strength and growth of the German green bond market has been a highlight of the global and European green bond market with leadership from state-backed institutions, a strong policy backdrop and a large bond market.

The entire German market, however, currently consists of only 8 issuers, of which just 2 are corporates. Given the strength of German energy policy and its industrial sector, our view is that there is significant potential for growth from domestic issuers. This paper outlines progress to date and highlights options for development.

The market is underpinned by a strong banking sector with over 80% of issuance to date coming from development, state-owned or commercial banks including KfW (see page 3) and NRW.BANK, the state development bank of North-Rhine Westphalia.

Annual issuance grew from USD0.5bn in 2013 to USD5.5bn in 2015. 2017 looks set to break records with issuance already at USD2.9bn.

<table>
<thead>
<tr>
<th>German green bond issuers</th>
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</thead>
<tbody>
<tr>
<td>Issuer</td>
</tr>
<tr>
<td>KfW</td>
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<tr>
<td>NRW.BANK</td>
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<tr>
<td>Berlin Hyp</td>
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<tr>
<td>Senvion</td>
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<tr>
<td>Nordex</td>
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<tr>
<td>Deutsche KreditBank</td>
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<tr>
<td>L. Rentenbank</td>
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<tr>
<td>MEP Werke</td>
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<tr>
<td>State of North-Rhine Westphalia (NRW)</td>
</tr>
</tbody>
</table>

*Only includes bonds in line with CBI taxonomy are shown.
**Total figure outstanding from Chinese issuers if bonds financing coal, large scale hydro etc. are included = $41.5bn

Country comparison: total outstanding (10 May 2017)

- USA: $40bn
- France: $30bn
- Germany: $20bn
- Netherlands: $10bn
- Sweden: $10bn
- Spain: $8bn
- Australia: $6bn
- India: $5bn
- Brazil: $3bn
- Canada: $2bn
- China: $1bn

German issuers have been amongst pioneers in the market since the first green bonds were issued by Landwirtschaftliche Rentenbank and NRW.BANK in 2013. Germany is now the 4th largest source of issuance globally and 2nd in Europe.
German issuers have shown leadership in issuing a range of new debt instruments with four different instruments issued to date despite there only being 8 issuers in the market. Aside from senior unsecured transactions there has also been a green Schuldschein (Nordex), green Pfandbrief or covered bonds (Berlin Hyp) and a green loan (MEP Werke). The incredible diversity of instruments is unusual in the market and indicates that Germany could take a lead on debt instrument deployment. New instruments are important as a proof of concept for other issuers and can potentially open the market further.

Renewable energy accounts for 87% of proceeds raised by German green bond issuers - particularly in wind and solar. This includes all of the KfW bonds. To date, only 8% of total proceeds were directed to low-carbon buildings, raised by Berlin Hyp. The diverse nature of the overall German economy is not well-reflected in the green bond market indicating that there is untapped domestic potential.

Germany could show leadership in growing the green covered bond market through Pfandbrief and covered bonds. Both can help to unlock finance in debt capital markets for small-scale low-carbon assets such as mortgages for green buildings.

Covered bonds are backed by a cover pool of mortgage loans (property as collateral) in addition to the issuer’s creditworthiness. Pfandbrief are a type of covered bond specific to Germany, and are generally secured by mortgages for real estate, ships or aircraft.

Berlin Hyp issued the first green pfandbrief in 2015 to finance real estate loans for buildings that meet green building standards. A further step would be to develop guidelines for green assets and green tagging tools to facilitate the identification of loans eligible for green cover pools.

Guidelines and regulations governing eligible loans are not new to the pfandbrief market which is already governed by a strict set of regulations in order to maintain the high credit rating of these products. The European Mortgage Federation (EMF) and European Covered Bond Council (EBCB) are already taking further steps to promote green securitisation of mortgages by launching an Energy Efficient Mortgages Initiative to develop a standardised energy efficient mortgage based on preferential rates.

Berlin Hyp introduced pricing incentives into its green building lending for eligible businesses in 2016.

A strong policy backdrop

Germany has a history of progressive policy on green initiatives and its energy transition strategy Energiewende is one of the most ambitious climate strategies in the world. The policy may have big implications for the green bond market through its goal to increase renewables to 80% of power consumption by 2050 (currently 29.5%).

While the direct implications for green bonds are unclear as of yet, the importance of green finance within the G20 has been a positive for the growth of the global green bond market through China’s 2016 leadership. Wider developments in Germany also include the initiation by the Association of German Public Banks (VÖB) of the Green Bond Initiative Germany.

The initiative includes an expert dialogue with stakeholders from the German market.

Furthermore, the German state of Hessien has stated its intention for Frankfurt to become a green finance hub for Europe and to create a Green Finance Cluster.
Outlook for the German market

While the growth of the green bond market has been impressive, without KfW, it would be significantly smaller. Our view is that the potential is huge. The fundamentals are already in place: a large bond market, a strong policy backdrop, a large manufacturing sector and base of potential issuers.

A large base of potential issuers

We estimate the potential for growth to be over EUR36bn based on outstanding bonds in climate-aligned sectors. In particular, the following sectors show strong potential:

- **Renewable energy and utilities:** >EUR6bn
  Germany has a strong manufacturing sector with a number of pureplay renewable energy manufacturers as well as pureplay green utilities. Bonds outstanding from renewable energy utilities alone amounts to over EUR5.4bn.

- **Transport:** >EUR20bn
  Germany has a huge rail and public transport network. Debt from Deutsche Bahn alone is over EUR20bn much of which is linked to new and existing rail infrastructure. There is further potential from Germany’s automobile industry which could follow the lead from auto manufacturers such as Toyota and Hyundai issuing ABS for auto loans for electric and low-emission vehicles.

- **Sub-sovereign bonds:** >EUR10bn
  Sub-sovereign states in Germany could act as a huge source of potential issuance as they issue bonds to finance regional climate plans. Bonds issued by states and sub-sovereigns currently amount to well over EUR50bn outstanding with potential for issuance in public transport, water networks and public buildings.

- **Green Pfandbrief:** >EUR5bn
  Germany has the largest building stock in the EU and a target to make its building stock largely carbon neutral by 2050.1 At the same time, the strong German pfandbrief market is recovering after the financial crisis - pfandbrief for real estate mortgages now amount to over EUR200bn outstanding with EUR35bn issued in 2016.2

  The ambitious 2050 targets for green buildings could mean that a large percentage of new issuance could qualify as green pfandbrief with the proportion increasing as 2050 approaches. A conservative estimate is that 15% of mortgages could currently qualify as green mortgages, making annual issuance potential in excess of EUR5bn.

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Five Action Points for German market participants

1. **Sovereign and sub-sovereigns:** issue demonstration green bonds
2. **Investors:** signal demand for corporate and asset-backed issuance
3. **Corporate and banking sector:** join the market and facilitate deal flow
4. **Policy-makers:** support standards and green regulatory reform
5. **Central banks:** strong signals to build confidence for both issuers and investors

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Action points for Germany

The German market is poised for growth. The State has already played a central role through issuance from KfW and local development banks. Now, for the market to reach its much larger potential, key action is required from a range of market participants.

1. **Sovereign and sub-sovereigns:** issue demonstration issuance following on from the pioneering role of KfW and the State of NRW to stimulate the sub-sovereign market. Large states with bond programs, such as Berlin, are prime candidates.

A sovereign green bond from Germany would be a pivotal step for the global green bond market given the importance of German Bunds as a global benchmark.

2. **Investors:** signal demand for corporate and asset-backed issuance by committing to green bond portfolios and funds.

3. **Corporate issuers:** use green bonds to finance capital raising plans learning lessons from pioneer issuers to understand the process and eligible assets.

4. **Policy-makers and financial market legislators:** support standards - e.g. by participating in the work of the ECBC/EMF on green mortgages. German regulators have a particular role to play in sharing experience from regulations in the pfandbrief market.

5. **Central banks** should send strong market signals such as those from the Bank of England. The BoE has recommended green bonds as a climate investment opportunity for asset managers and insurance firms.

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2. http://unepinquiry.org/latest-news/german-g20-presidency-
3. https://unfccc.int

Regulatory and policy framework

Germany’s public communication.

1. The Climate Bonds Initiative is an investor-focused not-for-profit, mobilizing debt capital markets for a rapid transition to a low-carbon economy.
2. Published by the Climate Bonds Initiative May 2017
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The Climate Bonds Initiative launches greeninvest-platform/#bashh.Axwq7sF.dpuf

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