

Green securitisations Kickstarting a green lending revolution

Advances in geospatial technology remove historical market barriers to green securitisations, making it possible to harness the world's largest asset class¹ in the fight against climate change.



The rehabilitation of residential mortgage-backed securities

In volume, and perhaps even in reputation, securitisations have not recovered from 2008². Complex and opaque, they became inadequately assessed and inaccurately rated, contributing to one of the largest stock market crashes in history³.

Yet a lot has changed since 2008 and not just on the regulatory side. Developments in geospatial technology have offered a level of transparency on property-related assets that could hardly have been predicted 13 years ago. If data can be geospatially identified to the property level, risk can be priced more accurately. Residential and commercial mortgaged-backed securities can be offered to the market with more transparency, investors can be more confident in their decision-making. Beyond improving a financial instrument, however, these developments could also be vital in facing down the biggest challenge of our time: climate change.

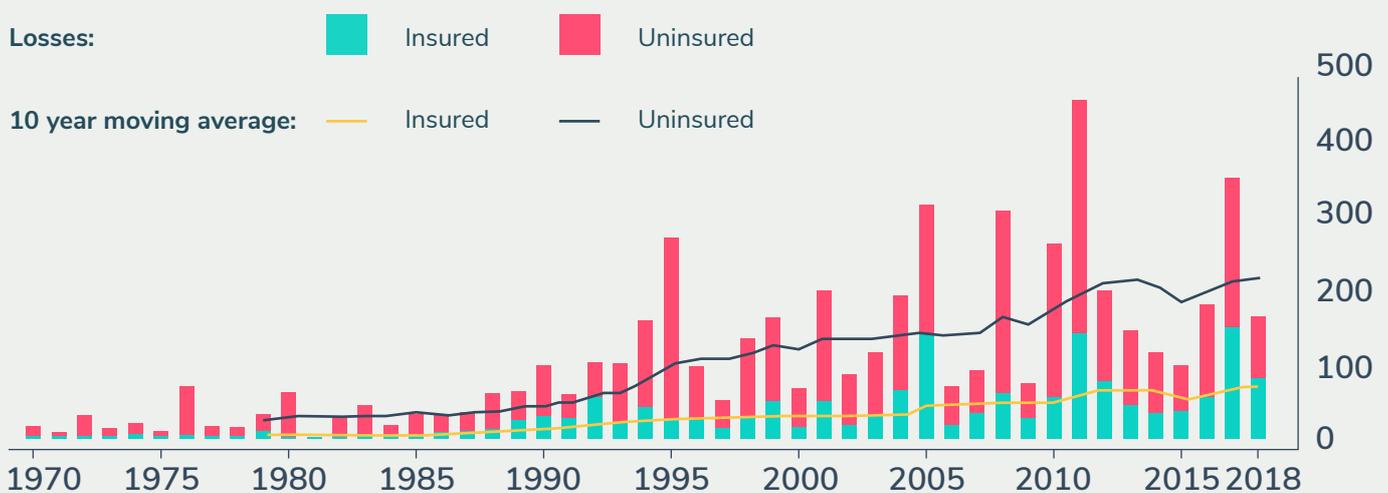
Unchecked global warming is ushering in an era of natural disasters unlike any seen in history, and carries an estimated risk to global assets of up to \$43 trillion⁵. Property represents both the world's largest asset class, and one of the biggest sources of greenhouse gas emissions (GHG). Data with accurate geospatial context, and the toolchain to create this, are therefore vital in managing both risk and carbon emissions. A combination of technological innovation, shifting market dynamics

and a changing regulatory environment (as governments grapple with this challenge), create the perfect environment for green securitisation opportunities.

\$43 trillion

is the estimated risk to global assets caused by global warming

Insured and uninsured catastrophe losses (\$bn, 2018 prices)⁴



A regulatory inflection point

The Paris Agreement of 2015 set a simple goal with huge consequences. The world's major economies agreed to keep global warming to 2°C by the end of the century⁶, demanding the biggest and swiftest adjustment since the Industrial Revolution.

Momentum is building, with the US back in the Paris Agreement and COP26 taking place in Glasgow later this year, nations are competing to set the most ambitious climate goals.

President Biden has promised to cut emissions in half by 2030⁷ whilst the UK has set the most ambitious emissions reduction goal on the planet: to reduce emissions by 78% before 2035⁸.

These targets are not achievable without substantial new regulations, and the cost of compliance is a huge new risk that is yet to be priced in.

Much of the legislation required to meet these targets is already in the pipeline, and will aim to avert the climate catastrophe with preventative measures. As Mark Carney first described to the financial sector in 2018⁹, this means reducing long term exposure to the **physical risks** associated with climate change such as floods, droughts and rising sea levels, but at the price of increasing short term **transition risks**, as government policy and new regulations have a material impact on the value of assets and investments. This will mean huge change to the status quo of many industries, as governments look to incentivise green technologies and decarbonisation, at the expense of some traditional industries, markets and legacy practices.

UK housing stock is generally older than in continental Europe, and around 60% is considered energy inefficient (EPC grade D or below)¹⁰. The Bank of England has already identified an increased risk of arrears for these

inefficient homes¹¹, driven largely by higher energy bills increasing stress on household expenditure. Yet, with UK housing contributing 22% of greenhouse gas emissions, this risk will grow dramatically as a raft of new legislation takes aim at this major source of pollution¹².

The most recent BEIS consultation proposes a much stronger role for UK mortgage lenders. If enacted into law, lenders will be required to deliver an average of EPC band C across their mortgaged portfolios by 2030. A second consultation targets the Private Rented Sector, raising the MEES (Minimum Energy Efficiency Standards of properties that can be offered to the rental market) from grade E to C for new lets, by 2025, and all lets, by 2028. Whilst there are notable exemptions expected, these still represent hugely expensive changes. In order to quantify the size of the transition risk, Kamma checked, normalised, error corrected and geo-identified the public EPC register from MHCLG (which covers England and Wales).

An extrapolated cost of compliance for these countries, to achieve an average EPC grade of C, is an estimated £48.3 billion¹³.

This represents one of the biggest transition risks ever seen in the mortgage markets, and yet it is only the tip of the iceberg if lenders are to shoulder their share of responsibility in achieving Net Zero.

In this scenario, green securitisations become a more attractive option for both lenders and investors: freeing up capital and generating significant arrangement fees for originating banks, whilst also satisfying investor demand for insulation from these new transition risks.

⁶ UNFCCC | ⁷ Whitehouse | ⁸ Government | ⁹ Bank of England | ¹⁰ Government | ¹¹ Bank of England | ¹² Government |

¹³ Kamma proprietary analysis of the EPC register

60%
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£48.3bn

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England & Wales



“We know that climate risk is investment risk. But we also believe the climate transition presents a historic investment opportunity.”

Larry Fink, CEO, Blackrock



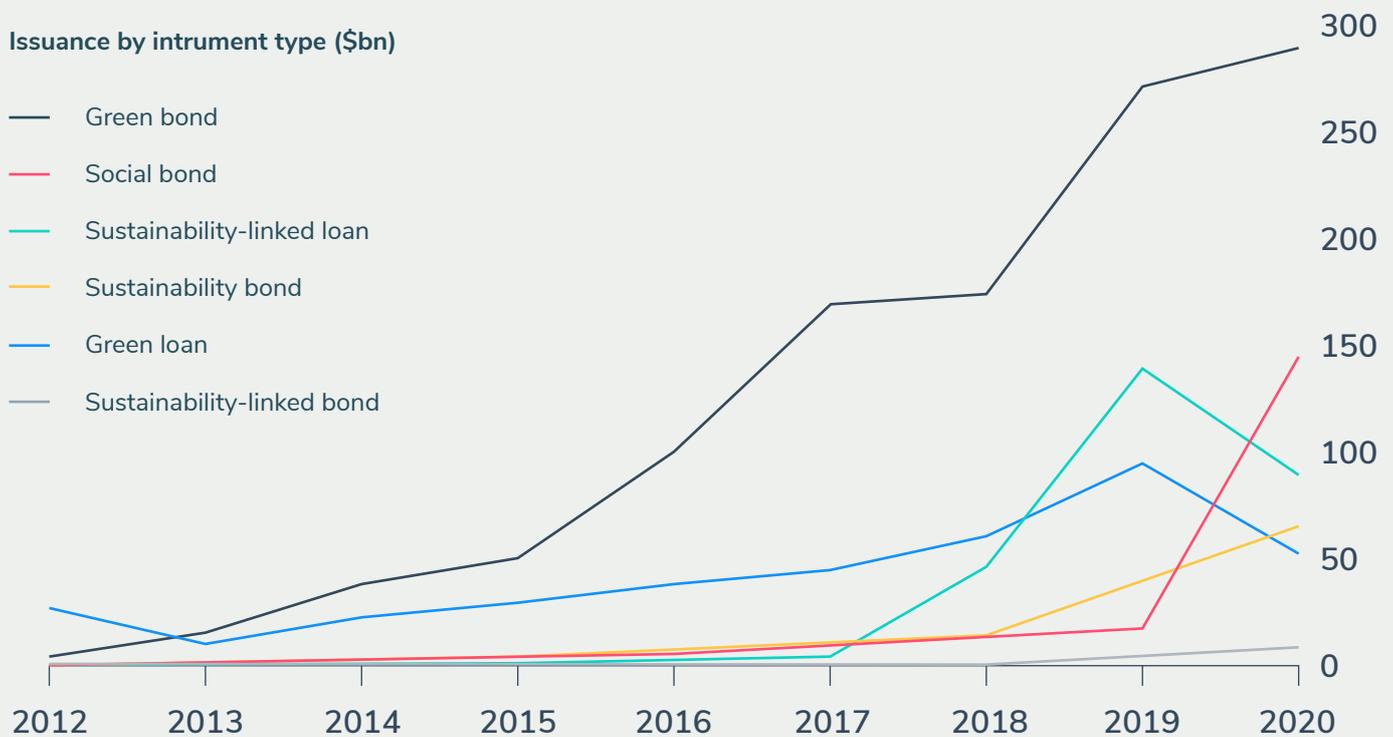
A fundamental realignment of the market

Providing the capital required for this shift is a major undertaking, yet markets are rising to the challenge.

The Net Zero Asset Owners Alliance hold \$5.7tr of assets and the Net Zero Asset Managers Initiative boasts nearly 90 signatories with \$37tr of assets under management¹⁴. In his annual letter to shareholders the CEO of Blackrock, Larry Fink, described a “tectonic shift” as **global investments in sustainable assets grew by 96% to \$288 billion¹⁵**. Whilst in Europe, ESG bond issuance represented 17.2% of total European bond issuance during Q1 2021, up from 8.9% for the full year in 2020¹⁶.

2021 is predicted to deliver even greater growth in ESG bond issuance, with green bonds that use the capital raised to invest in green projects, dominating other investment types¹⁷.

Green bonds dominate sustainable debt market



Investor demand for sustainable assets has been described as “ravenous” by the Financial Times, with companies benefiting from a “greenium” as dramatic investor demand delivers lower borrowing costs¹⁸. Certainly the dutch bank Obvion, the award-winning¹⁹ pioneer of green securitisations in Europe, has benefited from strong investor interest as it continues to deliver new securitisations to market on an almost annual basis²⁰.

It's not just investment markets, consumer markets are also seeing huge shifts in behaviour. In industries such as automotive, centuries old buying patterns are being overturned by demand for environmentally friendly electric cars. In Norway, electric vehicles already account for the majority of new vehicle sales (54%)²¹ with the UK planning to ban the sale of new petrol engine cars by 2035²². In the lending sector, high street banks are competing to show off their green credentials, marketing green loans and mortgages to a more conscientious consumer.

We're yet to see the Tesla of the mortgage industry emerge, but the automotive industry shows how quickly markets can change when a transformative offer aligns with a fundamental shift in consumer attitudes. In a less transformative sense, simply building both expertise and brand positioning in a new market helps secure longer term growth.

These new dynamics are having a profound impact as the historical trade off between greener investments and more profitable investments is diminished.

With growing consumer demand for green products and services, and growing transition risks from regulators seeking to avert catastrophe, greener investments are fast becoming the more profitable investments. A favourable market, with investors paying a premium for better performing sustainable assets, incentivises mortgage lenders to offer green RMBS, thereby increasing lending and lowering interest rates on energy efficient homes. In turn, this incentivises property owners to reduce emissions, creating a virtuous circle heading towards a greener world.

And yet green securitisations are still a rarity, with only a handful brought to market across the globe. Analysts have described challenges with supply not matching demand and a lack of agreed definitions as the two major barriers²³. An accurate, georeferenced classification of the world's largest asset class is an eloquent solution to both problems, unlocking an estimated £190 billion primary market in the UK alone²⁴.

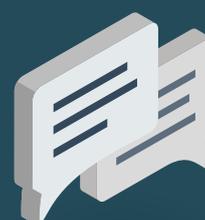
¹⁸ FT | ¹⁹ Environmental Finance | ²⁰ Climate Bonds | ²¹ The Guardian | ²² BBC | ²³ Financial Stability | ²⁴ Estimated as % share of outstanding mortgage loans (FCA) that are EPC A-B | ²⁵ Climate Bonds

Growth in green RMBS has failed to keep pace with growth of overall green bonds²⁵



“A common barrier to scaling up green RMBS is the lack of data or access to energy performance data.”

climatebonds.net



Rapidly developing technology

Geospatial data and information are defined in the ISO/TC 211²⁶ series of standards as “**data and information having an implicit or explicit association with a location relative to Earth.**”

It's the innovation that underpins in-car navigation, consumer-facing products such as Google maps and more traditional GIS applications and web portals. Yet geospatial engineering is so much more than digital cartography. Geocoding an address and associating Unique Property Reference Numbers (or UPRNs) allows properties to be located not just on a map, but within numerous, messy datasets. Data which has been geospatially enabled to uniquely and unambiguously identify property assets, allows risk to be priced more accurately. Just as geospatial technology has transformed how people navigate on the world's roads, geocoded and georeferenced data looks set to transform how major risks are navigated in the world's markets.

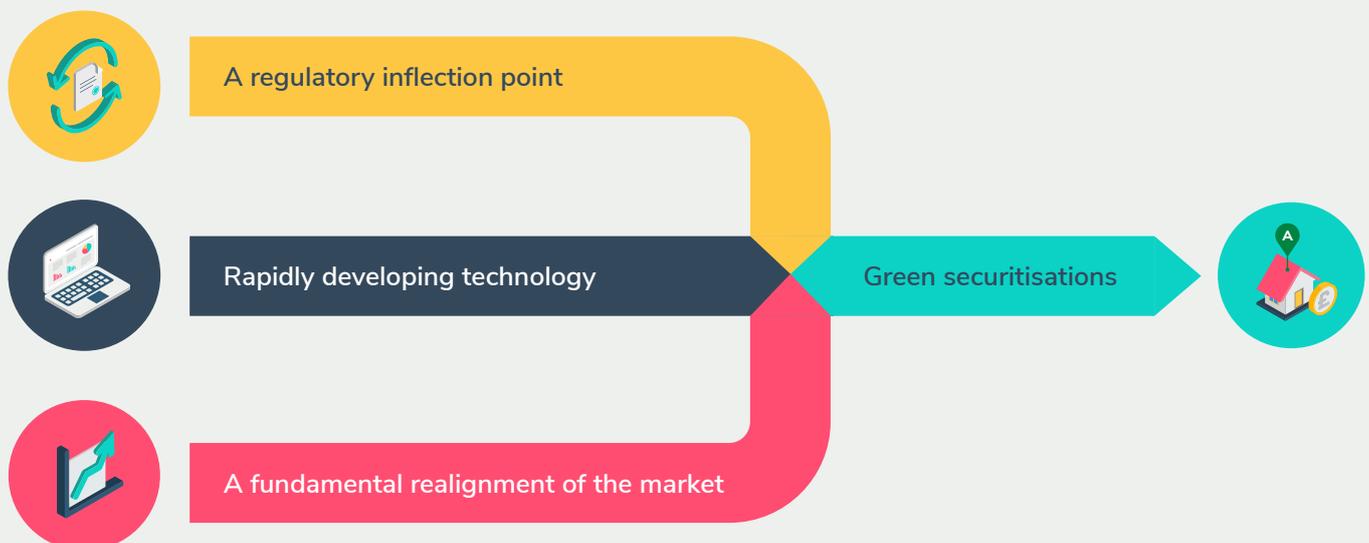
The process allows external data sources, such as household energy efficiency, to be comprehensively mapped against every property in a lender's back book, or in the whole country. It also resolves the historical issue of address-matching. This previously meant lenders could only reconcile external data to around 70% of their back book. Accurate geocoding today is capable of delivering match rates of over 90%. A non-trivial improvement of around 20 percentage-points that qualifies multiple billion in additional loans for securitisation. The approach also supports the Task

Force on Climate Related Financial Disclosures' directive that information provided be benchmarked, wherever possible, against the market. Geo-enabling data delivers comparable, accurate data at scale, demonstrating that a securitisation is not just green, but greener than the market, and aligned to regulator, or a lender's own, targets.

This creates a unique, triple confluence of factors: a regulatory inflection point as governments finally grapple with the challenge of climate change, a fundamental market realignment occurring concurrently, and the rapidly developing technology needed to support these changes. Collectively they could dramatically change the perception and role of securitisations. What was once opaque, can now be made transparent.

The same financial instrument that was such a large contributor to the last global financial crisis, could be a part of the solution to the far greater climate crisis facing us in the years ahead.

Key drivers fueling expected growth in green securitisations

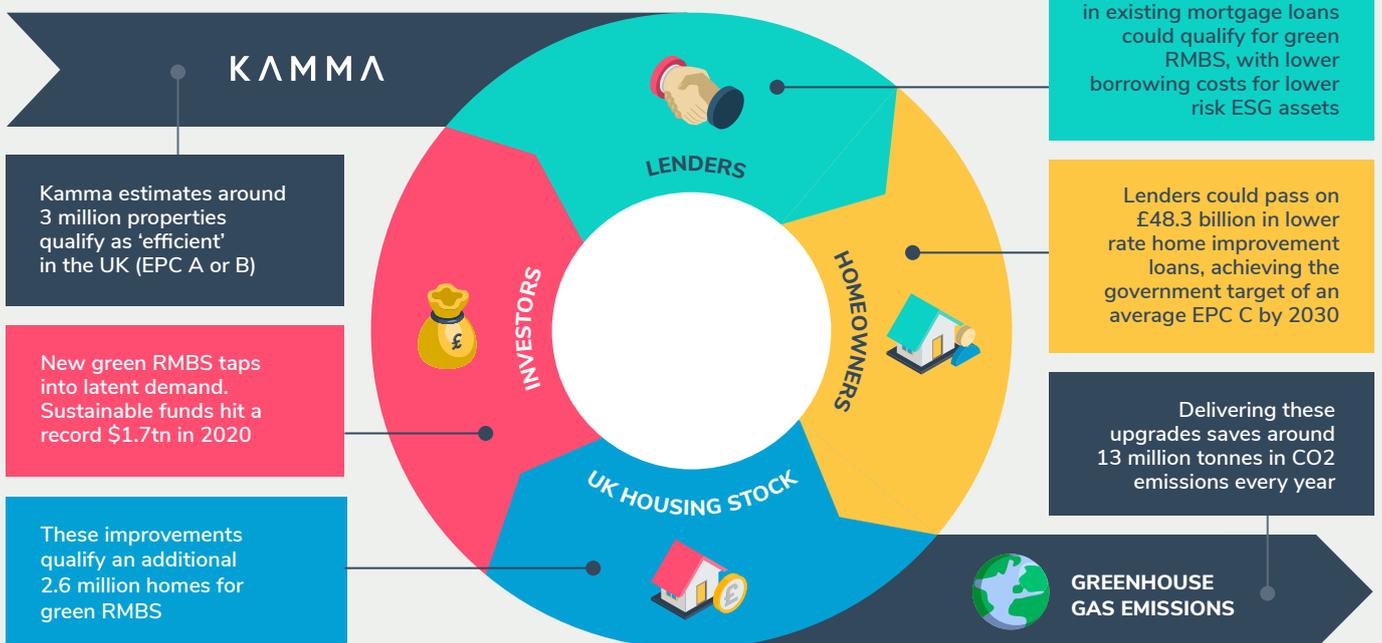


Greener lending, greater growth

Supporting the urgent upgrade that UK housing stock requires is perhaps the greatest opportunity lenders have to both make a difference, and deliver green growth. Unlocking the green securitisation market with georeferenced data should be the start of a virtuous circle.

Freed up capital can support further green upgrades, qualifying more loans for green securitisations. Securitising around 25% of the £190 billion opportunity frees up enough capital for the £48.3 billion in green home improvement loans needed in England and Wales, for example. **This would save around 13 million tonnes in annual CO₂ emissions²⁷.**

How green securitisations could kickstart a green lending revolution



The ancillary benefits of such an approach are also far from trivial. Categorising the back book based on energy efficiency enhances risk management. This allows the identification of property segments that meet new regulatory requirements, those that can be supported to get there, and those that are at risk of never doing so. As well as sizing this risk, it also sizes the green investment opportunity. EPC recommendations and pricing data, quantified for the entire back book, offers an estimate of the level of lending required and reveals which improvements are most needed, supporting decisions on partnerships and marcomms. A data-driven approach also allows lenders to appeal to the growing green consumer market by displaying their green credentials in a fact-based way with transparent, trended reporting highlighting annual improvements.

Green securities then, are just one of the benefits of using data that has been georeferenced, and of deploying geospatial toolkits to better understand a lender's back book. By solving the issues of transparency, reputation and delivering data-driven qualification, geospatial technology can rebuild the reputation of residential mortgage-backed securities and deliver a trifecta of benefits for mortgage lenders. They free up capital for more lending, stand to benefit from a favourable market for green investment capital, and support the fight against climate change. The marriage of technology with market need makes them a logical development, but the added urgency of the climate crisis and the opportunity to support green lending makes them a vital tool. They could provide the kickstart that the green lending market needs.

Powering greener growth, and a greener planet

Kamma is a world-leading geospatial technology company, delivering investment-grade data to the financial services industry.

Kamma specialises in providing property data and insights that others cannot, through greater coverage, smarter modelling and improved accuracy. Our geocoder is built on best of breed technology by best-in-class engineers, repeatedly delivering match and accuracy rates above the industry average. In a real-world context, this can mean accurately qualifying an additional 20% of a lender's back book for RMBS.

By providing the most comprehensive view available, Kamma also supports the integrated green growth strategy of leading banks by delivering a comprehensive view of the risks and market opportunities linked to climate change.

Our analysis is designed specifically to support the individual business objectives linked to climate change:

- Green MBS (residential and commercial)
- Green lending
- Risk management
- Regulatory reporting



Our extensive data catalogues and analysis deliver a comprehensive view on energy performance and climate risk. Our unique datastore is constantly growing and boasts 1,000s of datapoints including:

Full EPC coverage for Great Britain and Northern Ireland

Current / potential energy efficiency rating

Environmental impact rating

CO₂ emissions / CO₂ per m²

Performance ratings for individual household elements

EPC, PRS and proposed BEIS exemptions

% active / expired EPC

Recommended improvements with indicative cost

Impact of individual improvements

Fuel savings against improvements

Modelled costs to achieve government, regulatory or company target

Coastal erosion

Flood & subsidence risk at property level

Model future flood & subsidence risk

Cost of repair vs. affordability

Floor plan data

Market dynamics

BTL licensing compliance

Data is available through a desktop app, API or in the form of 'regulator-ready' reports.

Contact us now to find out more about Kamma's Energy Performance services

Get in touch

About this paper

This paper has been produced by Kamma to inform the debate around green residential mortgage-backed securities. Data has been sourced to the location the data was taken from, which is occasionally a secondary rather than primary source. Data provided is sometimes derived and / or estimated and is provided for illustrative purposes only.

About Kamma

Kamma puts companies back in control of their compliance through data-driven technology solutions. They mine unstructured legislative information and harness AI to de-risk markets, deliver operational efficiencies, protect reputations and open up new revenue opportunities



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