

Unlocking the Potential of Green Securitization

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Abstract

The purpose of this paper is to review green securitization's rationale, critically assess its potential and pitfalls and explore policy incentives that may encourage its development. In that light the paper first describes what green securitization is, summarizing the variety of asset-backed securities' types used. The specificities of green securitization are illustrated with selected examples. A critical assessment on benefits, risks, costs and limitations of green securitization in fostering green finance is then provided. Before concluding, the paper discusses public incentives and support measures that could sustain the growth of green securitization.

Keywords: Securitization; Green Structured Finance; Green Finance.

Introduction

Following the 2015 Paris agreement, it has become evident that public actors should act as catalysts to stimulate private investments and therefore reach the objective of zero net emissions by 2050. Illustrative of this effort, the European Union's Green Deal Investment plan aims at mobilising 1 trillion euros in sustainable investment in the next ten years, while the estimations show that such investment would amount to 260 billion euros investment annually by 2030 (European Commission, 2020a). Building up these investments is at the core of the green transition, also in the plans for the recovery from the Covid-19 pandemic crisis.

However, these initiatives and objectives will not be reached without the support and involvement of private and institutional investors. As part of this very concern to deploy private capital for sustainable investments, several European and global investors (including Amundi, BNP Paribas, Santander and UniCredit amongst 111 signatories gathering pension funds and other assets managements companies) wrote an open letter to EU leaders for a sustainable recovery from COVID-19. They emphasized that recovery efforts 'should not lock-in high carbon pathways' (Open letter, 2020) and stated their willingness to play their part in the efficient deployment of private capital, along the public sector, and to assist policymakers with a long-term view (Bloomberg, 2020).

Green bonds, the 'stars of climate finance' (The Economist, 2020) will be at the cornerstone of this effort to leverage on the deep pockets of the bond markets to finance the green transition. The problem however is that the green bonds market is not sufficiently deep to contribute to the extent expected to the investment scale up. Green bond issues have indeed been repeatedly over-subscribed in past years. To give an example Germany's September 2020 green bond issue was over-subscribed 5 times (ESG Today, 2020). Alternative and synthetic forms of green bonds such as green Asset-Backed Securities will therefore need to be tapped into to finance the energy transition.

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The market for green securitization has significantly expanded in the last five years, in particular in the United States and, although more marginally, in France and the Netherlands, for instance.² Put simply, securitization is the transformation of illiquid assets (typically loans) into liquid assets. Financial assets of diverse types ‘back’ financial instruments called broadly ‘securities’, hence the name ‘Asset-Backed Securities’ (ABS). In practice, securitization moves assets off-balance sheet together with their underlying risks. Different green assets already exist on the market: loans financing energy efficient assets, for instance housing, onshore windmills, or solar panels. Historically, securitization as a technique allows borrowers to access capital markets and has been considered one of the most prominent financial innovations in the 20th century (Gorton and Metrick, 2013). Securitization developed its potential in an unrestricted manner in the early 2000s, as part of so-called financialization. Financialization has developed in a much complex financial system (Kindleberger 2011; Buchanan, 2016).

Green securitization brings with it both business opportunities and regulatory challenges. Its market development can be partly explained by a fertile ground in the green real economy. The transition to ‘net zero’ (Perkins, 2020) will require to shift from a conventional energy production model based on oil, coal and gas towards renewable energies and possibly batteries. The first implication of this significant transformation in energy production technologies is that we will move from a centralized energy system to a decentralized system, because new renewable energies (such as wind and solar) and batteries come in small capacities, i. e. below 100 Mega Watt (MW) of capacity at any rate. This is particularly true when they are compared to coal and nuclear power plants (e.g. above 1000 MW of capacity roughly speaking). As a result, energy finance is shifting from an approach in which a small, concentrated number of highly capital intensive large-scale capacities are financed by large banks towards a model in which numerous and fragmented lower cost and small-scale investments are financed by capital market investors. Capital markets, which rely on a significant diversity of actors, will indeed be crucial to accompany this change towards a more fragmented investment reality.

Against this background, this paper’s analysis will be guided by the following three main questions:

- What are the benefits and risks of green securitization?
- Do benefits outweigh the risks?
- If they do, which policy incentives could support the reasonable development of green securitization in the European Union?

I. Securitization and green finance

The traditional use of securitization – source of funding for residential and consumer finance as well as collateral to shift risks – could be reshaped and revived with green finance. The current regulatory changes in green finance at the EU level stem from extensive work done by a High-Level Expert Group on Sustainable Finance (for an overview, see de Arriba-Sellier 2020). With the recently adopted Taxonomy, this first step helps to level the playing field, together with the EU Green Bond Standard (GBS) though only on a ‘voluntarily’ basis. The Taxonomy Regulation (Regulation 2020/852) sets demanding thresholds to classify economic activities as green. Broadly speaking, they are distinguished within ‘environmentally sustainable economic activities’, when they contribute substantially to the environmental objectives or do not significantly harm any of them (Article 3). Environmental objectives

² To the best knowledge of the authors, there is no aggregated data that reports on the green securitization market in Europe, hence this paper develops key illustrations without pretending to be exhaustive.

are set in the Taxonomy Regulation (Article 9),³ and the issuers must align their strategy with these overall categories, which will be operationally defined and assessed through forthcoming delegated acts of the Commission. In other words, these activities would include carbon neutral activities, activities allowing a green transition reducing CO₂, and those (financing) green activities' development (Courcier, 2020).

Green bonds are financial innovations in green finance, with a specific use of the proceeds stated in a clause restricting the financing to green investments. Since 2008, these bonds intend to shift capital from less to more sustainable investments (see the case of Sweden with the World Bank involvement, in Maltais and Nykvist, 2020). And this objective has been re-stated forcefully in the latest State of the Union address by Commission President von der Leyen to issue 30% i.e. €225 billion of its €750 billion recovery instrument funds in the form of green bonds (von der Leyen, 2020). A 'green bonds standard', part of the broader objective to adopt standards and labels for green financial products and instruments, is expected after the Commission's consultation (European Commission, 2020c). The Technical Expert Group recommended a voluntary EU Green Bonds Standard (GBS) building upon the EU Taxonomy and its classification of environmentally sustainable economic activities (TEG, 2019 and European Commission, 2020c).

The GBS framework and its developments are relevant for green securitisation insofar as the GBS would concern financial assets, including when they are used as securities (covered bonds or asset-backed securities, see European Commission, 2020c). GBS and securities might comply with this requirement for a 'use-of-proceeds approach', that is '100% of [their] proceeds (...) should be aligned with the EU Taxonomy (with some limited flexibility)' (European Commission, 2020c).

The potential of green securitization/green ABS in green finance is significant. Overall, green ABS are mainly constituted by mortgage backed securities and by securities backed by loans issued for energy efficiency improvements (Climate Bonds Initiative, 2018). These green ABS are for instance solar ABS and auto ABS⁴. Issuance figures have dramatically expanded in recent years. In the long term and according to the OECD, the green ABS issuance on all segments could amount to 280 to 380 billion dollars a year in the period 2031-2035 (OECD, 2017), which is a telling figure when compared to the commitment for issuing 225 billion euros of green bonds within the framework of the EU Recovery Instrument Funds.

In the short term, demand in the European markets seems to remain relatively low, dynamics are however changing. In a position paper the Association for Financial Markets in Europe (AFME) stressed the benefits of green securitization: 'many institutional investors (...) have increased their commitment to invest in green assets in line with their policy objectives. AFME's members are also seeing an increasing number of queries and reverse enquiries around green securitisations and believe the market has considerable potential to grow' (AFME, 2019).

II. Green securitization: a critical assessment

The flaws of securitization put in the spotlight during and after the great financial crisis revealed many misconducts, frauds, and misleading disclosures before and at the start of the great financial crisis in the United States (U.S. Securities and Exchange Commission, 2016). After such controversies (in

³ The environmental objectives are: (a) climate change mitigation; (b) climate change adaptation; (c) the sustainable use and protection of water and marine resources; (d) the transition to a circular economy; (e) pollution prevention and control; (f) the protection and restoration of biodiversity and ecosystems. The first two are applicable from 31 December 2021, while the others, one year later in 2022.

⁴ See a review in Petit and Schlosser (2020).

particular the squared CDO practice), one can legitimately question why securitisation could become again a solution, as part of the financial markets, in sustaining the real economy, not to mention an instrument to finance the green transition. Green securitization has several potential benefits, but before exploring them we will flag its limitations and pitfalls as well as outright risks that ought to be clearly exposed.

a. Limitations/pitfalls and intermediate policy options

Lack of a single definition

As the examination of the categorisation and scope of green securitization shows⁵, a definition of a green asset is still in construction and will benefit from the progress made with the EU Taxonomy and the EU GBS. However, for now, there are diverse criteria for green assets, green bonds, and green securitisation. Green securitization has for instance been categorised with three different types: green collateral, green proceeds, and green capital securitisation (James and Parker, 2019). Firstly, green collateral securitization – i.e. a transaction in which bonds issued are backed by a pool of green assets – may facilitate the issuance of new green asset classes and foster the variations of existing asset classes. For instance, an auto ABS deal could be a loan secured on electric vehicles, which constitute green assets. In contrast, the auto ABS may also be backed by existing vehicle leases that are brown assets. Secondly, green proceeds securitization relates to the use of the proceeds in the whole securitization process. The proceeds resulting from the issuance of green ABS are allocated to investing solely in green projects. Within this category, there is ultimately a green investment, which corresponds to a less restrictive alternative approach/definition of green securitisation put forward by the Climate Bonds Initiative.⁶ Green capital securitization is a more specified element of the former use of the proceeds category. Green capital securitization consists in using the freed-up capital or potential leverage from securitization to invest in green projects.

Further criteria concern here the underlying definition of green bonds and could also help classify and define green securitization. Among others, the part or full (re)financing of green projects and, the criteria for other underlying asset classes than bonds (Green mortgages, auto loans, commercial lending) must be considered.

The identification of green assets within existing asset classes such as mortgages and auto loans is relatively simple. Standards such as the Climate Bonds Standard and Certification scheme’s criteria for low-carbon buildings and other asset classes already exist in order to identify green asset pools (Climate Bonds Initiative, 2018). New asset classes are more challenging, i.e. with energy efficiency products and renewable energy, for which the origination of the loan contracts lacks standardisation.

Policy options: (i) considerations for a single definition; (ii) external reviews consistency and credible green ratings

Which definition would fulfil market expectations without interfering with the development of business opportunities? The definition needs to be clear but also flexible and broad enough to apply to a wide range of deals, capturing several underlying assets. Ultimately, two concerns must be reconciled: the need for an operational definition with clear criteria on the one hand, (a too wide definition would not be practical for the industry) and the market should be deep enough to leverage on investment, on the other hand. A green ABS label does not exist per se, and could be well inspired

⁵ Also here see more in Petit and Schlosser (2020).

⁶ A security is green ‘when the underlying cash flows relate to low-carbon assets or where the proceeds from the deal are earmarked to invest in low-carbon assets’ (CBI, 2018).

from the ‘simple, transparent and standardised’ transaction (STS) and the benchmarks recently introduced in the EU regulatory framework.

The lack of definition (and a common risk assessment methodology) makes external party reviews even more important. External party review actors assess the green features of the portfolio in the securitization and how the proceeds are allocated. The GBS submitted in the consultation chooses to mandate an external registered or authorised verifier to check the compliance with the Green Bond Framework primarily issued (European Commission, 2020c). These verifiers would replace the second-party opinions for now issued in a fragmented way.

To ensure the ‘greenness’ of securitization, all stakeholders should be able to trust a credible – market-led or policy-led – monitoring of the underlying loan pool and of the precise allocation of proceedings. Without unanimous trust in the marketplace it is doubtful how such a market will develop durably and how green loans will be identifiable and eligible for integration into portfolios. This is why this monitoring should either be placed under specific supervision of an authority (in the same way that Credit Ratings Agencies are now supervised by ESMA), or, accredited by public authorities for their operations (Deipenbrock, 2018).

Credible green ratings are another pressing challenge. Green securitization is perceived by market players as riskier because of the lack of credit rating history, without available data on default rates and loss given default, for instance for new asset classes (solar PV, energy efficiency loans), the market is facing an unknown asset performance (Kidney et al., 2017). De facto, this means that very often the securities do not reach the AAA/AA/BBB tranches preferred by institutional investors, at least not in their first issuances.

b. Costs and Risks

There are costs of different nature involved in green securitization. There is first a transactional cost. A typical bank would not carry out such a transaction on its own, it will need to team up with experts in the field as trustees or dealers. The lack of standardized contractual provisions of green loans is a problem. In a state of affairs in which each contract has a different structure, the transactions costs to assess their financial performance is very high for structurers, rating agencies and investors. Yet, as reported by Kidney et al. (2017) the construction of renewable projects can rely on such standardized contracts (e.g. the use of FIDIC contracts).⁷

Secondly, there are legal and compliance costs. Indeed, securitization requires elaborating a prospectus for a securitized asset, which is no easy task. As part of the verification process of compliance with a green standard, there is a third-party review cost. In order to ensure that green features of the assets are guaranteed, a third-party reviewer and possibly external consultants give some certifications of compliance with some standards and/or principles. But in reality only a handful of reviewers are active and credible on this new market.

The two above costs, either in time or as to the resources mobilised, greatly explain why only actors of a certain size/financial capacity can rely on green securitization as a technique.

Policy options: (i) standardised contracts (ii) public authority certification and databases set up

⁷ Types of contracts put forward by the International Federation of Consulting Engineers, based in Geneva – FIDIC is the French acronym also kept in English, *Fédération Internationale Des Ingénieurs-Conseils*.

Standardized contracts could be used and further developed in power purchase agreements, as well as for loan contracts in solar installations and energy efficiency upgrades (Kidney et al., 2017).

On the public sector side, public authority certification should be properly implemented and the data sourced from such public authority certifications included in a database accessible by licensed originators who could then, under certain conditions, be able to model the pool (this concerns in particular the asset selection for the pooling and accountability to the bond holders purchasing the ABS bonds of a green securitisation).

Current costs	Policy options to reduce these costs
Transactional	Standardised loan contract provisions
Compliance	Certification and data sharing Consistency in third-party review(er)s Possibly GBS framework

Table 1. Costs and corresponding policy options

Green securitization also carries a few risks. Firstly, the uncertainty on the greenness of securitization: how green is green securitization? And this relates to the definitional issue above. In the green proceeds and green capital securitisation, the proceeds/capital relief may still be backed by a pool of non-green assets. In other words, these types of securitisations are not dependent upon the origination of green assets. This led some to advocate that only ‘green collateral securitization’ deserves to be called green securitization and that the rest is at risk to constitute green-washing. Also, here distinguishing asset classes will be important to ensure trust in the market place, regardless of the names of the products or operation ultimately retained.

Another risk, particularly associated to green proceeds securitization, is carbon lock-in. Carbon lock-in can occur in the event that green investments are backed by brown assets (Barnes, 2019). Barnes refers to two examples in which the portfolios of assets backing the arguably green security included oil and gas and aviation assets (for instance, Toyota Motor Credit Corporation Green Bond Program issued three green ABS for 4.6 billion euros in 2017, see Petit and Schlosser, 2020). A balancing in the types of risk exposures follows other broader concerns of the legislators. And here, the climate risk exposures are usually divided between transition risks and physical risks. We consider that green securitisation as a technique of green structured finance is mostly relevant for addressing transition risks, particularly the problematic issue of stranded assets (while more indirectly for physical risks). In the transition risks, the challenge is to ensure a smooth transition to a green economy, and using green securitization potential would help to avoid a ‘Minsky moment’ (see the famous speech by Marc Carney in 2015).

Moreover, one cannot (and should not) assume that the freed-up capital on bank balance’s sheet will actually be allocated to green projects, this is at the discretion of the ‘green issuer’, and upon its public communication and reporting on the fulfilling of prior commitments. (i.e. Crédit Agricole synthetic green ABS with US Hedge Fund Mariner Investment Group, see Petit and Schlosser 2020). This discretion showcases other risks: lack of transparency and incomplete reporting, which both undermine the accountability of the issuers towards society. And if standards and principles are helpful and a good starting point, monitoring and enforcement mechanisms seem still thin, unlevelled, as observed already regarding the roles of third-party reviewers (issuing second party opinion).

Policy options: (i) Increased transparency and disclosures (ii) green collateral securitisation as the ultimate objective, (iii) policy proposals put forward in the latest consultation for an EU GBS applying to green proceeds securitisation now and progressively extended to other types of securitisation

Increased transparency and disclosures

In the current regulatory framework, some transparency exists in relation to the performance of certain assets backing securities, in narrow circumstances. Article 22(4) of the Securitisation Regulation 648/2012 provides for publication of some information in specific circumstances. In the presence of underlying exposures to residential loans/car loans or leases, and only these specific assets, the available information related to the environmental performance of the financed assets should be published. This is an example of existing environmental disclosures, which may be extended to more assets by the European Commission in 2021 (Bak, 2020), also in the context of the EU GBS and other legislative proposals in the European Renewed Finance Strategy.

Some of these elements are furthermore explicitly strengthened in the latest consultation for a Green Bond Standard (European Commission, 2020c) according to which the ‘use of the proceeds’ would align with the EU Taxonomy, the issuer would have to publish a/its Green Bond Framework prior to issuance. Furthermore, a mandatory reporting would be twofold: an annual publication of Green Bond allocation report on the use of the proceeds as well as a Green Bond impact report to focus on the environmental impact before the final allocation of the proceeds of the securitisation. Furthermore, an external verifier (registered or authorised) would replace the second-party opinion in checking compliance with the Green framework and allocation report.

One question remains on the scope of these GBS-related measures (not yet in the regulatory framework and which might remain with a voluntary opt-in) and their relations to green securitisation. As emphasised above, the use-of-proceeds approach, if confirmed, states that all proceeds align with the EU Taxonomy. The issue remains that in this scenario only *green proceeds* securitisation is captured, while the other types of securitisation would be subject to less stringent measures. On a pragmatic note, this could be a transition period before extending to all types of securitisation/green bonds.

Current risks	Policy options to reduce the risks
Uncertainty of ‘green’ (definition issues)	‘green collateral securitization’ as ideal STS transaction with a green element following the GBS
Carbon lock-in with securities backed by brown assets and risk exposures	Temporary and progressive extension of measures to all green securities
Lack of transparency	Increased transparency with clear obligations for disclosures and reporting Clear responsibilities for monitoring, compliance, and enforcement Publication of a Green Bond/securitisation Framework
Unlevelled reporting	Extension of the Securitisation Regulation provision Mandatory reporting: - Green Bond/securitisation allocation reports - Green Bond/securitisation impact report
Inconsistent verification of compliance with green framework (standards and principles)	an external (registered or authorised) verifier replacing second-party opinion

Table 2. Risks and corresponding policy options

Clear responsibilities for monitoring, compliance, and enforcement

Another question relates to the competent authority to ensure monitoring, compliance, and enforcement. It must be noted that NCAs are responsible for ensuring the compliance of financial

institutions with the EU taxonomy (see Recital 55, Regulation 2020/852). For example the TEG itself recommended, ultimately, a centralised system at ESMA to conduct oversight and supervision of external review providers. However, were the legislative changes not possible immediately, a market-based and voluntary registration process for verifiers of EU Green Bonds has been deemed the best solution for a transition period of up to three years (TEG, 2019 and European Commission, 2020b).

There are other risks not discussed here, but nevertheless relevant, such as the potential inconsistency in short versus long term policy choices. Among institutional investors for example the immediate return on investment (and cost of capital) must be balanced with the long-term perspective on potential yields of portfolios composition, and societal concerns.

c. Benefits

Market-level and bank-level benefits can be distinguished. First, at the market level, green securitization aggregates micro projects into instruments of a critical size to qualify for acquisition by institutional investors who are constantly on the search for green finance opportunities. On the buying side, several actors such as pension funds, insurance companies, asset managers and retail investors may be attracted by the yield return, the liquidity, and generally the terms of green securities (Kidney et al. 2017). On the selling side, securitization provides access to debt markets to small-scale actors previously excluded from them. Overall, this market widening both improves the access to capital and, potentially, lowers the cost of capital, in particular when comparing to usual bank financing (Kidney et al. 2017). And yet, it must be stressed that the lack of rating history is usually driving the cost of green ABS up. At the level of banks, green securitization frees up capital for new projects including green projects thus increasing the banks' lending capacity. Secondly, green securitization diversifies bank's funding sources, which also ensures a larger distribution of risks.

There are overall benefits: the reduction of banks funding costs with new lending possible, and the diversification of the European economy from bank financing to financial markets' recourse (Segoviano et al., 2015). After the GFC, regulation and oversight tightened conditions in order to (re)-establish some confidence in the securitization/financial market(s). As already discussed, the main concerns have been and still are to some extent transparency and simplification of securities, making sure banks and actors have 'more skin in the game', to revamp the regime of credit rating agencies (and controversial conflicts of interest shown during the last crisis, see Buchanan, 2016).

III. Which policy incentives could support the development of Green Securitization?

We see three types of policy incentives that could support the development of green securitization : the higher reliance on green quantitative easing (a) ; new regulatory and supervisory measures (b) ; and market-making support by development banks (c).

a. Green Quantitative Easing

Beyond the benefits that green securitization may bring to both private finance and energy actors, a deep green ABS market could for example bring significant benefits to central banks who consider implementing Green Quantitative Easing programmes over the years to come. Being market-makers on the green ABS segment would be consistent with the spirit of selected central banking leaders' recent declarations, such as Christine Lagarde (ECB, 2020)⁸ and Mark Carney (Bank of England, 2019),⁹

⁸ ECB's President highlighted three categories of risks: disregard, delay and deficiency.

⁹ The Bank of England has a Task Force on Climate-related Financial Disclosures (TCFD) and its governor said 'In short, every financial decision must take climate change into account' taking into account three risks in reporting, risk management and returns.

who forcefully pointed at the risks climate change poses for the financial sector, the necessity to better understand its impact, and to think further how to insert sustainability considerations in monetary policy frameworks. These reflections are now actively supported by international fora involvement and other central banks (Bolton et al., 2020 and Network for Greening the Financial System, 2019).

How may central banks take part in the securities market in the context of asset purchases? Since the great financial crisis, quantitative easing has indeed been widely used by central banks in Western countries. Some argue that they should be part of the new tools of monetary policy (Bernanke, 2020). Some suggest including larger shares of green ABS into asset purchase programmes of the ECB, as part of a better alignment of monetary policy with the EU climate policy objectives (Jourdan and Kalinkowski, 2019).

Some ECB watchers reported that more than 63% of the portfolio of the ECB's Corporate Sector Purchase Programme (CSPP) would directly finance the most carbon-intensive sectors (Jourdan and Kalinkowski, 2019). These authors recommended integrating carbon emissions in the collateral framework as a new criterion. However, there are different challenges to implement a greener QE from a legal perspective, both because of the ECB's mandate to respect the principle of an open market economy with free competition (Article 127(1) TFEU), and of the proportionality assessment. Regarding the mandate stemming from the Treaties, the ECB must achieve its objectives in compliance with the 'market neutrality' principle,¹⁰ legal requirement for some and pure 'doctrine' for others (Hercelin, 2019). When implementing the Asset Purchase Programme (APP), the Eurosystem aimed to ensure market neutrality in order to minimise the impact on relative prices within the eligible universe and unintended side effects on market functioning. Market neutrality has been considered the 'operational concept' to ensure the effectiveness of the measures adopted in monetary policy policy from a price stability perspective and to comply with the principle of open market economy (Lagarde, 2019).

Regarding the proportionality assessment, there are constraints to buy on the secondary markets, reinforced by the obligation not to provide private operators any certainty on the fact that given assets will be purchased. A 2018 judgment of the Court of Justice indeed emphasised 'the safeguards built into the PSPP ensure that a private operator cannot be certain, when it purchases bonds issued by a Member State, that those bonds will actually be bought by the ESCB in the foreseeable future.' (§§127 Judgment of 11 December 2018, Weiss and others (Case 492/17)) Can this market neutrality principle be adapted to the new challenges faced in the transition to a greener economy and still allow for green quantitative easing? This is a question that we expect scholarship on the matter to engage further with. On the policy-making side some reflections have started in the framework of the ECB's monetary strategy review and President Lagarde has questioned the place of the principle of market neutrality in the ECB's monetary policy portfolio management (Financial Times, 2020). In practice, the universe of eurosystem-eligible marketable assets is already expected to be broadened. Indeed, the ECB will accept sustainability-linked bonds in its collateral policy for Eurosystem credit operations and outright purchases, as of January 2021 (ECB, 2020). These developments happen in the broader context of the green bonds raised within the EU Next Generation Recovery (though still with a critical eye, see Guttenberg and Mack, 2020).

b. Supervisory and regulatory measures

¹⁰ Market neutrality is defined in those terms by an ECB's occasional paper: 'A collateral framework and its criteria and/or requirements should not lead to the preferential treatment of distinct asset classes, issuers or sectors and should avoid market distortion (implying that e.g. individual issuers or sectors benefit unduly from eligibility requirements)' (Bindseil et al. 2017).

Green securitisation development also falls under the prudential assessment of supervisory authorities, which could encourage green securitisation in the current state or after legislative changes.

In the prudential regulation and supervision of banks involved in securitization, risk weighting could be adjusted, i.e. taking into account environmental factors in the capital weights when calculating capital ratios, or more generally a green supporting factor (Dankert et al., 2018). This is inspired from a supporting factor that exists for SMEs in the Capital Requirements Regulation, in order to increase lending to SMEs (see Recital 44, and Article 501 of the CRR II which provides for ‘Capital requirements deduction for credit risk on exposures to SMEs’). In practice, some banks are reported to already apply a green weighting factor in their business operations (Courcier, 2020). This is for instance the case of Natixis with risk-weight adjustments for financing deals within the non-financial sectors (Paris Action Climat, 2019).

From a regulatory perspective, the recent changes with the CRD V/CRR II review were carried out at a meta level perspective with an emphasis on environmental, social and governance (ESG) risks. There are requirements to disclose ESG-related risks and climate risks (including the ESG risks in the Supervisory Review and Evaluation Process, so called SREP). In this approach, the supervisors would take into account environmental risks as part of the inclusion of ESG risks in the review and evaluation performed by supervisory authority. From a supervisory perspective, the ECB within the Single Supervisory Mechanism and the Network for Greening the Financial System released guidance on how to integrate climate-related and environmental risks into prudential supervision (see ECB draft Guide, 2020 and NGFS Technical document, 2020).

c. Can development banks help?

It must be acknowledged that the EU-level regulatory and supervisory perspective should not disregard the relevance of other types of actors in the public sphere. For instance, public development banks at international, national or regional level often played an active role in order to accompany the development of securitization in new asset classes. For instance, the European Investment Bank (EIB) and the European Investment Fund (EIF) played a key role in the creation of an SMEs’ securitization market. In the US, some governmental agencies are active on specific segment of the securitisation market (Agency Mortgage-Backed Securities ‘MBS’) with green MBS targeting US housing (see Fannie Mae and Freddie Mac, in Petit and Schlosser). Multilateral Development Banks could therefore enhance the securitization of sustainable projects (Gabor, 2019). Those actors could favour the development of green securitization, thus ensuring that public resources – which given the coronavirus crisis will be even tighter in the future – are leveraged to unlock private sector market development in green finance. Development banks could then act as a complementary market-maker by providing cornerstone investment, provide credit enhancement through guarantees of given tranches, facilitate the matching process by acting as data or loan warehouses, including with public-private agreements.

Conclusions

Green securitization belongs to the techniques that could contribute to increasing the depth of green bond markets thus helping to match a growing investment appetite among institutional investors as well as to a certain extent central banks.

As we have explained in this paper, green securitization – which captures a diversity of techniques using various eligible assets – is a relevant tool to tap into the depth of the bond market in order to finance green investments. However, a necessary condition for green securitization to play an active role in the transition is that underlying assets have been issued in sufficient quantity: there is the need for a sufficiently large pipeline of green assets in the first place to ensure the deals offer liquidity in a

market, especially in the case of green collateralized securitization, i.e. green asset-backed securities. Ultimately green ABS are really green if they come under the umbrella of green collateral securitization. As we have seen, green proceeds securitization and green capital securitization may still be only partially 'green' transactions since brown assets could still back the issuance of the securities.

A key barrier to the development of green securitisation is the absence of standardized definition, common risk assessment methodology, common cash flow models and of standardized green loan contracts. The latter would indeed allow for a simpler aggregation and would reduce the current high transaction costs. Regulatory initiatives on defining what green and non-green assets are – such as the EU taxonomy for sustainable finance as well as the Green Bond Standard – will definitely help the market to develop.

Being based on already performed primary investments, green securitization will no doubt profit from larger volumes in green investments (e.g. energy efficient house refurbishments, solar panel installations, etc) which governments throughout the world have started to implement over the last two decades and which are likely to be enhanced over the years to come. In the EU, the Commission's newly proposed New Green Deal appears indeed to be a game changer in terms of order of magnitude of investments to be supported. The Commission itself expects the Sustainable Europe Investment Plan to mobilize up to 1 trillion euros of private and public sustainable investment over the coming decade. As the Commission stressed it time and again, public action will need to be complemented by private action as private funding will be providing scale here. (European Commission, 2019).

This is all the more true further to the corona virus crisis. In a world in which man-made climate change risks and its consequences on our daily lives is becoming clear to all of us, green securitization – while not the only solution – is likely to be one of the answers, also to ensure a cost-efficient energy transition.

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