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THE FEASIBILITY OF SECURITIZATION IN GREENING BANK FINANCIAL STATEMENTS

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Abstract

Despite strong projections of imminent rising temperatures in the 21st century, a small fraction of banking assets flows towards green financing. The study aims to establish the feasibility of greening bank statements using the securitization technique. A document analysis was carried out on banks' statements of financial position. A purposive sampling of the top 40 banks by assets is employed. Commitments by the 40 largest banks by assets were obtained from their annual reports. The European securitization forum website provides the securitization issuance data. A green coverage model was formulated to determine the amount of climate-linked assets covered by the green commitments. A gap in coverage with a maximum of 40% was established. Regression analysis of the relationship between asset sizes and green financing commitments displayed a weak, nonetheless positive link between the variables. The null hypothesis stipulating no relationship between the variables was tested and rejected. The data supported the hypothesis that the value of securitization issuances is inadequate to green the financial statements. However, the feasibility of banks achieving green financing targets by increasing green finance coverage or current commitments with a disproportionate increase in brown-backed securitized assets was evident.

Keywords: Assets, Green Commitments, Green Coverage, Green Financing, Issuances

1. Introduction

It is generally accepted that capital markets have a depth and prevalence in line with the development of the countries. The capital markets, which support development by transferring funds to the industries in need, have reached a top-level depth, especially in the Western world; the market instruments have started to be traded in different countries. This study focuses on utilizing the securitization technique to transform bank financial statements from predominantly brown assets to predominantly green. Securitization is a technique by which similar income-generating assets are grouped and sold to parties, which utilize them as collateral in financial

markets (European Parliamentary Research Service, 2016). It is contended in this study that securitization can be an effective tool to reconfigure bank assets that are predominantly brown to green. These assets are prone to escalate climate risks. Several voices of concern and reason have been raised regarding the disastrous consequences of climate risks to the planet. In 2015, the United Nations (UN) developed the Sustainable Developmental Goals (SDGs) with a 2030 deadline (Bexell and Johnson, 2017). These goals are focused on, amongst others, reacting and proactively dealing with climate change, reaching gender equality, and ensuring clean water and sanitation for all. The all-embracing goal is to restrict global temperatures to below 2 degrees Celsius above pre-industrial levels (United Nations Framework Convention on Climate Change, 2015). In Europe, according to a report by the European Environmental Agency (2012), there are strong projections that temperatures could rise by 2.5 to 4 degrees Celsius before the end of the 21st century. All efforts, such as those enshrined in the SDGs meant to mitigate climate risks, may not be achieved if bank assets are not transformed into predominantly green. Eceiza *et al.* (2020) reported that 15% of European banking assets are highly at risk because of climate risks. Hence, financing a green agenda should be an imperative.

The significance of banks financing green related projects is more pronounced if one were to consider that out of approximately US$50 trillion in banking assets in emerging markets (about a third of the global banking assets), a mere 10% is being channelled to "green" loans (International Finance Corporation, 2020). In a study consisting of the top 25 biggest financial institutions, 14,164 transactions led to evidence showing that at minimum US$1.854 billion was directed to fossil fuel industries and yet only US$171 billion went towards renewable energy (Fair Finance Guide, 2015).

Substantial evidence supports the notion that European banks rank amongst the top financiers of fossil fuels (Cullen, 2018). The extensive nature of bank loans as of December 2014 to environmental risk sectors in Europe and the United States of America (USA), 578.2 billion euros and 416 billion Euros, respectively (Nieto, 2017), supports the highly dependent syndrome on banks. In Europe, the deficit in investments in low-carbon assets approximated at EUR 180 billion per year (Legenchuk *et al*. 2020) is substantial. The Official Monetary and Financial Institutions Forum (OMFIF) report (2021) highlighted the critical role of banks in green transitioning. It highlighted Europe's financial sector's influential power based on its substantial asset base approximated at four (4) times greater than the 15 trillion of Europe's gross domestic product (GDP), of which banks' share of 30 million euros' endowment is unquestionably substantial. It is, therefore, evident that banks should set the bar for sustainability. However, few studies synthesize, summarise, and identify trends in green finance involving securitizations for future research and policy formulation in the banking sector (Akomea-Frimpong *et al*. 2021). The study is motivated by the explicit need to reduce that gap and present securitization as a solution that can succeed if properly channeled to its utmost possible achievement. Hence, the study aims to determine the practicality of greening bank statements using securitization in a way distinctive from how it was employed in the period leading to the financial crisis. This study contributes to mitigating climate risks through the banks' ability to use securitization to transform largely climate-unfriendly assets into predominantly green-friendly statements of financial positions.

In this study, a comprehensive theoretical background to securitization was proffered, including its components and how they could be manipulated to impact green financing by banks positively. A document analysis covering the period 2010-2019 was carried out based on securitization issuance data in monetary terms and commitments to green financing in monetary terms using bank financial statements from company websites and private data sources in the form of Orbis bank scope and European Securitization Forum website. A purposive sampling of the 40 largest European banks by assets with explicit numerical commitments since the onset of the Paris Agreement was selected to assist in the transition towards a green environment by extending green financing to customers. The relationship between the asset sizes and green finance commitments was investigated to determine the feasibility of deploying the securitization technique to aid in transitioning to a predominantly green fiancé landscape.

The rest of the article is structured as follows: Section 1 covers the study's theoretical background. Section 2 consists of the methodology employed to address the research questions.

Section 3 provides the results, whilst section 4 discusses the results. Section 5 concludes the article.

2. Theoretical background

2.1. Securitization

With the right approach, the securitization process can be used by banks to transition economies to green. The European securitization market is considered the second largest after the USA (Deku *et al*. 2021). Securitization is a technique by which similar income-generating assets are grouped and sold to parties, which utilize them as collateral in financial markets (European Parliamentary Research Service, 2016). Meanwhile, the Bank of International Settlements (2011) describes asset securitization as the process of asset creation involving a special purpose entity (SPE) issued to investors entitled to payments backed by cash flowing from a pool of assets controlled by the SPE. Legenchuk *et al*. (2020) describe asset securitization as a novel idea geared to reduce assets from a company's books and subsequently issue securities in the financial markets for refinancing. Describing securitization as a welcome transformation, Legenchuk et al. (2020) position securitization as an alternative instrument to aid the passage to green economies by financial markets.

It is inconceivable to attempt to halt or mitigate climate risks without interrogating the universal and substantial distribution of the means of production that flows from the banking system. By virtue of their central role in distributing the means of production, banks are strategically positioned to be pivotal to greening economies, facilitating the much-needed transition to a positive impact on the environment and societies. However, the USA securitization market is much younger than its European counterpart (Buchanan, 2016). The European securitization market is dominated by bank-sponsored residential mortgage-backed securities (Aiyar et al., 2017; Engelen and Glasmacher, 2018). According to Kozak and Teplova (2012), AAA-rated asset-backed securities are predominant in European securitization markets. This approach benefits original lenders, investors and markets, including economic and social benefits (European Parliamentary Research Service, 2016). Figure 1 provides a general outline of the securitization process.

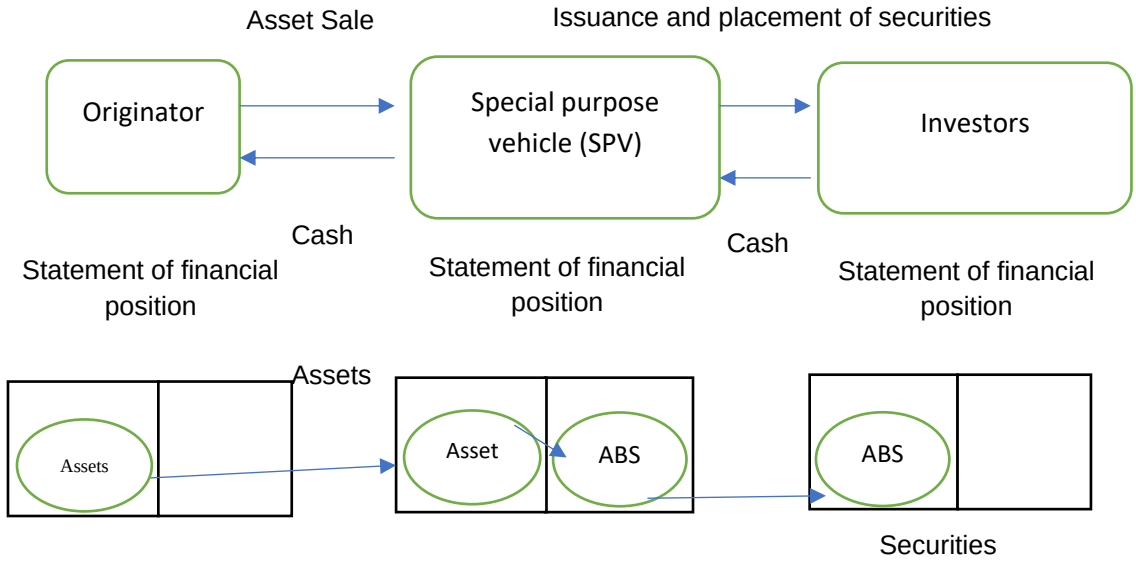

Figure 1. A typical securitization process

Source: Adapted from Pinto (2014)

As illustrated in Figure 1, the originator, who in this case is the bank, sells assets to a Special Purpose Vehicle (SPV), a legal entity created by the originator to implement transactions

specific to the securitization process. Hence, the proceeds from the issuance of securities to the markets become the source of payment to the originators by the SPV. Since these securities are backed by cash flows from the assets in the pool, they are referred to as asset-backed securities (ABS). The collections on the financial assets are channeled to investors.

2.2. Elements of the securitization process

2.2.1. Tranching

Legenchuk *et al*. (2020) describe tranching as a process in which illiquid bank loans can be repackaged to a more liquid format to attract sustainable investors in global capital markets. Citing Gorton and Souleses (2004), Kara *et al*. (2019) describe tranching as representing an SPV capital structure involving senior-rated and junior-rated tranches sold to capital markets and privately placed, respectively. The tranches are markedly different in risk (Kara *et al.* 2019). Tranching pertains to molding various securities classes concerning the SPE capital structure (Commain, 2016). Furthermore, the securities are ranked with the most senior being less risk-weighted than the junior tranches (Commain, 2016). It allows the securities of the most senior tranches to get a better rating, higher than traditional unsecured debt securities and higher than the original pool of underlying assets, therefore enlarging the pool of very safe assets in which institutional investors who are very risk-averse can place their funds (Commain, 2016). It is evident from the various definitions that no specific incorporation of climate risk characteristics can be located. Hence, regarding climate-risks-related asset securitization, more can be achieved by utilizing only high-quality assets based on credit assessments, which capture the potential risk of endangering the climate by that specific pool of assets.

2.2.2. Credit enhancement

Credit enhancements such as standby letters of credit facilitate banks in converting loans or mortgages into highly acclaimed securities (Mandel, 2012). Credit enhancements act as assurances in protecting investors' rights and interests (Fu and Yang, 2017). Recent legislative changes introduced new rules calling for the retention by securitizers of a significant portion of the credit risk of securitized exposures and disallowing the originator from offsetting the risk (Ivanov, 2021). Issuers who sell high quality (as in credit risk) and brown asset-backed securities (as in climatic risk) and commit to providing energy efficiencies to buildings pooled together in asset-backed securitization can be considered as indulging in credit enhancements. Additionally, efforts to continuously raise awareness of new climatic regulations may improve credit quality. Such an issuer's noble activity may surely be considered a credit enhancement move.

2.2.3. Investors

In a bona fide sale, securities are eventually sold to institutional investors such as banks, insurance companies, pension funds, and portfolio managers (European Parliamentary Research Service, 2016; Kara et al., 2016; Shin, 2009). Contrasting the European and the USA securitization markets, Sergoviano (2015) posits the substantial dominance of banks as investors in Europe with little participation by other financial groups, whilst in the USA, an all-inclusive investor base that involves non-bank investors contributes to the growth of the economy. However, a glimpse of the type of investors in securitized assets with the potential to dampen the green initiatives is seen from those who launched lawsuits after selling substandard securities. Penalties were sought by the US federal government from Standard and Poor to recoup losses sustained by state pension funds, credit unions, and federally insured banks (Buchanan, 2016). It remains pertinent that whoever constitutes the investor base should be willing, through contractual agreements, to desist from utilizing the proceeds from securitization cash flows to fund any climate-damaging activities.

2.2.4. Asset-backed securities

Securitization can be regarded as a vehicle for raising funds for the bank or as a source of transferring credit risk from the bank to investors. Due to the redeemable nature of retail deposits, asset-backed securities manifest as a source of medium to long-term financing for the bank (Boesel *et a*l. 2018). Risk transfer occurs by way of a sale of underlying assets to an SPV, entailing taking away risky assets from the statement of financial position and landing the risk to investors (Boesel *et al.* 2018). Unfortunately, the ABS prospectus does not fully disclose the quality of the underlying assets, triggering information asymmetry between role players. (Chen *et a*l. 2023). Even including rating agencies to minimize information asymmetry is not effective since rating agencies restrict themselves to a random sample of underlying assets (Chen et al., 2023). Where rating agencies are involved, three (3) metrics are normally deployed in assessing credit quality: asset risks, structural risks, and third parties to the structure (Fabozzi and Vink, 2012). In addition to the previously focused view on collateral quality and default probabilities concerning asset risks, securitization should further include a climate risk analysis under asset risks. This measure can enhance transparency in the attempt to green bank financial statements.

The theoretical background shows that securitization of assets can be done to clean banks' financial statements, provided techniques such as tranching and credit enhancement are configured to be climate-sensitive. Furthermore, with climate-sensitive investors' participation, the practicality of achieving green financing is tangible. The above discussions prompted the main research question and sub-question respectively (RQs) that follows:

1. Can securitization be effective in reconfiguring banks' statements of financial position to lower climate-risk sensitive assets and increase green assets?
2. How committed are top banks by assets to greening their balance sheets compared to smaller banks?

The hypotheses generated are as follows:

H_1: The value of securitization issuances is inadequate to green the bank statements.

H_2: There is a positive relationship between the size of bank assets on the statement of financial position with the value of green financing commitments.

3. Methodology

3.1. Data collection

The research design sought to establish the feasibility of European banks' capability to exit the greenhouse gas (GHG) emissions financing on time (by 2030) through the securitization process. Secondary data consisted mainly of bank financial statements from company websites and private data sources in the form of Orbis bank scope and European securitization forum website to carry out the research. Longitudinal data on securitization issuance in Europe covering 2010-2019 were collected from the European securitization forum. Commitments to green financing were obtained from bank financial reports extracted from bank websites. The selection of banks was based on the following criteria:

The top 100 banks by assets were considered since it was assumed that they have the greatest impact in terms of financing GHG-emitting activities. The selection was based on the size of the value of assets that they held on their statements of financial position by the end of the year 2020. Sampling was based on the consistency and transparency in reporting green financing committing from the financial statements. The 40 largest banks by assets were then purposively selected due to their consistent reporting and provision of explicit numerical commitments since the onset of the Paris Agreement in 2015.

Hence, a purposive sampling of the top 40 European banks, out of a population of 100, by assets with a substantial capacity to create assets through intermediation and to sell assets through securitization was undertaken. Since the size of bank assets on the statement of bank financial position was used to investigate the relationship to green financing commitments, it was also estimated as follows: Where commitments or deployment of financing were restricted to shorter periods, the proportional figures to 2030 were estimated.

Lastly, a regression analysis was carried out to establish the relationship between the size of banks' assets and the commitment made to green financing using the Pearson R. The statistical significance of the relationship is determined using the p-value, leading to the determination of whether to accept or reject the null hypothesis. The fact that the relationship between the size of assets held by banks and the green financing commitments is not strong is reflected in the strength of the relationship was further ascertained using the low proportion of variability (the R-squared).

To provide an overall view of the 2030 commitments stated by banks in their bid to support the transition to a green environment, Table 1 is provided.

Table 1. Green financing commitments

Lower and Upper Bounds of assets in billion Euros	2030 green commitments in billion Euros														
2000-3000	770	658	243												
1000-1999	220	100	300	108	333	165	23	278	480						
500-999	80	20	1121	400	92	300	572	108	68	319	128	18	160	24	75
180-499	90	71	1040	48	216	4	95	3	122	430	20	4	8		

Source: Own research

Table 1 summarizes the estimated green financing commitments by the top 40 European banks to help transition to a green environment by 2030. Three (3) banks with assets between 2 and 3 trillion Euros have commitments of 770, 658, and 243 billion Euros, respectively. Nine (9) banks have assets between 1 trillion and 999 billion Euros. Some banks with lower asset bases have more estimated commitments than banks with larger asset bases. These are highlighted in yellow in the table.

3.2. Green coverage determination

In Europe, as mentioned in the theoretical background, banks largely dominate securitization issues. Since the objective was to test the feasibility of European banks to quickly transition to a green statement of financial position using non-green assets as collateral for asset-backed securitizations, data on securitization were collected on European securitization issues, which are largely dominated by banks, however only on high-quality securities consisting of Moody's rating agency AAA, AA and A ratings from 2010 to 2019 and it is assumed that all issuances emanated from banks, as shown in Table 2 and Figure 2.

Table 2. Europe historical securitization

year	q1	q2	q3	q4	Total	AAA	AA	A	Total
2010	75.5	32.6	110.7	159.2	378	313.1	6.2	10.4	329.7
2011	115.2	67.3	57.1	137.2	376.8	278.1	11.2	8.6	297.9
2012	64.3	67.7	62	63.9	257.8	36.9	1.6	3.3	41.8
2013	32.8	53.2	38.4	56.4	180.8	88.3	9.9	36.3	134.5
2014	20	99.5	37.8	59.8	217.1	114.8	13.6	46	174.4
2015	35.7	50.3	57.8	72.8	216.6	91.5	51.7	29.1	172.3
2016	57	75.8	46.6	60.1	239.6	113.3	26.6	44.8	184.7
2017	40.2	73	49.1	74.1	236.5	19.6	8.6	3.3	31.5
2018	58.5	68.1	54.5	88.4	269.4	143.8	38.5	25.7	208
2019	32.4	60.7	40.4	87.4	220.9	66.2	9.9	2.6	78.7
Total	**531.6**	**648**	**554.4**	**859.3**	**2593.5**	**1266**	**177.8**	**210.1**	**1653.5**

Source: European Securitization Forum

The major highlight from Table 2 is that the maximum issuance value over the years amounted to 329,7 billion Euros, achieved way back in 2010. Since then, the overall trajectory has been downward. A minimum value of 31.5 billion Euros was issued in 2017, producing a range of 297.5 billion Euros. The above scenario is depicted in a graphical format in Figure 2.

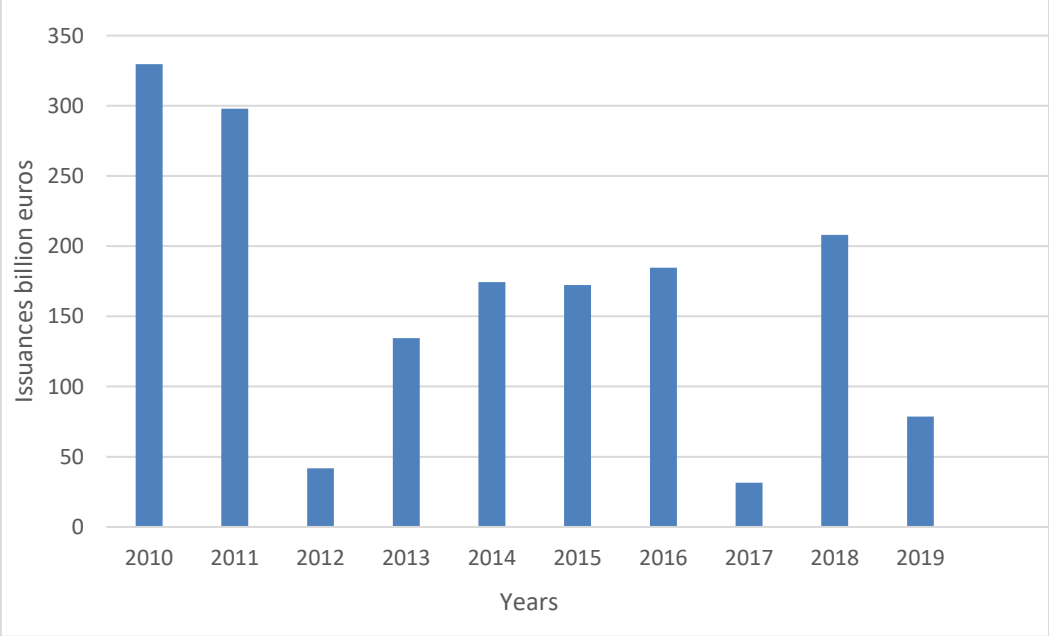

Figure 2. European issuance of high-quality securitizations
Source: Own research

Figure 2 shows that the highest frequencies occurred in the early years, that is, in 2010 and 2011. Even though between the years 2012 and 2017, the trajectory was upward, the overall trajectory remains downward.

3.2.1. Green coverage

The mean of the 2030 green financing commitments (F_g) by the 40 banks aiscalculated, and it is used as a ballpark figure to demonstrate the total banking yearly commitments to green financing. The authors define green coverage as an amount of high-quality brown asset-backed securities issued (S_{Ab}) divided by the amount of green financing commitment (F_g). Hence, green coverage is as in Equation (1).

$$C_g = \frac{S_{Ab}}{F_g} \quad (1)$$

Equation 1 can be rearranged as in Equation (2).

$$F_g = \frac{S_{Ab}}{C_g} \quad (2)$$

4. Results

4.1. Green coverage matrix

Equation 2 implies that bank commitment to green transition financing can be derived by dividing non-green asset-backed securities issued by the required rate of green coverage, as shown in Table 3.

Table 3. Coverage ratios

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Av. F_g	825	825	825	825	825	825	825	825	825	825
S_{Ab}	329,7	297,9	41,8	134,5	174,4	172,3	184,7	31,5	208	78,7
C_g	0,40	0,36	0,05	0,16	0,21	0,21	0,22	0,04	0,25	0,10

Source: Own research

Considering the amount of issuances from 2010 to 2019, it is reflected in Table 3 that the maximum coverage is 40% and the minimum is 4%, with a range of 36%. These figures suggest that for banks to meet the current commitments to green their statements of financial position by 2030, the most they need to raise high-quality brown asset-backed issuance is 96%, and the least they need is 60%. However, with an average issuance of 20%, the gap to fully cover the commitments would be 80% of 825 billion Euros, amounting to 660 billion Euros. With an average of 167 billion Euros of high-quality brown-backed assets issuance, anything above 80% would mean that banks can reduce the time taken to achieve their commitments to periods of less than 10 years and thereby green their statement of financial positions according to their stated commitments. The key, however, is the assumption that all issues are sold, and all proceeds are redirected towards green loans. The relationship between high-quality securities issued and the average green financing commitments is captured in Figure 3.

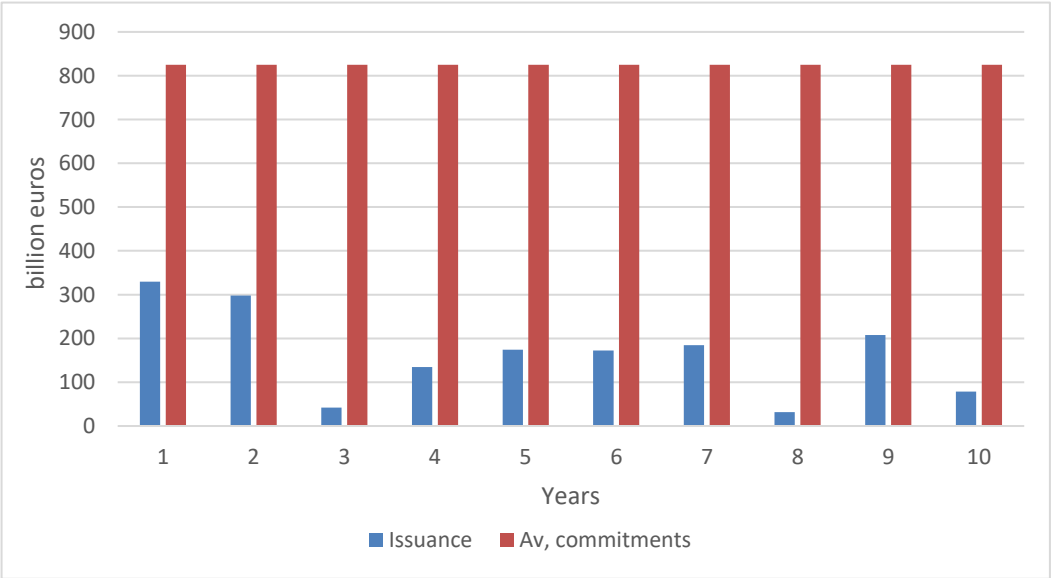

Figure 3. High-quality issuances vs. green financing commitments
Source: Own research

It is evident from Figure 3 that the current levels of high-quality securitizations are not sufficient to meet the commitments. Figure 4 reflects the coverage trends, clearly showing that there is no coverage ratio above 40% and most years not exceeding 25%, indicating a great need by banks to shore up the difference by increasing issuances.

It would appear from Figure 4 that coverage was much higher in the years 2010 to 2011 before hitting lows in 2014 and 2017. Table 4 provides the statistical location and variability in the coverage scores.

There is a small variability in coverage values indicated by a standard deviation of 12% and a range of 36% in coverage values. However, the mean score is only 20% coverage, reflecting a substantial gap in high-quality issuances to green financing commitments. Additionally, the location based on the mean score is 167 billion Euros of high-quality issuances over 10 years with a standard deviation of 99,2 billion, indicating a greater variability in the values of issuances. The mean score suggests that European banks need a concerted effort to raise issuances to cover the full 825 billion Euros per annum that is considered adequate and aligned to green financing commitments by 2030. Therefore, it is concluded that more securitization issuances are needed to transform the banks to green sufficiently. Hence, we find support for the hypothesis:

H_1: The value of securitization issuances is inadequate to green the bank statements.

It is therefore considered feasible for banks to green their statement of financial position using securitization provided they raise the amount of issuances adequate to cover the commitments.

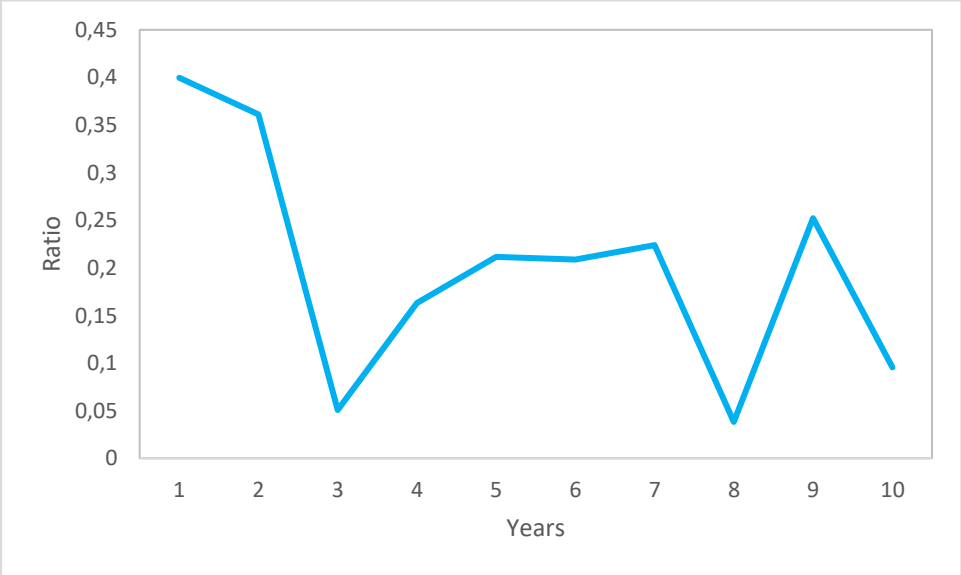

Figure 4. Coverage trends
Source: Own research

4.2.1. Estimated commitments and bank asset values

Assuming a normal standard distribution of the estimated green commitments and using the z-scores derived from the estimated commitments, the researchers' second aim is to test the research hypothesis:

H_2: There is a positive relationship between the size of bank assets on the statement of financial position with the value of green financing commitments.

Firstly, to highlight the pattern in the relationship between estimated commitments and bank asset values, it is observed that a bank that lies in position 29 in terms of asset values and with a commitment of 90 billion Euros has 29.46% of the population with the same or lower commitments. Whereas a bank ranked 30 by asset size with a commitment of 71 billion Euros has 26,76% of the population with the same or lower commitments. A bank in position 31 with commitments of 1,040 billion Euros has 99.9% of the population with a commitment of 1,040 billion Euros or lower. The largest bank in Europe by assets has a lower commitment than the one in position 30 at 770 billion Euros and has 97.56% of the population with the same or lower commitment. A bank in position 2 with respect to asset value and 658 billion Euros commitment has 94% of the population with the same or lower commitment. The third largest bank, with 243 billion Euros in commitments, has 50.8% of the population with the same or lower commitments.

A striking feature presented in the analysis is that the estimated commitments are not necessarily determined by the value of assets the individual bank has on its statement of financial position. The analysis prompted the testing of the relationship between estimated commitments to financing green activities and the size of the asset base.

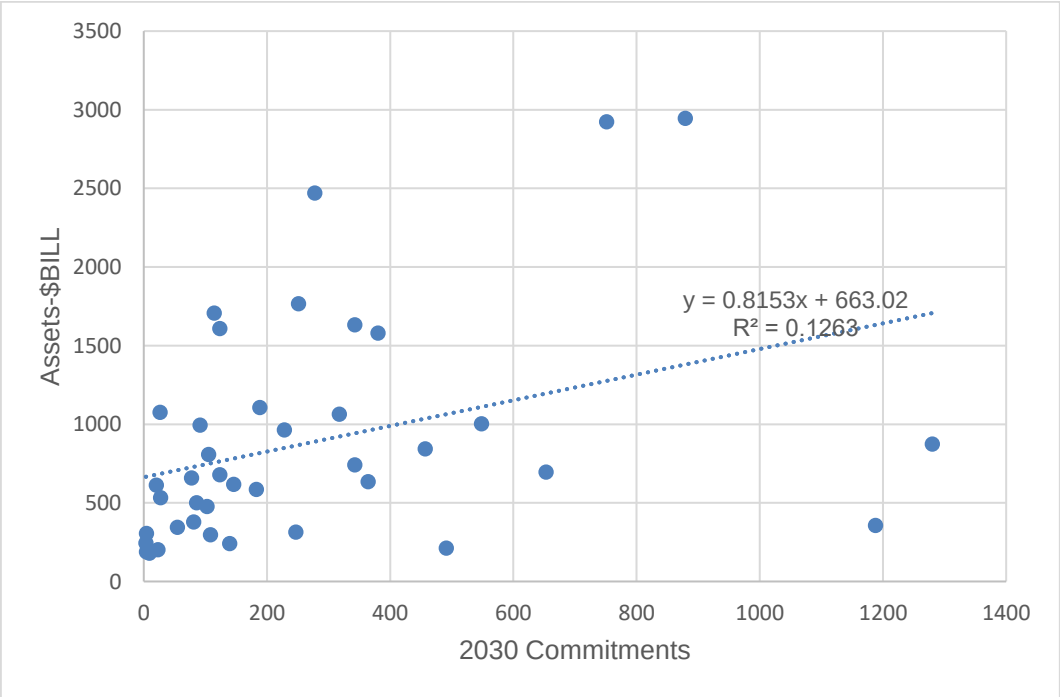

Figure 5. Regression analysis
Source: Own research

Table 4. Statistics measures from regression

Basic Statistical Measures			
Correlation			
		P	0.0225
R	0.36	Slope	0.82
r^2	0.126	y-intercept	663

Source: Own research

Table 5. T-distribution statistical measures

Y	**Z**	**AA**	**AB**
R	**Degrees freedom (n)**	**T**	**p-value**
0.36	40	2.3787	0.0225

Source: Own research

It was established that the Pearson r is 0.36 (Tables 4 and 5). This implies that the relationship between the size of banks' assets and the commitment made to green financing is positive, however weak. However, the relationship is significant with $p < 0.05$. Therefore, the null hypothesis that there is no positive relationship between the size of bank assets on the statement of financial position with the value of green financing committed by 2030 is rejected. The fact that the relationship between the size of assets held by banks and the green financing commitments is not strong is reflected in the low proportion of variability (12%) that can be accounted for by the 2030 green financing commitments (The R squared). Furthermore, even though the slope is positive (0.82), the smaller the value of the slope, the smaller the change in the size of assets for a change in green financing commitment.

Hence, the significance of the positive relationship between asset sizes and commitments is conducive because once issuances are raised to adequate levels, securitization becomes effective without being hindered by a negative correlation of asset size to commitments.

5. Discussions

In Europe, since the commencement of the Paris Agreement, banks have committed to helping economies to transition to green. However, the commitments provided thus far vary in size and duration. After estimating the commitments to 2030 by the top 40 banks in Europe by assets, it is estimated that a total of nine trillion nine hundred and 49 billion Euro (9,949) of commitments have been targeted. Furthermore, it was also established that there is a weak, nonetheless positive, relationship between the assets a bank holds on its statement of financial position and the commitment to green financing made. This weak relationship dilutes the influential power of banks in the green transition. It is elucidated in the Official Monetary and Financial Institutions Forum (OMFIF) report (2021) where it is highlighted that with assets four (4) times greater than the European Union's gross domestic product (GDP) of 15 trillion Euro, Europe's financial sector has a substantial influential power with banks having the biggest claim. However, the positive relationship encourages addressing the outcry by the IFC (2020) in that an insignificant 10% of assets are being channeled to "green" loans. However, the relationship is statistically significant. The fact that the relationship between the size of assets held by banks and the green financing commitments is not strong is reflected in the low proportion of variability (12%) that can be accounted for by the 2030 green financing commitments.

Assuming the pattern of highly rated credit issuance in securitized assets, however, backed by brown assets with full disclosure of the various climate-related risks, the estimated maximum yearly coverage from 2020 to 2030 is 40%, with a minimum of 4%, reflecting substantial volatility in coverage. The mean of 20% coverage suggests that, on average, European banks fall short by 80% to generate sources of funds from securitization, which they can redirect towards the financing of green-related loan projects. This deficit provides a lack of appreciation of the influential power of securitization in a bid to green the environment, as Legenchuk *et al.* (2020) argued. Furthermore, banks can leverage because AAA-related assets-backed securities are highly predominant (Kozak and Teplova, 2012), translating to potentially positive cash flows to investors. Consequently, there is a likelihood that focusing on AAA-rated asset-backed securities would attract more investors and mitigate what Buchanan (2016) referred to as lawsuits by investors due to the selling of poorly rated asset-backed securities.

Hence, banks can speedily achieve green financing targets by increasing green finance coverage, that is, by issuing more high-quality brown-backed securitized assets and maintaining the current estimated green commitments. Alternatively, they can reach their targets by increasing the current estimated green commitments with a disproportionate increase in brown-backed securitized assets. In the process, the climate risk embedded in the financial statements is shifted from the statement of financial position to investors (Boesel *et al.* 2018), providing more different types of investors as opposed to the predominance by banks (Sergoviano, 2015) enter the market and subsequently desist from utilizing the proceeds to fund brown assets. This finding resonates with the assertion by Legenchuk *et al*. (2020) that securitization can be an alternative important tool to support the transition to green economies by financial markets.

6. Conclusion

The study aimed to establish the feasibility of greening bank statements of financial position using the securitization technique. For banks to meet their commitments to green financing by 2030, they need to increase issuances by 80% on average, translating to an estimated 660 billion Euros yearly. Therefore, any issuances above 825 billion Euros on average per year will result in a reduced timeframe (less than ten years) to reach targeted 2030 green financing levels. Consequently, by securitization, European banks can unlock the statement of financial position potential for sustainable assets through green financing. The results, which are robust to the feasibility of securitization, demonstrate that although there is a weak, nonetheless positive relationship between bank asset size and green financing commitments to the year 2030, the transformation of statements of financial positions to green is viable. However, this transformation goes beyond the conversion not only of illiquid assets but also high-quality asset-backed securities, which are, however, sensitive to climate risk. The role of banks in the green transition, as was elucidated in the Official Monetary and Financial Institutions Forum (OMFIF) report (2021),

can be enhanced if asset sizes were translated to match commitment sizes. This would enable the already feasible nature of using securitization to green the financial statements to maximum effectiveness.

The study is, however, limited in the sense that there is a lack of consistency in the estimating time frames by banks themselves, with some providing full estimated commitments to the year 2030 whilst some providing short estimated periods. Variations to estimations and time frames may yield different results. Furthermore, depending on the strategic imperatives of the banks under study, a shift in strategy may increase or reduce asset sizes, which may prompt a relook at the corresponding green commitments.

Moreover, the theoretical background has shown some gaps in the current securitization process, such as the pending danger of the proceeds of the securitization being unwittingly channeled back to the banking books as a source of further financing of unfriendly climate-related projects. Resultantly, we recommend that future studies consider the formulation of a securitization framework that prohibits such recycling and employ credit enhancement techniques that are commensurate with the progressive exposure of assets to climate risks to green the financial statements effectively.

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