



MIRAE ASSET SECURITIES PERIODIC REVIEW



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Prepared by: DNV Business Assurance Korea Ltd.

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This statement is valid until the ESG Bond Annual Reporting provided in July 2022 remains unchanged.



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Disclaimer

Our assessment relies on the premise that the data and information provided by the client to us as part of our review procedures have been provided in good faith. Because of the selected nature (sampling) and other inherent limitation of both procedures and systems of internal control, there remains the unavoidable risk that errors or irregularities, possibly significant, may not have been detected. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied as per scope of work. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Statement.

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¹ DNV Code of Conduct is available from DNV website (www.dnv.com)



DNV'S INDEPENDENT ASSESSMENT

Scope and Objectives

In April 2019, Mirae Asset Securities (hereinafter, "the Company") issued a Sustainability Bond with the proceeds of USD 300 million. In June 2021, Mirae Asset Securities issued a Green Bond with the proceeds of USD 300 million. In this report, both sustainability bond and green bond are expressed as "BONDs". The BONDs were issued based on Mirae Asset Securities' Green, Social and Sustainable Bond Framework which was published in April 2019 (Sustainability Bond) and June 2021 (Green Bond)².

DNV has been commissioned by Mirae Asset Securities to provide the review of Mirae Asset Securities' ESG Bond Annual Reporting (2022). Our criteria and information covered to serve the purpose are described under 'Work Undertaken' shown below. The periodic review was made based on the information and documents provided by Mirae Asset Securities as well as the interview conducted with its team or a delegated entity. We do not provide any independent assurance or other type of audit activities.

In this report, no assurance is provided regarding the financial performance of the Issuer, the value of any investments of the Bonds, or the long-term environmental benefits arising from the nominated projects. Our main objective of these reviews has been to provide an assessment that the BONDs have met the criteria established on the basis set out below.

Responsibilities of the Management of Mirae Asset Securities and DNV

The management of Mirae Asset Securities has provided the information and data used by DNV during the delivery of this review. Our statement represents an independent opinion and is intended to inform Mirae Asset Securities management and other interested stakeholders in the BONDs as to whether the established criteria have been met, based on the information provided to us. In our work we have relied on the information and the facts presented to us by Mirae Asset Securities. DNV is not responsible for any aspect of the nominated assets referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, DNV shall not be held liable if any of the information or data provided by Mirae Asset Securities is not correct or complete.

Basis of DNV's opinion

- Principle One: Use of Proceeds. The Use of Proceeds criteria are guided by the requirement that an issuer of
 the BONDs must use the funds raised to finance (or refinance) eligible activities. The eligible activities should
 produce clear environmental and social benefits.
- Principle Two: Process for Project Evaluation and Selection. The Project Evaluation and Selection criteria
 are guided by the requirements that an issuer of the BONDs should outline the process it follows when
 determining eligibility of an investment using the BONDs proceeds, and outline any impact objectives it will
 consider.

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² The SPO was provided based on the Framework 2019 and after that only minor changes were made for the Framework 2021 from the previous one such as reinforcing introduction part and a department name change.



- **Principle Three: Management of Proceeds.** The Management of Proceeds criteria are guided by the requirements that the BONDs should be tracked within the issuing organization, that separate portfolios should be created when necessary and that a declaration of how unallocated funds will be handled should be made.
- **Principle Four: Reporting.** The Reporting criteria are guided by the recommendation that at least Sustainability Reporting to the bond investors should be made of the use of the BONDs proceeds and that quantitative and/or qualitative performance indicators should be used, where feasible.

Work Undertaken

Our work constituted a high-level review of the available information, based on the understanding that this information was provided to us by Mirae Asset Securities in good faith. We have not performed an audit or other tests to check the veracity of the information provided to us. The work undertaken to form our opinion included:

- Creation of a Protocol, adapted to the purpose of the annual report, as described above and in Schedule 3 to this Assessment;
- Assessment of documentary evidence provided by Mirae Asset Securities on the annual report and supplemented by a high-level desktop research. These checks refer to current assessment best practices and standards methodology;
- Review of published materials by Mirae Asset Securities and Mirae Asset Securities' website;
- Discussions with Mirae Asset Securities' responsible people, and review of relevant documentation and evidence related to the criteria of the Protocol; and
- Documentation of findings against each element of the criteria. Our opinion as detailed below is a summary of these findings.

Findings and DNV's Opinion

DNV's findings are listed below:

1. **Principle One: Use of Proceeds.** Mirae Asset Securities has reported use of the proceeds of the BONDs to finance and refinance projects and assets including:

Green category

- · Renewable Energy (Solar power)
- · Green Buildings

Social Category

- · SME Financing and Microfinance
- · Affordable Housing

DNV reviewed the criteria for the project categories above to determine the eligibility of the nominated projects and assets.

2. Principle Two: Process for Project Evaluation and Selection. The proceeds of the BONDs have been allocated to finance and refinance the assets as defined in Schedule 1. DNV has reviewed evidence that demonstrates that Mirae Asset Securities follows the project evaluation and selection described in the

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framework and regularly assesses opportunities for improvement and devises action plans and initiatives to mitigate negative environmental and to lessen negative social impact from its operations.

- 3. Principle Three: Management of Proceeds. DNV has reviewed evidence showing how Mirae Asset Securities traced the proceeds from the BONDs, from the time of issuance to the time of disbursement. The full amount of the proceeds will be managed within its Treasury Portfolio, and thereafter disbursed in accordance with its financing schedule. The details of the disbursement and the outstanding value will be tracked by Mirae Asset Securities' treasury team. At the end of each financial period, Mirae Asset Securities reviews the outstanding balance of the BONDs. As stated above, DNV provides no assurance regarding the financial performance of the BONDs, the value of any investments in the Bond, or the effects of the transaction.
- **4. Principle Four: Reporting.** Mirae Asset Securities has confirmed that it will include and maintain a dedicated section on the BONDs in its website. This includes a description of the project and value of the proceeds invested, as well as the associated qualitative and quantitative environmental impacts.

On the basis of the information provided by Mirae Asset Securities and the work undertaken, it is DNV's opinion that the BONDs meet the criteria established in the Protocol and that it is aligned with the stated definition of green bonds and sustainability bonds within the Green Bond Principles 2021 and the Sustainability Bond Guidelines 2021, which is to enable capital-raising and investment for new and existing projects with environmental and social benefits.

for DNV Business Assurance Korea Ltd.

Seoul, Republic of Korea / 21 July 2022

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Schedule 1. Nominated Projects & the Proceeds Allocation

Total Allocation: USD 600,000,000 (fully allocated)

Fligible Asset	Eligible Asset Eligible Category Project			Invested Amount ((USD thousands)						Allocated
Liigibie Asset	Lingible Sategory	Details	2017	2018	2019	2020	2021	2022	Total	(%)
	Green Buildings		31,848	61,313	173,084				266,245	88.8%
Sustainability Bond	Affordable Housing		6,385		11,717	6,023	103	3,439	27,667	9.2%
	SME Financing and microfi	nance	2,376	3,713					6,089	2.0%
	Sub Total		40,609	65,026	184,801	6,023	103	3,439	300,000	100%
	Renewable Energy	Solar Power			75		495		570	0.2%
Green Bond	Green Buildings				175,658			123,773	299,431	99.8%
Sub Total		-	-	175,733	-	495	123,773	300,000	100%	
	Grand Total		40,609	65,026	360,534	6,023	598	127,212	600,000	100%

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Refinancing (Sustainability Bond)

Eligible Green Category	Refinanced Amount (USD thousands)	Financing Funded Amount (USD thousands)	
	May 2017- Apr 2019	May 2019 - Jun 2022	
Green Buildings	133,691	132,554	
Affordable Housing	6,385	21,282	
SME Financing and microfinance	6,089		
Total	146,165	153,836	
Allocated (%)	48.7%	51.3%	

Refinancing (Green Bond)

Eligible Green Category	Refinanced Amount (USD thousands)	Financing Funded Amount (USD thousands)
	Feb 2019 – May 2021	Jun 2021 - Jun 2022
Renewable Energy (Solar Power)	75	495
Green Buildings	175,658	123,773
Total	175,733	124,268
Allocated (%)	58.6%	41.4%

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Schedule 2. Impact Reporting (Green and Social Category)

Green Category – Renewable Energy

Projects	Detail	Generation Capacity (MW)	Expected Energy Generation (MWh/year)	Expected GHG Avoided (kgCO2e/yr)
	Japan	41.4	25	11,127
Solar Power	Korea A	1.7	112	52,829
	Korea B	1.7	67	31,676
То	tal	44.8	203	95,633

Green Category – Green Buildings

Projects	Location	Gross Floor Area	Green Building Certification
		(m2)	(Rating Level)
Green Building A	Korea	506,318	LEED Gold
Green Building B	France	66,846	BREEAM Excellent
Green Building C	France	66,846	BREEAM Excellent
Green Building D	UK	27,714	BREEAM Excellent
Green Building E	UK	14,563	BREEAM Excellent
Green Building F	Germany	99,364	LEED Gold
Green Building G	UK	26,626	BREEAM Very Good
Green Building H	Korea	32,055	Green 2
Green Building I	USA	131,519	LEED Gold

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Green Building J	USA	131,519	LEED Gold
Green Building K	Korea	8,556	Green 2
Green Building L	France	66,846	BREEAM Excellent
Total	12	1,178,772	-

Social Category - SME Financing and Microfinance

Project	Investment Period	Number of SMEs Financed	Total Amount (USD)
Venture Investment Fund A	20 Nov 2018 ~	29	3,713,178
Venture Investment Fund B	28 Dec 2017 ~	30	2,376,434
Total	-	59	6,089,611

Social Category - Affordable Housing

Project	Investment Date	Location	Number of Target Households	Total Amount (USD)
Youth Housing Project A	Dec 2019	Korea	882	9,076,656
Youth Housing Project B	May 2017	Korea	922	6,385,015
Youth Housing Project C	Mar 2020	Korea	285	4,126,578
Youth Housing Project D	Mar 2022	Korea	882	3438755
Youth Housing Project E	Jul 2019	Korea	882	2,640,069
Youth Housing Project F	Mar 2020	Korea	285	824,325
Youth Housing Project G	Dec 2020	Korea	217	824,325
Youth Housing Project H	Aug 2020	Korea	252	247,545
Public Housing Project I	May 2021	Korea	2,623	103,144
Total	-	9	7230	27,666,414

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Schedule 3. Mirae Asset Securities -specific Eligibility Assessment Protocol

1. Use of Proceeds

Ref.	Criteria	Requirements	Works Undertaken	DNV Findings
1a	Type of bond / loan	The Bond and Loan must fall in one of the following categories, as defined by the Green/Social Bond Principles: Green/Social Use of Proceeds Bond Green/Social Use of Proceeds Revenue Bond Green/Social Project Bond Green/Social Securitized Bond Loan instrument made available for Green and Social project (Green and Social use of loan proceeds)	Review of: • Mirae Asset Securities' Green, Social and Sustainability Bond Framework • Mirae Asset Securities ESG Bond Annual Reporting Discussion with Mirae Asset (or a delegated entity)	The reviewed evidence confirms that the BONDs fall in the category: Green Use and Social Use of the Proceeds
1b	Sustainable Project Categories	The cornerstones of Sustainability Bond and Loan are the utilization of the proceeds of the bond and the loan which should be appropriately described in the legal documentation for the security.	Review of: • Mirae Asset Securities' Green, Social and Sustainability Bond Framework • Sub Project Performance and Financial Documentation • ESG Bond Annual Reporting Discussion with Mirae Asset (or a delegated entity)	As identified by the purpose of each, the BONDs were used to finance and refinance for projects falling under the following categories: Sustainability Bond Green Buildings (88.8%) Affordable Housing (9.2%) SME financing (2%)

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Ref.	Criteria	Requirements	Works Undertaken		DN	V Findings
					Buildings (99. able Energy-S	8%) Solar Power (0.2%)
				The proceeds we		he following projects:
				Type		Location
				Office Building	Republic o	f Korea, UK, Germany, USA, France
				Renewable Ener	rgy	,
				Туре		Location
				Solar Power	Japan, Re	public of Korea (Naju-si)
				Affordable Hous	sing	
				Туре	e	Purpose
				Youth Housing	Project	Residential stability for youth
				SME Financing		_
				Туре		Purpose
				Venture Investr	nent Fund	Investment in SMEs for youth
				fall into eligible grenvironmental ou Sustainability Bor	reen and soc atcomes and nd Guideline	d that the aforementioned investment cial categories, thus leading to positive social advancement in line with the s and Green Bond Principles.
1c	Environmental benefits	All designated Green Project categories should provide clear environmentally sustainable benefits, which, where feasible, will be quantified or assessed by the Issuer.	Review of: Mirae Asset Securities' Green, Social and Sustainability Bond Framework Environmental impact verification related documents (including green building certifications) ESG Bond Annual Reporting	verify environment accuracy of calculations of calculating building.	ntal impact o ulation. Buildings: M s with green vork. The Co	ded by Mirae Asset Securities to f the invested projects and its lirae Asset Securities invested the certifications as indicated in the impany also presented case studies include the amounts of avoided CO2

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Ref.	Criteria	Requirements	Works Undertaken	DNV Findings
			Discussion with Mirae Asset (or a delegated entity)	emission. DNV checked calculation methods and found there is not anything incorrect in the calculation methodology ³ . • Renewable Energy: Mirae Asset Securities invested renewable energy such as solar power. The projects are under construction now and their expected GHG avoidance is 95,633 tCO2e/yr. The calculation methodology was checked and nothing incorrect was found in it. Considering the above-mentioned effects, DNV considers that
1c	Social benefits	All designated Social Project categories should provide clear social benefits, which, where feasible, will be quantified or assessed by the Issuer.	Review of: • Mirae Asset Securities' Green, Social and Sustainability Bond Framework • Social impact verification related documents (including invested project details) • ESG Bond Annual Reporting Discussion with Mirae Asset (or a delegated entity)	Mirae Asset Securities' green building projects and renewable energy projects have brought positive environmental impacts. DNV reviewed raw data provided by Mirae Asset Securities to verify social impact of the invested projects. • Affordable Housing: Providing investment to Youth Housing Projects: rental (public) housing (supported by government), Mirae Asset Securities supported underprivileged communities to improve its residential stability and access to financial services. The number of beneficiaries amounts to 7,230 households. • SME Financing: Through Venture Investment Fund, Mirae Asset Securities has supported SMEs. Taking into account the crucial role of SMEs or ventures as new economic stimulus in Korea, this support has been considered to bring positive social outcome including job

³ Mirae Asset Securities used data from Climate Action Tracker (- an independent scientific analysis that tracks government climate actions and measures) for calculating emissions of commercial buildings which is compared to emissions of green buildings in UK. The Company also referred to Energy Consumption Survey 2014 conducted by Korea Energy Economics Institute in order to calculate emissions of office buildings in Korea.

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^{• &}lt;a href="https://climateactiontracker.org/data-portal/?country=US§or=Buildings&indicator=Buildings%20emissions%20intensity%20(per%20floor%20area,%20commercial)&scenario=benchmark&scenario=historic&mode=indicators.

https://pdfs.semanticscholar.org/ff05/d180dad8d18bebd9d3c04c89eae54219eb40.pdf#page=21&zoom=100,101,542



Ref.	Criteria	Requirements	Works Undertaken	DNV Findings
				creation. The number of beneficiaries amounts to 59 SMEs.
				Considering the above-mentioned effects, DNV considers that Mirae Asset Securities' social projects have brought positive social outcomes.
1d	Refinancing Share In the event that a proportion of the proceeds may be used for refinancing, it is recommended that issuers provide an estimate of the share of financing vs. re-financing, and where appropriate, also clarify which	ed for refinancing, • ESG Bond Annual Reporting	The proceeds of the BONDs (USD 600 million) were fully allocated to the eligible projects.	
		an estimate of the share of financing	Discussion with Mirae Asset (or a	Mirae Asset Securities limited the look-back period to 36 months from the date of the issuance of the BONDs. DNV confirms that the proceeds were allocated within this look-back period.
				Sustainability Bond (USD 300 million)
	be refinanced.			Out of the allocated proceeds, about 48.7% (USD 146 million) were used for refinancing.
				Green Bond (USD 300 million)
			Out of the allocated proceeds, about 58.6%(USD 176 million) were used for refinancing.	

2. Process for Project Selection and Evaluation

Ref.	Criteria	Requirements	Works Undertaken	DNV Findings
2a	Investment- decision process	The Issuer of a Sustainability Bond and Loan should outline the decision-making process it follows to determine the eligibility of projects using Sustainability Bond and Loan proceeds. This includes, without limitation: • A process to determine how the projects fit within the eligible Green and Social Projects categories identified in the Green/Social Bond	Review of: Mirae Asset Securities' Green, Social and Sustainability Bond Framework ESG Bond Annual Reporting Discussion with Mirae Asset (or a delegated entity)	In the 2021 Mirae Asset Securities' Green, Social and Sustainability Bond Framework, the company has indicated procedures for project selection and evaluation. DNV's assessment concluded that the company has followed the procedures in the Framework. This was achieved, firstly by making relevant business units identify and propose eligible projects and secondly by ensuring that the Green, social and Sustainability Bond Working Group ("GSSBWG") assess environmental and social impact of the projects and make recommendation for inclusion as Eligible Use of Proceeds.

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Ref.	Criteria	Requirements	Works Undertaken	DNV Findings
		Principles and Green/Social Loan Principles; The criteria making the projects eligible for using the Sustainability Bond proceeds; and The environmental sustainability objectives, and the social objectivities		
2b	Issuer/borrow er's environmental and social and governance framework	In addition to information disclosed by an issuer on its Sustainability Bond process, criteria and assurances, Sustainability Bond and Loan investors may also take into consideration the quality of the issuer's overall framework and performance regarding environmental sustainability.	Review of:	Mirae Asset Securities describes its sustainability management policy in detail on the website: https://english.securities.miraeasset.com/ The website has sufficient information in regard to its ESG policy, ESG principles for responsible investment, and mid to long-term strategies for ESG management in systematic and quantitative manner. In particular, the company proactively implements policies to manage environmental and social risks. It is the first Korean securities firm to establish "Environmental and Social Policy Statement" and also to join RE100. Furthermore, it intends to significantly increase sustainable financing through its commitment to reaching KRW45 trillion by 2025 (starting from KRW 3.9 trillion in 2020). In regards to RE 100, the company plans to reach 100% renewable electricity by 2025.

3. Management of Proceeds

Ref.	Criteria	Requirements	Works Undertaken	DNV Findings
3a	Tracking procedure	The net proceeds of Sustainability Bonds should be credited to a sub- account, moved to a sub- portfolio or otherwise tracked by the Issuer in an appropriate manner and attested to by a formal internal process that will be	Review of: Mirae Asset Securities' Green, Social and Sustainability Bond Framework ESG Bond Annual Reporting	The evidence reviewed shows how Mirae Asset Securities has tracked the BONDs' proceeds appropriately, from the time of issuance to the time of disbursement. The full amount of the proceeds has been managed by Mirae Asset Securities' treasury

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		linked to the Issuer's lending and investment operations for Green/Social Projects.	Discussion with Mirae Asset (or a delegated entity)	team within Treasury Portfolio. The details of the disbursement and the outstanding value have been also tracked by the team. DNV confirmed that Mirae Asset Securities' internal process can manage and track the outstanding balance of the green bond proceeds.
3b	Tracking procedure	So long as the Sustainability Bonds and Loans are outstanding, the balance of the tracked proceeds should be periodically reduced by amounts matching eligible green investments or loan disbursements made during that period.	Review of: Mirae Asset Securities' Green, Social and Sustainability Bond Framework GSS Bond Register (provided in summarized excel sheet) ESG Bond Annual Reporting Discussion with Mirae Asset (or a delegated entity)	The evidence reviewed shows that Mirae Asset Securities has traced the proceeds from the BONDs, from the time of issuance to the time of disbursement, and reduced the net balance of proceeds by amounts in line with its financing schedule. At the end of each financial period, the outstanding balances of the BONDs were reviewed.
3c	Temporary holdings	Pending such investments or disbursements to eligible Green and Social Projects, the Issuer should make known to investors the intended types of temporary investment instruments for the balance of unallocated proceeds.	Review of: Mirae Asset Securities' Green, Social and Sustainability Bond Framework ESG Bond Annual Reporting Discussion with Mirae Asset (or a delegated entity)	The evidence reviewed shows that the net proceeds of the BONDs are being managed within Mirae Asset Securities' existing accounting system, have been tracked, and are reported to have been fully allocated to the nominated projects.

4. Reporting

Ref.	Criteria	Requirements	Works Undertaken	DNV Findings
4a	Periodical reporting	In addition to reporting on the use of proceeds and the temporary investment of unallocated proceeds, Issuers should provide at least annually a list of projects to which Sustainability Bond proceeds have been allocated including	Review of:	Mirae Asset Securities will upload this ESG Bond Annual Reporting on its website: https://english.securities.miraeasset.com/ The annual report includes a description of the project and value of the proceeds invested, as well as associated qualitative and quantitative environmental and social impacts.

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	 when possible with regards to confidentiality and/or competitive considerations a brief description of the projects and the amounts disbursed, as well as the expected environmentally sustainable impact. 	
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Driven by our purpose of safeguarding life, property and the environment, DNV enables organisations to advance the safety and sustainability of their business. Combining leading technical and operational expertise, risk methodology and in-depth industry knowledge, we empower our customers' decisions and actions with trust and confidence. We continuously invest in research and collaborative innovation to provide customers and society with operational and technological foresight. With our origins stretching back to 1864, our reach today is global. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping customers make the world safer, smarter and greener.

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