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Daiwa Securities

GX economic transition bonds

From the standpoint of the structure, overseas examples, and sustainable finance trends

- Structure and overseas examples suggest various options for issuance maturities
- Monetary policy's impact on GX economic transition bonds
- Considerations given the trend in sustainable finance

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GX economic transition bonds from the standpoint of the structure, overseas examples, and sustainable finance trends

Prime Minister Kishida announced plan to issue GX economic transition bonds

At an expert meeting on clean energy strategy held on 19 May, Prime Minister Fumio Kishida announced a plan to issue GX (green transformation) economic transition bonds. This is garnering attention as it is a new product in the JGB market. At this point, the details of the product design are largely unclear, but they are expected to be discussed further at a meeting on GX implementation to be set up this summer. In this report, we outline various aspects, such as the JGB system, supply and demand, overseas examples, and sustainable finance market trends.

The key points are that issuance of the bonds could start as soon as FY23 and the amount estimated to be issued annually is about Y2tn. The maturities will depend on the design of the system, such as financial resources. Outside Japan, they fall into two general categories—the German method with core maturities, such as 10 years, and the French-UK method with odd maturities. Moreover, whether or not GX economic transition bonds become the target of the BOJ's green operations and/or JGB purchases will have a major impact on supply and demand. With regard to transition finance, in addition to bond types with which the use of proceeds is limited in accordance with the Green Bond Guidelines, GX economic transition bonds could be designed to be linked to targets (with environmental targets set), which will be a point of interest.

Timing of issuance

Timing of issuance: Possibly as soon as FY23

Issuance of GX economic transition bonds could possibly begin as soon as FY23. It has been reported that a road map is expected to be formulated at the GX implementation meeting by end-2022. Since the FY23 initial budget and JGB issuance plan would normally be formulated by around end-December, discussions regarding GX economic transition bonds seem likely to occur so as to be able to include them in the budget. It is also assumed that new bills and bills revising existing legislation that are required for the issuance of GX economic transition bonds will be introduced in the ordinary session of the Diet starting in January 2023, together with the FY23 initial budget.

Amount to be issued

Amount to be issued: Rough estimate is Y2tn/year

At the expert meeting on clean energy strategy, Prime Minister Kishida announced that Y150tn needed to be invested in the field of decarbonization over the next ten years via cooperation between the public and private sectors, and that he was considering procuring Y20tn (of Y150tn) as government funds via GX economic transition bonds. Moreover, a policy recommendation about moving towards green transformation (GX) released by the Japan Business Federation, which is seen as having had influence with regard to these GX economic transition bonds, estimates that the Japanese government burden needs to be about Y2tn/year, given that (1) the annual government burden is about Y10.2tn in the EU and Y8.4tn in the US and (2) the EU, the US, and Japan account for 9%, 14%, and 3% of global CO_2 emissions, respectively. Summing up based on the above, while the necessary amount for investment and timing will need to be examined carefully going forward, the current rough estimate is that about Y20tn (Y2tn/year) in GX economic transition bonds will be issued over the next ten years. Given that the government is aiming to promote private-sector investment by procuring funds and investing them ahead of the private sector, we think that the amount issued annually in the initial stage could exceed Y2tn.

Issuance maturity

Issuance maturity: core maturities or odd ones?

One major question is whether GX economic transition bonds will be issued at the same core maturities as newly issued JGBs or at some other, odd maturities.

Will they be issued together with other government bonds or separately?

We start by noting that bonds issued by the Japanese government are currently a mix of construction bonds, deficit JGBs, FILP bonds, reconstruction bonds, and refunding bonds. For example, the 10yr JGBs issued in a given month can sometimes be all refunding bonds and at other times also include construction bonds, deficit JGBs, and FILP bonds. Notification of the type of JGBs to be issued is made on the day of the auction but the specific amounts of each type are not known until later. Market participants therefore do not know which type of JGB they are trading at the time. If GX economic transition bonds are simply issued for the purpose of funding investments in green technology, they could possibly be issued together with other types of JGBs, and this would render any discussion of issuance maturities meaningless. When deploying green money, however, investors would need to be able to distinguish between GX economic transition bonds and regular JGBs. This makes it more likely that the bonds will be issued separately from other government bonds, in which case it becomes important to know what their maturities will be.

Funding source and years until redemption will affect the maximum maturity at launch

One way to think about maturity is from the standpoint of funding source and years until redemption. The redemption of construction bonds and deficit JGBs is funded with personal income tax, corporate tax, and other permanently established taxes, and based on the 60yr redemption rule the bonds must all be redeemed, including any refinancing, within 60 years. Their longest maturity at auction is 40 years. In contrast, the issuance of reconstruction bonds and their refunding bonds is mixed with that of other types of JGBs, making it difficult to know their maturity, and their redemption is funded with individual and corporate reconstruction income taxes and other resources. The collection of reconstruction income taxes ends in 2037, and thus reconstruction bonds and their refunding bonds mature by FY37. The government stated in its grand design and action plan for a new form of capitalism approved on 7 June that GX economic transition bonds would be backed by future sources of revenue. The maximum maturity at issuance will likely depend on whether the source of funding, which according to some media outlets could come from a new carbon tax, will be permanently established or temporary, and whether the 60yr redemption rule will be adopted as it is with construction bonds and deficit JGBs, while the subsequent actual issuance maturity, including the possibility of refinancing, will likely be determined based on the market environment, investor demand, and other factors.

Will issuance be in the same maturities as other government bonds?

Another factor to consider regarding their issuance is the impact it will have on other JGB auctions. With the exception of the bi-monthly issued 40yr JGB, all coupon-bearing JGBs are issued every month. Will issuance be at maturities of 5yr, 10yr, 20yr, 30yr, and 40yr, as is the case with the other JGBs? Or will two auctions of the same maturity be held in a single month?

Both liquidity and supply-demand differences must also be taken into account

If issuance is monthly, there may be concerns over liquidity and the small issuance amount each auction. On the other hand, the lower the issuance frequency, the more it is conceivable that there will be larger differences in bond supply-demand each month, as is currently the case with the bi-monthly issued 40yr JGB. As for the extent to which the market can absorb monthly differences in supply-demand, under the current yield curve control policy, the market impact would likely differ depending on whether the issuance maturity is longer than 10 years or not. An issuance amount of Y2tn annually is in between that of the 40yr JGB (Y4.2tn annually, issued bimonthly) and that of the 10yr JGB linker (Y0.8tn annually, issued quarterly). The balance between liquidity and supply-demand differences will likely be decided after listening to what the market thinks.

Superlong maturities dominate in the leading advanced economies

It is instructive in this regard that of the leading advanced economies, only Germany (5yr) and Canada (7.5yr) issue green bonds at maturities of under 10 years, and the bulk of that issuance is at 20yr, 30yr, and other superlong maturities. For funding aimed at achieving carbon neutrality by 2050 per the Paris Accord, relatively longer-term debt is preferred.

The German method vs. the French-UK method

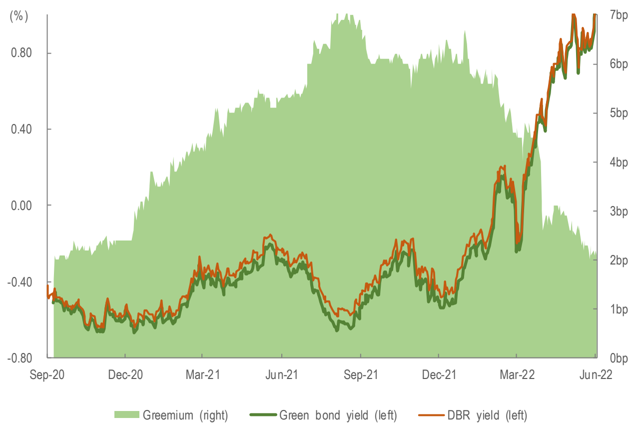
Furthermore, issuance in the UK (12yr and 32yr bonds) and France (22yr and 23yr bonds) is mostly in odd maturity lengths. The purpose may be to avoid overlap with regularly issued 10yr and 20yr bonds. Germany and Denmark are at the opposite end of the spectrum. The two countries issue green bonds at the same coupon and maturity as their on-the-run bonds. These are known as twin bonds. Germany, in particular, aims to build a green yield curve through consistent issuance at the key maturities of 5yr, 10yr, and 30yr, while also providing measures to supplement liquidity. Because the amount of green bonds issued is lower than the amount of on-the-run bonds issued, when liquidity dries up there is a risk that investors will avoid green bonds because of their small issuance amount. When this happens, the authorities can absorb green bonds from the market by allowing investors to switch them for regular bonds. Because they would be exchanged for bonds of the same maturity and same coupon, it is a fiscally neutral move regards future principal and interest payments. Because of measures like these, green bonds tend to trade at somewhat lower yields than the regular on-the-run bonds, resulting in a "greenium."

Chart 1: Examples of Transition Bonds Issued by Major Developed Nations

Nation	Issue amount (mn)	Maturity	Coupon rate (%)	Issued on	Currency	Certified by
Germany	8,000	10.0	0.00	2020/09/09	EUR	ISS
	5,000	5.0	0.00	2020/11/06	EUR	
	6,000	30.0	0.00	2021/05/18	EUR	
	8,000	10.0	0.00	2021/09/10	EUR	
UK	12,340	12.0	0.88	2021/09/22	GBP	vigeo-eiris
	6,054	32.0	1.50	2021/10/22	GBP	
France	30,941	22.0	1.75	2017/01/31	EUR	vigeo-eiris
	14,186	23.0	0.50	2021/03/23	EUR	
	4.000*	26.0	0.10	2022/06/01	EUR	
Italy	13,500	24.0	1.50	2021/03/10	EUR	vigeo-eiris
Canada	5,000	7.5	2.25	2022/03/29	CAD	Sustainalytics
Spain	7,236	21.0	1.00	2021/09/14	EUR	vigeo-eiris
Netherland	10,708	20.0	0.50	2019/05/23	EUR	Sustainalytics
Sweden	20,000	10.0	0.13	2020/09/09	SEK	CICERO
Belgium	10,430	15.0	1.25	2018/03/05	EUR	Sustainalytics
Austria	4,000	27.0	1.85	2022/05/31	EUR	ISS
Ireland	6,849	12.0	1.35	2018/10/17	EUR	Sustainalytics
Denmark	8,965	10.0	0.00	2022/01/21	DKK	CICERO
Lithuania	68	10.0	1.20	2018/05/03	EUR	-

Source: Bloomberg; compiled by Daiwa.
**Entailing inflation risk.*

Chart 2: Greenium on German Sovereign Bonds (10yr)



Source: Bloomberg; compiled by Daiwa.

A variety of choices among issuance maturities

Summarizing the above, when issuing at such core maturities as 10yr and 20yr, Germany's twin bond approach may make sense, given the liquidity problems inherent in issuance being lower than that for the regular bonds. However, at this point, the market may also view this as pressure from additional supply in the same zone based on the risk of the bonds being switched to a regular bond. On the other hand, if issuance is going to be at odd maturities, it may be at maturities of 15yr and 25yr. If Japan opts for the superlong zone, the roughly Y2tn target for GX economic transition bond issuance would create additional supply pressures in a market that already has FY22 calendar-basis market issuance of Y14.4tn in 20yr bonds, Y10.8tn in 30yr bonds, and Y4.2tn in 40yr bonds. The amount of annual and per-auction issuance as well as the number of auctions per year will probably be determined based on liquidity and monthly supply-demand differences.

Monetary policy

Will green bonds be eligible for the BOJ's purchase operations?

Since December 2021, the BOJ has been conducting Funds-Supplying Operations to Support Financing for Climate Change Responses (green operations)[1]. Participating financial institutions can receive low-interest loans (currently 0%) from the BOJ commensurate with the amount of their investment and lending in support of Japan's climate response. Furthermore, because that amount is counted double toward their macro add-on balance, it increases their holdings in the BOJ's current account, creating a strong incentive for financial institutions that are at high risk of being subject to negative interest rates. The criteria for investments and loans to qualify as funding for climate response is shown below, from (a) to (e). Although it will depend on the system design for GX economic transition bonds, (e) transition finance looks especially likely to be applicable. If GX economic transition bonds become subject to the BOJ's green operations, it will make them economically more attractive than regular JGBs to operation participants. This would likely give them a larger greenium than is the case for green bonds in Europe and the US. Only 43 companies participate in green operations. Although there are significant hurdles in the form of TCFD reporting and the setting of investment and loan targets, this is likely to expand the number of participants in green operations. However, only institutions that can transact directly with the BOJ are eligible to participate in the operations, which leaves out insurance companies, investment trust and asset management companies, and many other investors. German Bunds have a 2-3bp greenium, but if GX economic transition bonds become significantly overvalued, they may need to correct.

Chart 3: Standards of Investment or Loans in BOJ's Funds-Supplying Operations to Support Financing for Climate Change Responses

Investment or Loans to Contribute to Addressing Climate Change

The investment or loans that contribute to addressing climate change shall be those that counterparties themselves determine to satisfy either (1) or (2)

(1) The investment or loans that are listed from (a) to (e) below and comply with corresponding international standards or the Japanese government's

- (a) Green loans
- (b) Green bonds (including sustainability bonds)
- (c) Sustainability-linked loans with performance targets related to efforts on climate change
- (d) Sustainability-linked bonds with performance targets related to
- (e) Transition finance

(2) The investment or loans that are substantially equivalent to those prescribed in (1) above, including those exemplified in the relevant rules of the Bank

Source: BOJ materials; compiled by Daiwa.

Will they be subject to asset purchases?

The Bank of England announced that green gilts are also be eligible for its asset purchases and it has already purchased some during the QE operations it conducted until December 2021. In contrast, the ECB purchases green bonds under its corporate sector purchase program (CSPP), but it is unclear whether it will do so under its public-sector purchase program (PSPP). In addition to coupon-bearing JGBs, the BOJ's long-term JGB purchases currently also include JGB linkers and JGB floaters, although there are no new issues of the latter. GX economic transition bonds are also likely to be eligible for the BOJ's asset purchases, but the BOJ probably needs to move cautiously because of the large impact its purchases have on supply-demand.

Sustainable finance

What is transition finance?

GX economic transition bonds have the word transition in their name, and this has a strong allusion to transition finance. Transition finance is a term spelled out in the December 2020 Climate Transition Finance Handbook published by the International Capital Markets Association (ICMA). In response to the ICMA, Japan's FSA, METI, and Environment Ministry published their Basic Guidelines on Climate Transition Finance in May 2021. Use of the proceeds can either be designated as with normal green bonds or not designated as in the case of sustainability-linked bonds, and thus must be compliant with either green bond principles or sustainability-linked bond principles. The guidelines indicate the desirability of obtaining a second party opinion (SPO) from an outside agency. Obtaining an SPO has become the norm in both Japan's SDG-related bond issuance market and Europe's sovereign green bond market. Additionally, there is reporting on differences in market valuations, i.e., differences in greenium[2], depending on whether the bonds are certified, and GX economic transition bonds will likely also be subject to this.

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[1] For details, see our report *Monetary policy and climate change: Outline of BOJ's green operations and impact on market* (ESG Update: 14 Oct 2021).

[2] Refer to P105 in ECB *Financial Stability Review* (May 2022).

Chart 4: Examples of Transition Bonds Issued in Japan

Terms/conditions decided on	Issuer	Certified by	Maturity	Issue amount (Y bn)	Coupon rate
21-Jul-21	Nippon Yusen	DNV	5 years	10	0.260%
			7 years	10	0.380%
22-Feb-22	Japan Airlines	Sustainalytics	5 years	10	0.700%
22-Feb-22	Tokyo Gas	DNV	10 years	10	0.359%
			7 years	10	0.260%
18-May-22	JERA	DNV	5 years	12	0.420%
			10 years	8	0.664%
18-May-22	Kyushu Electric Power	DNV	5 years	30	0.350%
			10 years	25	0.644%
27-May-22	Osaka Gas	DNV	10 years	10	0.369%
31-May-22	IHI	JCR	5 years	11	0.390%
			10 years	9	0.620%
03-Jun-22	JFEHD	JCR	5 years	25	0.330%
			10 years	5	0.579%

Source: Compiled by Daiwa.
Note: As of 3 Jun.

Linkage to targets is also a possibility

A trend in the sustainable finance market is that as growth in green bond issuance has slowed, issuance of sustainability-linked bonds has increased, particularly on a global basis. Proceeds from a sustainability-linked bond are not limited to certain uses. Instead, sustainable performance targets (SPTs) are established and if the issuer fails to achieve its SPTs it must pay a monetary penalty, such as by increasing its coupon payment. There are two reasons why there has not been much issuance of sustainability-link bonds in Japan, both from the investor's perspective: (1) the difficulty, both accounting-wise and operationally, of accommodating changes in cash flow and (2) the perverse incentive created by the investor receiving a higher return if the issuer fails to meet its targets. Recently, however, charity-type bonds have started to become the norm. With these, the issuer pays a penalty for not meeting its SPTs in the form of a charitable donation, with no change in the principal and interest payments received by the investor. We expect this to lead to market growth. Chile has issued the world's first sustainability-linked sovereign bond, with SPTs established for greenhouse gas emission volume and renewable energy share. In Japan, ENEOS Holdings issued transition-linked bonds in June. The issuance of GX economic transition bonds would give Japan an excellent opportunity to demonstrate to the international community its strong commitment to achieving the goals of the Paris Accord by making them transition-linked bonds tied to the Japanese government's 2030 greenhouse gas emissions targets.

The above is a summary of GX economic transition bonds, issuance of which could begin as early as FY23, regards their structure, JGB supply-demand, examples of their issuance overseas, and trends in the sustainable finance market. Although there is little that is certain at this point, the bonds are a new financial product with substantial promise as a place for investors to invest money earmarked for sustainable objectives. We look forward to further discussion.

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