

Frequently Asked Questions (FAQs) on the transition of LIBOR interest rates and impacts on Open End Turbo Warrants, Mini Future Warrants and Factor Certificates

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Below information is intended for investors or prospective investors in leveraged products of Goldman Sachs Bank Europe SE or Goldman, Sachs & Co. Wertpapier GmbH and is provided for information purposes only. Only the documents referred to in these FAQs are legally binding.

1. What is the background?

On 5 March 2021 the UK Financial Conduct Authority (FCA) announced the future cessation and loss of representativeness of the LIBOR interest rate. Pursuant to the announcement all 7 euro LIBOR settings, all 7 Swiss franc LIBOR settings, the Spot Next, 1-week, 2-month and 12-month Japanese yen LIBOR settings, the overnight, 1-week, 2-month and 12-month sterling LIBOR settings, and the 1-week and 2-month US dollar LIBOR settings will cease immediately after 31 December 2021. The publication of the overnight and 12-month US dollar LIBOR settings will cease immediately after 30 June 2023.

Regulatory authorities and central banks are strongly encouraging the transition away from LIBORs and have identified "risk-free rates" (RFRs) to replace LIBORs as primary benchmarks.

Since 7 May 2021 Goldman Sachs already uses RFRs as reference rate for newly issued Open End Turbo Warrants, Mini Future Warrants and Factor Certificates and to that extent no longer refers to LIBOR rates.

For outstanding products issued by Goldman Sachs prior to 7 May 2021 that still use a LIBOR rate as reference rate, Goldman Sachs will replace the applicable LIBOR rate by the corresponding RFR as of 1 January 2022 in the light of the upcoming cessation of various LIBOR rates as of 31 December 2021.

2. What are the new risk-free rates (RFRs) that will replace the respective LIBOR interest rates?

National working groups of market participants, central banks, and regulators have recommended the following RFRs which Goldman Sachs is going to apply going forward instead of the corresponding LIBORs:

LIBOR Currency	IBOR	IBOR Administrator	Alternative RFR	Alternative RFR Administrator	Public-/Private Sector Working Group
EUR	<u>London Interbank Offered Rate (LIBOR)</u>	<u>ICE Benchmark Administration (IBA)</u>	<u>Euro Short-term Rate (€STR)</u>	<u>European Central Bank (ECB)</u>	<u>Working Group on Euro Risk-free Rates</u>
JPY			<u>Tokyo Overnight Average Rate (TONA)</u>	<u>Bank of Japan</u>	<u>Cross-industry Committee on Japanese Yen Interest Rate Benchmarks</u>
CHF			<u>Swiss Average Rate Overnight (SARON)</u>	<u>SIX Swiss Exchange</u>	<u>National Working Group (NWG) on Swiss Franc Reference Rates</u>
GBP			<u>Sterling Overnight Index Average (SONIA)</u>	<u>Bank of England</u>	<u>Working Group on Sterling Risk-free Reference Rates</u>

USD			<u>Secured Overnight Financing Rate (SOFR)</u>	<u>Federal Reserve Bank of New York (NY Fed)</u>	<u>Alternative Reference Rates Committee (ARRC)</u>
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3. How are structured products issued by Goldman Sachs affected by such change in LIBOR interest rates?

Open End Turbo Warrants, Mini Future Warrants and Factor Certificates are adjusted on any adjustment day (in general any business day) and in the course of such adjustment the financing rate of the respective product is taken into account. The financing rate consist of a interest margin determined by Goldman Sachs and a reference rate specified in the relevant final terms. The reference rate is usually a short-term/overnight interest rate in the currency of the underlying. For products issued prior to 7 May 2021 Goldman Sachs has used the respective LIBOR rate in the currency of the underlying (e.g. for shares denominated in EUR the EUR LIBOR).

For Open End Turbo Warrants, Mini Future Warrants and Factor Certificates issued since 7 May 2021 Goldman Sachs already applies the respective RFRs as relevant reference rate (e.g. for shares denominated in EUR the €STER). Due to the different calculation methods of the RFRs and the LIBORs it should be noted that there may be differences between the RFRs and the respective LIBOR interest rates and Open End Turbo Warrants, Mini Future Warrants and Factor Certificates taking the RFRs into account may not develop in the same manner as corresponding products where a LIBOR rate is the relevant reference rate.

You can see the total financing costs, compromised of the financing spread and the reference rate, on the each of the product pages of Goldman Sachs products (see screenshot).

Product type	Turbo
Ratio	100,00
Current financing cost p.a.	6,51%
Next scheduled KO-Barrier Reset Day	2 Jul 2021

4. Will this only affect new products or also existing products?

Since 7 May 2021 Goldman Sachs only uses the respective RFR as relevant reference rate for all newly issued Open End Turbo Warrants, Mini Future Warrants and Factor Certificates.

For outstanding products issued by Goldman Sachs prior to 7 May 2021, the relevant LIBOR rate continues to be used as the reference rate to date. In the light of the upcoming cessation of various LIBOR rates as of 31 December 2021, Goldman Sachs will replace the relevant LIBOR rate used as the reference rate for the respective product by the corresponding RFR as of 1 January 2022. In this regard, Goldman Sachs will publish separate notices regarding the replacement of the respective LIBOR rate as reference rate, which lists the products affected by the replacement by ISIN. Once published, the notices will also be included in the appendix to these FAQs.

5. What is the impact of replacing the relevant LIBOR rate by a RFR, on products issued prior to 7 May 2021?

Due to the different calculation methods of the RFRs and the LIBORs it should be noted that there may be differences between the RFRs and the respective LIBOR rates and Open End Turbo Warrants, Mini Future Warrants and Factor Certificates taking the RFRs into account may not

develop in the same manner as corresponding products where a LIBOR rate is the relevant reference rate.

In particular, investors should be aware that it is not possible to anticipate whether the RFR will at the time of replacement of the reference rate be higher or lower than the LIBOR rate and this could therefore lead to a higher or lower interest rate being charged to the investors.

Investors should consider the impact that any such replacement might have on the products and determine whether they would like to sell back their product at prevailing market rates ahead of the replacement of the reference rate, or if instead they will prefer to remain invested in the product.