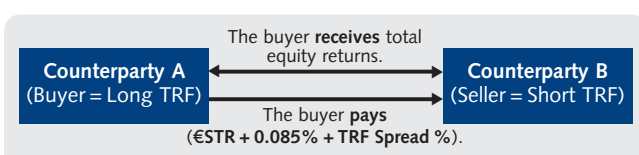


Eurex Exchange: Index Total Return Futures (TRF)

A listed solution for implied equity repo trading via EURO STOXX 50® Index Total Return Futures
Eurex code: TESX • Bloomberg: VHOA <index> • Reuters: O#TESX:

Launched in December 2016, Index Total Return Futures (TRF) are designed to offer a listed solution for trading the implied equity repo rate. It is a simple and innovative product that provides cost-efficient access to the pay-out profile of a standard equity index total return swap.

TRFs are growing in popularity as market participants look to this new instrument to manage repo risks on equity markets.



Key benefits

- TRFs provide access to long-term maturities, removes the quarterly roll risk and the dividend exposure risk that exists with EURO STOXX 50® Index Futures, as short-term repo can prove volatile, depending on market conditions and market performance.
- **Market convention:** Trading as a TRF Spread expressed as annualized rate in (+/-) basis points.
- **Ten years exposure:** Via a single TRF trade (21 quarterly expiries and five year-end months expiries listed at all times).
- **Price transparency and liquidity:** Price transparency and liquidity provided by market makers via the Eurex T7 System.
- **Fully fungible product** aiming to replicate in a cost-efficient way the payoff profile of OTC TRS.
- **Portfolio margining:** Trade TRFs with other Equity and Equity Index ETDs within PRISMA e.g., EURO STOXX Futures for high netting effects up to 80%.
- **Mitigate risk** with Eurex Clearing as the central counterparty.

The index TRF has grown phenomenally since inception: status end of April 2020

- Traded volume YTD 3,972,762 contracts (EUR 140 bn notional) up 326% vs YTD 2019
- Open Interest: 1,819,251 contracts (EUR 63 bn notional) up 102% vs April 2019
- Yearly ADV: +47,300 contracts (+EUR 1,668 million notional), a 226% increase to 2019 ADV
- Cleared volume agency business YTD 729,930 contracts, up 202% vs YTD 2019
- Open interest in maturities to Dec 2029
- Five liquidity providers quoting the index TRF: BNP Paribas, JP Morgan, UniCredit, Société Générale and Goldman Sachs

What is the motivation for the buy side to trade TRFs?

How to incorporate TRFs into trading strategies:

- **Manage dividend risk**
Due to the uncertainty over dividend payments observed during the stressed market conditions in March 2020, market players have traded significant volumes on the short end of the spread curve (Dec 20, Dec 21), especially over the roll period. It looks like TRFs have been traded as a replacement for the regular price index future because of the unique levels of volatility observed in the basis due to the uncertainty over dividend payments. Given the total return nature of the TRF, there is less pricing sensitivity to dividends in comparison with price return futures. (Please refer to the following Q&A with Goldman Sachs: <https://www.eurexchange.com/exchange-en/about-us/news/Time-to-Switch-to-Total-Return-Futures-when-dividends-are-uncertain--1994528>)
- **Calendar spread trading on the repo term structure**
Hedge funds and, to a lesser extent, institutional investors (long-only asset managers, pension funds), are focused on the trading of calendar spreads to capture the expected

alpha from the dislocation of the repo term structure. In a TRF spread, the delta position on the index cancels out, as well as the overnight funding payments. The investor's cash flow depends on the levels of the short-term repo, the long-term repo and the spot level. The repo exposure changes linearly with the spot. This is a typical strategy used by hedge funds or absolute return funds to trade on the calendar spread of two repos with different tenors. (Please refer to the following interview with BNP Paribas <https://www.eurexchange.com/exchange-en/about-us/news/The-rise-of-TRFs-how-funds-use-them-to-generate-alpha-1405524>)

• **Delta One beta replacement**

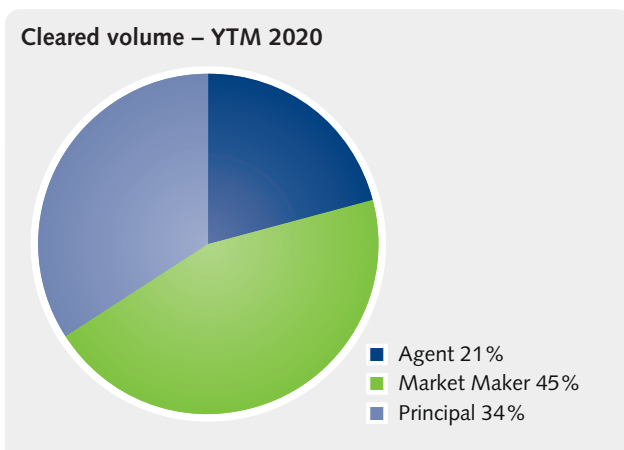
TRFs offer further benefits for institutional investors as a beta replacement with the short-term TRFs (1Y) since quarterly future rolls can be risky. Funding rates are affected by multiple factors such as dividend distribution & announcement, index reshuffling, corporate events, etc. Future rolls are historically volatile, there is uncertainty over repo levels and there is a large financing risk during the dense Eurozone dividend season.

• **Downside portfolio protection**

Typically, insurance companies often buy downside portfolio protection against a potential market decline,

i.e., long-dated out-of-the-money puts. They may wish to hedge their repo risk by buying the long-term implied repos through a TRF vehicle.

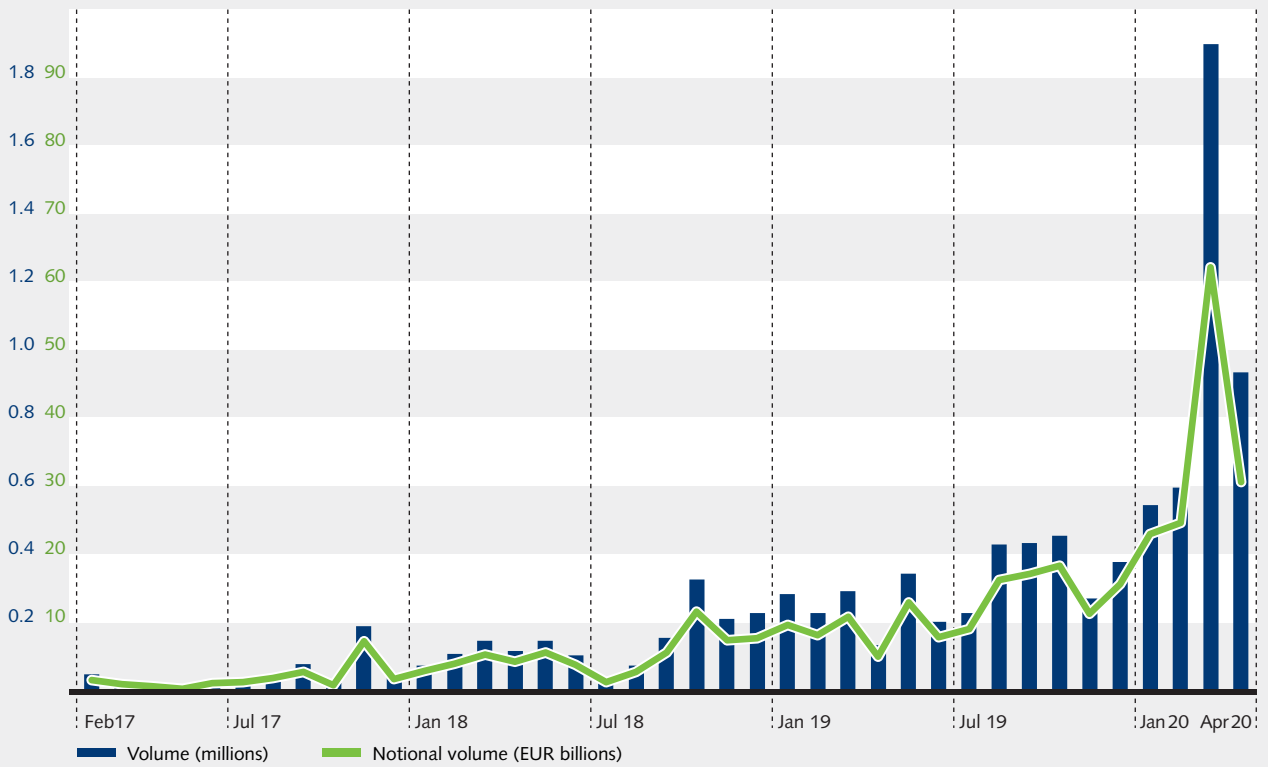
We see hedge funds and traditional asset managers increasingly turning to TRFs to get exposure to the repo market related to an underlying index such as the EURO STOXX 50® Index. One of the major advantages of a futures product over an OTC swap is that it increases the number of available participants. Fund managers that have not traded total return swaps (TRS) in the past, sometimes due to regulatory considerations, balance sheet limitations, or credit line restrictions by prime brokers, now have the opportunity to trade repo as an asset class on a regulated exchange.



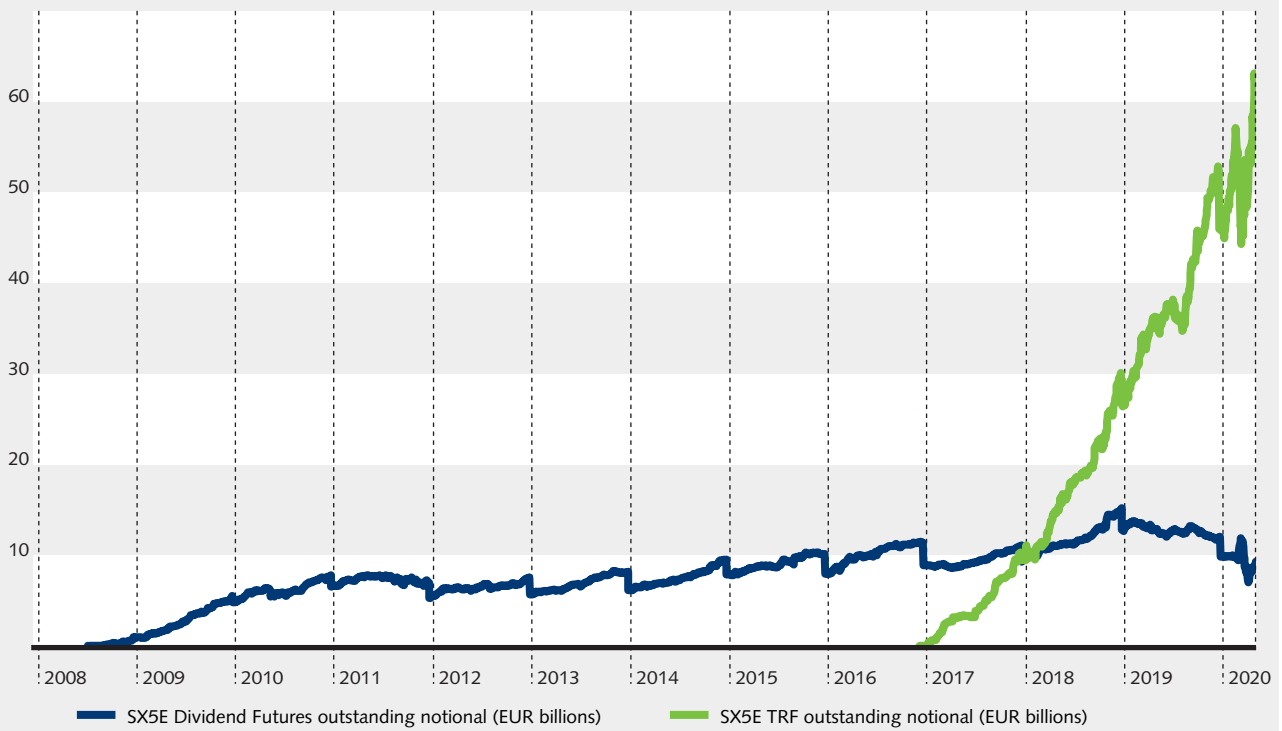
Contract specifications

	EURO STOXX 50® Total Return Futures	Bloomberg: VHOA <Index> Reuters: : 0#TESX:
Underlying Indices	EURO STOXX 50® Index (SX5E), EURO STOXX 50® Distribution Index (SX5EDD) and €STR + 0.085%	
Contract Multiplier	EUR 10 per index point	
Quotation (TRF Spread) (basis points)	TRF spread as annualised rate expressed in basis points with one decimal (+/-/0)	
Minimum TRF Spread Change	+/- 0.5 basis points (1 basis point = 0.0001)	
TRF Spread Conversion	The TRF Spread will be converted within the T7 system into TRF futures prices expressed in index points.	
Trade Types (TAIC vs. TAM)	<ul style="list-style-type: none"> • Trade at Index Close ("TAIC") with a strike price based on Close SX5E index • Trade at Market ("TAM") with a custom-defined strike price 	
Accrued Distributions & Funding	The distribution and funding rate payments will be accumulated from launch and will be added to the TRF futures price in index points. The daily changes in the distributions and funding payments are paid out daily via the variation.	
Contract Months	9 years and 11 months: the 21 nearest quarterly months as well as up to the next 5 succeeding year-end months	
Settlement	Cash settlement, payable on the first exchange day following the Final Settlement Day	
Daily Settlement TRF Spread (basis points)	Used to calculate the daily settlement price and determined as follows: <ul style="list-style-type: none"> • The TRF Spread traded via the closing auction between 17:25 – 17:30 CET. If no trades will be determined based on the average bid-ask spread. If no average bid-ask spread, then will be determined as the volume-weighted average TRF Spread of all transactions executed during the last 30 minutes of continuous trading. • If no price can be determined according to the above the Daily Settlement TRF Spread will be determined based on a theoretic (fair) TRF Spread for the respective contract. 	
Last Trading Day	The Eurex trading day immediately preceding the Expiration Day	
Expiration Day	3 rd Friday of each quarterly expiration month if this is an exchange day; otherwise the immediately preceding exchange day	
Final Settlement Price (index points)	Established by Eurex on Expiration Day and it is based the following components: Final Settlement Price of the EURO STOXX 50® Index Futures (FESX), accrued distributions and accrued funding until the expiration date	
Trading Hours	Order book (TAIC): 08:15 – 17:30 CET / Off-book (TAIC & TAM): 08:15 – 22:00 CET	

TRF – Evolution of volume and notional volume (status end of April 2020)



EURO STOXX 50® Index Dividend Futures versus EURO STOXX 50® Total Return Futures – Outstanding notional (status end of April 2020)



About implied repo rate:

- The equity repo rate is not just the cost of shorting a security. It is at the confluence of derivative pricing, financing needs, new regulation and collateral management.
- Repo is the remainder component of an equity forward's price after spot, interest rate and dividend risks have been stripped.
- The TRF spread represents the cost of carrying the underlying. Since the seller of TRF loans out the underlying and receives repo, the spread should be equal to “– repo”:

The lower the repo, the higher the spread of a TRF.

Being “Short” a TRF means being “Long” the Implied Repo.

Useful links

[Total Return Futures \(TESX\)](#)

[Presentation: EURO STOXX 50® Total Return Futures](#)

[Video: How Total Return Futures work](#)

For more information please see <https://www.eurexchange.com/exchange-en/products/trf> or contact:

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