

The basics of ETF replication



MARKETING COMMUNICATION

The information contained in this document is primarily intended for index ETFs, i.e. those whose investment objective is to replicate a market index, whether upwards or downwards.

Passive exchange-traded funds (ETFs) are exchange-traded investment funds¹ designed to track the performance² of a particular market index, both upwards and downwards.

ETFs aim to achieve this objective through a process called 'replication'. Replication matters because it can affect the performance of the ETF.

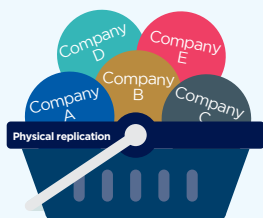
Before digging into replication, let's look at what an index is and how it works. An index groups assets within the same category - such as stocks, bonds or commodities - and measures their performance over time. It tracks the performance of the broader market or a more specific sector.

What is replication?

Replication is the process of constructing the ETF's portfolio so that it delivers the same performance³ as the index it tracks - whether positive or negative.

To achieve this, the ETF manager builds a portfolio (as an active fund manager would) that attempts to deliver a performance which closely matches that of the index over time.

The two main methods of replication



Physical replication

The ETF holds all or part of the securities that make up the index.



Synthetic replication

The ETF doesn't actually hold the index securities but obtains the performance of the index through an agreement with a counterparty (usually a bank)

An index could be large, such as a pan-European one, which comprises 600 stocks drawn from across the European continent.

Some sector indices, such as the healthcare one representative of 15 developed European countries, include a few dozen stocks.

In both cases, an index tracks the performance of the market as a whole (the pan-European index for instance) or of a sector (such as the European healthcare sector).

ETFs attempt to reproduce index performance by mirroring index components.

1 Investment involves risks. For more information, please refer to the Risk section below.

2 Past performance does not predict future results.

3 For more information regarding the index methodology, please refer to index provider website.

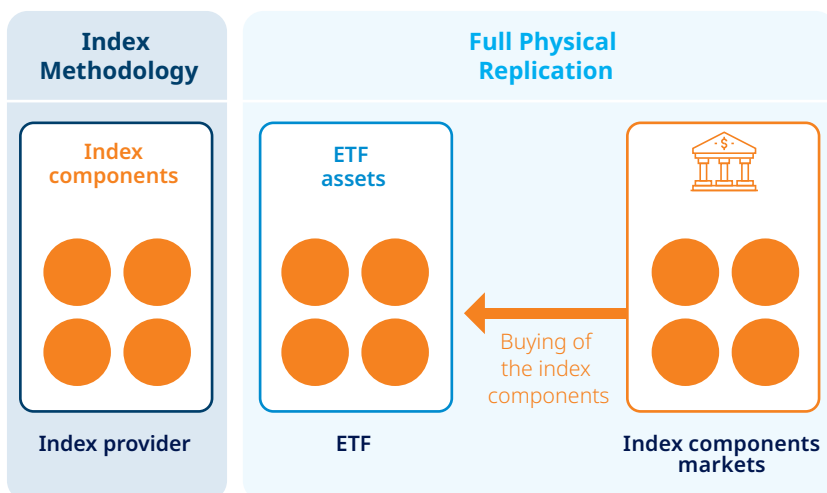
Physical replication

The ETF manager can:

- Either buy all the securities that make up the index in the same weights as the index. This is called 'full' replication
- Or buy a portion of the securities in the index. This is referred to as 'sampling' replication

Physical replication is also called direct replication.

Here's a diagram to show how full replication works⁴:



By default, the manager of a physically replicated ETF prefers to implement what is called full physical replication. However, for some indices, it is more appropriate to implement sampling replication. This is especially the case when the index is broad (such as World indices that include more than 1,300 components) or when some components of the index are difficult to trade, such as securities from emerging markets, for example.

The composition of an index can evolve over time during events called 'index rebalancings' which occur at regular intervals and according to a predefined schedule. At each index rebalancing, the ETF manager buys and sells the ETF's securities to ensure that the ETF's portfolio composition matches the new composition of the index.

⁴ Information given for illustrative purposes only, may change without prior notice.

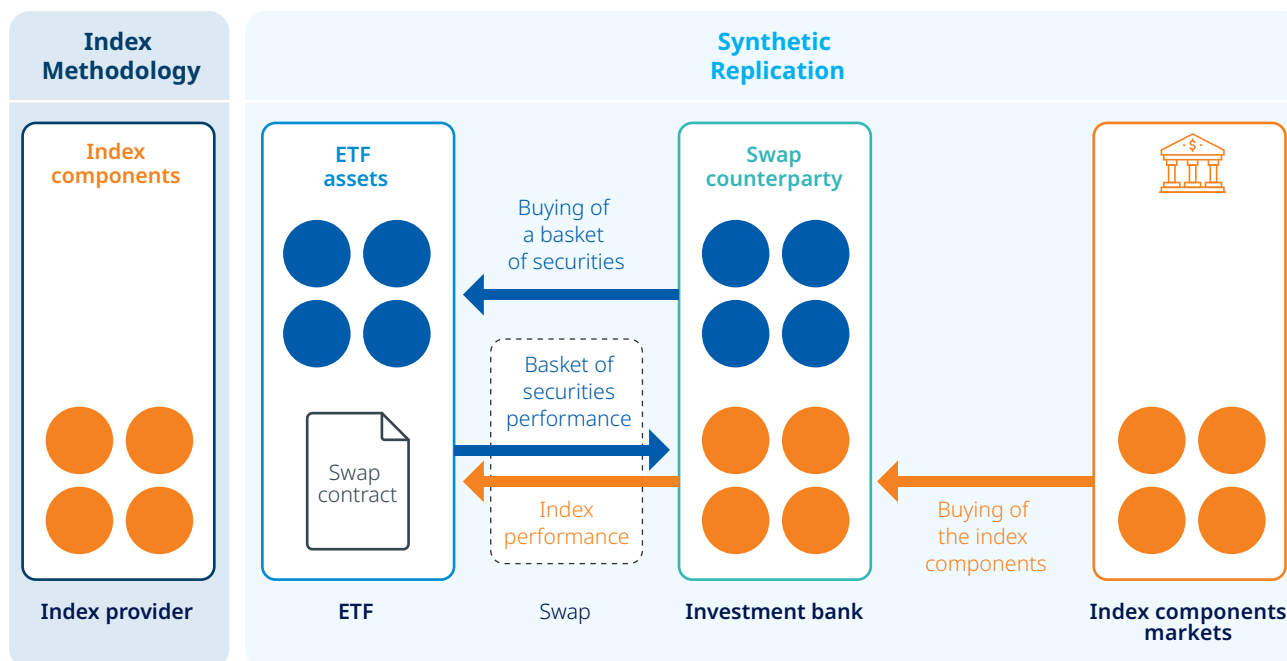
Synthetic replication

In the case of synthetic replication, also called indirect replication, the ETF does not directly hold the securities composing the index. The ETF enters into a financial agreement with one or more third parties, who agree to replicate the performance of the ETF's index and to pass this performance on to the fund.

Specifically:

- The third party, called the 'counterparty' (usually an investment bank), replicates the index (either by directly holding the index securities or by using other means to achieve its performance)
- The ETF, on its side, buys from the counterparty a diversified basket of securities (the fund's assets)
- The counterparty and the fund exchange the performance of the assets they hold: the fund receives the performance of the index and pays the counterparty the performance of the diversified⁵ basket of securities
- The exchange of these performances takes place under contracts called 'performance swaps' (which is why ETFs using synthetic replication are also known as 'swap ETFs')

Here's a diagram to show how this works⁶:



⁵ Diversification does not guarantee a profit or protect against a loss.

⁶ Information given for illustrative purposes only, may change without prior notice.

Synthetic replication can be used for all types of indices. It is particularly interesting when the replicated index is broad (with many components) or when the underlying markets are difficult to access (as is the case for certain emerging market securities).

Furthermore, in certain specific cases, the investment bank may benefit from more favourable financial conditions than the fund itself to replicate the index (such as exposures to US equities and World markets, for example). In these cases, the counterparty may then potentially pass on the advantages it benefits to the fund by delivering improved performance⁷ compared to what would be generated with physical replication.

Finally, synthetic replication is also used for ETFs replicating 'inverse' indices (known as 'short' indices) or indices incorporating leverage effects (known as 'leveraged' indices) for which physical replication is not possible.

Physical or synthetic ETF: how to choose?

Physical and synthetic ETFs are complementary tools. For liquid and easily accessible markets, physical replication remains a straightforward choice. But for markets or indices that are more difficult to reach, synthetic ETFs can offer potentially more efficient and more precise access.

Physical and synthetic ETFs are complementary tools.

Counterparty risk

This arises when the investment bank providing the performance of the swap can't pay the index performance to the ETF – which then makes a loss for the fund.

Counterparty risk can be managed through strong governance and strict controls.

It's worth noting that counterparty risk isn't confined to the ETFs that use synthetic replication. Physically replicated ETFs can also be exposed to this risk if they engage in securities lending.

As the name suggests, this involves lending securities that the fund holds. These are typically borrowed by banks and prime brokers notably for a wide range of reasons (such as financing, investing, hedging etc.)*

*Source: ISLA International Securities Lending Association.

⁷ Past performance does not predict future results.

Amundi ETF

Amundi, the largest European ETF provider, offers over 300 UCITS ETFs covering a wide range of asset allocation needs and a broad spectrum of ESG and Climate investing goals.

For more information on how to invest in Amundi ETF, please visit www.amundiETF.com.

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Key risks

- Risk of the loss of invested capital. Investors may not get back the original amount invested and may lose all of their investment.
- Risk associated with the markets to which the ETF is exposed. The price and value of investments are linked to the liquidity risk of the components. Investments can go up as well as down.
- Risk associated with the volatility of the securities/currencies composing the underlying index.
- The fund investment objective may only be partially reached.

Important information

This is a marketing communication. Please consult the Prospectus and the Key Investor Document ("KID") before making a final investment decision.

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Information reputed exact as of 31 March 2026.

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