

ETFs Tutorial

Lesson 3: ETFs Valuation

1. **Principles of ETFs valuation**
2. **NAV**
3. **Intraday Portfolio Value**
4. **Cash**
5. **Shares Outstanding and
Creation Units**

Principles of ETFs valuation

The fair value of an ETF relies on several characteristics that are public and accessible on demand from various market data publishers. Four of the key characteristics are:

1. Net asset value (NAV)
2. Intraday Portfolio Value
3. Cash
4. Shares outstanding and Creation Units

NAV

The Net Asset Value (NAV) of a fund represents the total value of all the investments managed by the fund, which boils down to the assets less the liabilities.

The NAV is given per ETF share or Creation Unit (CU) that is outstanding by dividing the total value of the fund by the number of Creation Units that are issued and outstanding.



This value is calculated daily on the basis of the value of the underlying index securities, the cash component and any other investments (e.g. bonds, derivatives) that the fund may have.

The Net Asset Value forms the basis for the creation and redemption process.

The NAV represents the intrinsic value of the ETF shares, but the prices of the ETF shares on the market may fluctuate during the trading day (e.g. because of normal forces of supply and demand). However, spreads between the NAV and the price on the market are usually close because of the intervention of professional investors or "arbitrageurs" that will step in to take advantage of any premiums or discounts to the underlying value by either creating ETF shares and selling them on the market when they trade at a premium or by redeeming ETF shares and selling the underlying stocks when the ETF shares trade at a discount.

Intraday Portfolio Value

The NAV is a static value that is calculated and disseminated once a day. However, during the day the value of the investments of the fund may also fluctuate due to changes, for example, in the value of the index securities or changes in the currency exchange rates. The IPV has therefore been designed as **an estimate or approximation of the intrinsic value of the fund during the trading day.**

The IPV does not reflect the value at which the ETF shares can be created or redeemed (this is reflected by the NAV). Also, the IPV may not reflect the current value of the underlying securities in instances where that value is not continuously updated, e.g. where the underlying securities trade in different time zones. Therefore, investors interested in subscribing for or redeeming ETF shares or purchasing or selling shares on a stock exchange should not rely solely on any intra-day portfolio value, but should also consider other



market information and relevant economic and other factors.

This value is also referred to as an "Underlying Trading Value", "Indicative Optimized Portfolio Value (IOPV)", and "Intraday Value", in various places such as the prospectus and marketing materials for different ETFs. The Intraday Indicative Value is designed to give investors a sense of the relationship between a basket of securities that are representative of those owned in the ETF and the share price of the ETF on an intraday basis.

Cash

Two cash numbers are published daily, the total cash and the estimated cash per creation unit. The cash in the fund is calculated as follows :

$$\text{Cash in fund} = \frac{\text{shares outstanding}}{\text{Creation Unit size}} \times \text{total cash}$$

The NAV is calculated as a price per share, so we use the total cash number given per-share as well.

The total cash number is obtained at the end of the day. To get an intraday approximation we can use the estimated cash amount which determines how much cash the fund will require for the creation or redemptions. When calculating the Intraday Portfolio Value, the estimated cash number should be used. This number incorporates management fees, dividends, and other cash sources related to the fund. Once the exact characteristics of the cash are obtained the following day, the total cash number is then used.



Shares Outstanding and Creation Units

Shares outstanding represent how many shares have been issued, taking into account creations and redemptions.

The unit size aggregation in which a participant can create or redeem ETF shares with the fund or trust is the Creation Unit. The creation unit size can vary by fund and ranges from 25,000 to 600,000 shares. ETFs typically issue shares in creation unit size in exchange for a predefined basket of the underlying index securities.