

# Index Investing at SSGA: Keeping Trading Costs Down

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A crucial part of our approach in providing indexing solutions is to keep costs as low as possible, so that our investors keep more of what their portfolios earn over time. Making the right choice of trading strategy is vital. Here, we look at two distinct trading strategies — volume versus time weighting.

## Types of Trading Strategy for Index Investing

The role of index managers is to deliver the returns of a given benchmark, subject to any client constraints. To remain close to the chosen benchmark, managers should mimic, as closely as possible, the behaviour of that index when it comes to the addition or deletion of securities. Usually, when names are added or deleted, index providers use the share price at the end of the day, also known as Market-on-Close (MOC). Hence the most common implementation strategy for indexing is known as a 'Market on Close' (MOC) instruction, in which dealers execute at the index point to track the index as closely as possible.

In some instances, for example if trade is of a significant size and there is potential market impact, a simple 'MOC' instruction may not be appropriate and managers may need to trade away from this point. In these cases, we use one of two algorithmic trading strategies: Volume-Weighted Average Pricing (VWAP) or Time-Weighted Average Pricing (TWAP).

## Volume-Weighted Average Pricing (VWAP)

As its name implies, VWAP is the weighted price of a security divided by the volume being traded, and is used in cases where there a larger volume is being traded (in terms of both the number and size of trades). VWAP identifies liquidity points and is a standard way to measure trader's performance or skill.

A VWAP trading strategy can be particularly appropriate:

- 1. For large orders** (measured as a portion of the day's volume) as it minimises the impact on market prices. VWAP orders can help us target liquidity points and avoid loading the closing auction. It also enables us to spread risk out with the volume profile over the desired time to ensure completion of the trade.
- 2. To add value:** buying below the VWAP price is considered a good fill as the security has been purchased below average price. We often use VWAP strategies when we think that trading early could add value or to move away from a possible crowded trade. For example, for some index additions we may not buy at MOC as the additional volume could push up the security's price.

Each broker has its own algorithm so one VWAP execution will differ from another (albeit usually only very slightly). The algorithm will review historical trading patterns to see where trading volume has occurred on specific stocks. It will then allocate the order based on this curve and aim to better execute the market VWAP curve. VWAP algorithms have developed considerably in recent years so while historical volume might previously have been the only input, today these algorithms are dynamic and can account for volatility, spreads and real-time market news.

## Time-Weighted Average Pricing (TWAP)

Again, as its name suggests, TWAP is the average price of a security over a period of time. In this strategy, over the desired time an order is broken up and allocated per time period, with an equal amount of shares executed at every time increment. Like VWAP, this strategy can help to spread the order over a period of time rather than being bundled into the close.

For example, if you wanted to buy 1,000 shares of ABC Ltd. over four hours, the TWAP algorithm would split the order equally, and sequentially trade these slices at every time period. So, for ABC Ltd., the algorithm could execute 25 shares across the spread (between bid and ask prices) every six minutes for four hours to execute 1,000 shares (six minutes is used here purely for illustrative purposes).

## VWAP versus TWAP Illustrated

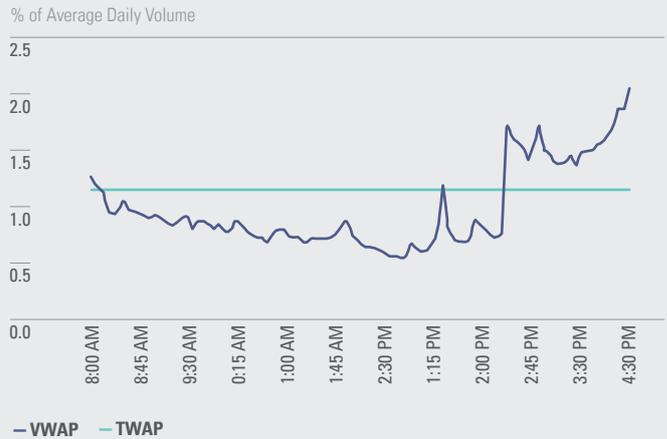
Figure 1 illustrates the volume profile of the two different strategies for a hypothetical trade. As shown, for the VWAP strategy, the percentage trading volume increases approaching the market close whereas the TWAP volume profile is a straight line. Based on the VWAP curve, you would expect to execute more of your order later in the day as more of the volume is occurring here while TWAP line shows a uniform level of trading over the day.

## Which Trading Strategy to Use When?

The choice of which trading strategy to use depends on the volume associated with the specific name being traded, alongside clients' particular objectives and constraints.

As a large institution serving clients across the globe, the number of orders we put through the market is significant, so it's imperative our investment process focuses on identifying opportunities for trading efficiencies. Our portfolio managers work in tandem with our trading team to identify the best trading strategy for each market event, helping to reduce the impact of trading costs on our clients' portfolios.

Figure 1: VWAP and TWAP Profiles (excl. Auction)



Source: Goldman Sachs, August 2015.

The information contained above is for illustrative purposes only.

For more information about our range of indexing solutions, please contact your local State Street Global Advisors (SSGA) representative or visit [ssga.com](http://ssga.com)

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