TheVWAP
Roadmap

FOREWORD

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IF YOU'RE READING THIS...

...you've likely already researched Volume Weighted Average Price [VWAP] and found almost nothing. You suffered through four-and-a-half minute long YouTube videos, mind-numbingly **regurgitating the same information** as the previous video (and the next). You endured the painstakingly dry analysis of VWAP's calculation from every blog, forum post, and article.

You aren't alone. I felt the same confusion and discouragement when I first discovered VWAP more than six years ago.

Very few resources are available and what little *does* exist, sucks. Why? Well...

- **Complexity:** It's just complex enough to discourage the vast majority of people from ever learning about it. But when properly understood, VWAP simplifies, not complicates.
- **Relatability:** It's often discussed in an overly academic manner and almost never made relatable to developing traders. Presentation matters.
- **Accessibility:** Up until recent years, few platforms were capable of offering (or chose to offer) VWAP as a technical tool on users' charts. Most traders were never exposed to VWAP, and even if they wanted to use it, they couldn't.

But... why is the readily available VWAP information *SO BAD*?

Because the internet is an echo chamber where it's easier to repeat the same information and get 'partial credit' from viewers than it is to dig deeper into the subject. Don't believe me? Go watch a few YouTube videos about VWAP and ask yourself if you didn't just watch essentially the same thing from different uploaders.

Regurgitating the basics and buzzwords of VWAP may rack up the page views, but the reader walks away feeling no more informed than when they first arrived. Either they're misleading you with clickbait, or **they've** been misled in the sense that they don't understand VWAP any better than you.

You deserve better. And so does VWAP.

THE BASICS

VWAP is the average of all trades in a day, adjusted for when more (or less) volume trades at a given price. It is a **dollar cost average** that fairly reflects when larger trades occur (relative to smaller, inconsequential trades) more objectively than traditional moving averages.

Mathematically, VWAP is the **total amount of money** transacted during some period divided by the **total amount of volume** that traded over the same time frame.

$$\frac{\Sigma\,(\text{VOLUME x PRICE})}{\Sigma\ \text{VOLUME}} \quad \text{OR} \quad \frac{\text{Total Sum of Money}}{\text{Total Sum of Volume}}$$

VWAP represents the market's **True Average Price** over the plotted length of time, most commonly the entirety of a trading day.

Originally utilized by institutional trading firms in the mid-1980's as an **execution benchmark**, VWAP gauges the desirability of a position accumulated on behalf of a client (preferable buys below and sales above) as a critical, objective reference point.

Fulfilling sizable orders without impacting the market requires several smaller transactions over the course of the acquisition time frame. The position's average price is then compared to the **market's average price** (VWAP) to assess its quality.

Spearheaded by technological development, the use of VWAP has evolved over time. Institutions have largely turned to **automated execution** and supplementary algorithms in lieu of hand traders, but VWAP remains as crucial as ever.

+1.0 StDev · Very favorable for sells

Favorable for sells

VWAP ────────────────────►

Favorable for buys

-1.0 StDev · Very favorable for buys

CORE CONCEPTS

VWAP is cumulative from an event; most technical analysis is periodic over a recent number of candles.

Think of each chart as a portrait drawn candle by candle. Imagine if you could only see the last 9, 20, or 50 brushstrokes made by the artist, while everything before that disappears from view as they continue painting.

This is the problem with periodic indicators. Data from beyond the arbitrary look-back period you've selected (9ema, 20sma, etc.) is no longer factored into the calculation, **leaving you with an incomplete picture of the market**.

VWAP's cumulative nature allows you to see the painting develop over the course of the day while factoring in each candle. **No piece of data gets left behind**, as each transaction that has occurred should factor into how you interpret the current state of the market and what's most likely to happen next.

VWAP isn't susceptible to changes in type, length, nor timeframe — unlike moving averages.

In addition to providing increased context, the cumulative calculation of VWAP prevents confusion regarding selected chart time frames and indicator settings that exist in nearly every other piece of technical analysis.

It doesn't matter if you use a 1-minute chart, an hourly chart, or anything in between. **There is only one intraday VWAP**. Flipping between time frames will affect the granularity at which you can see VWAP behavior, but the calculation remains constant.

The same can't be said for periodic indicators, where a 20-period moving average on a 1-minute chart will often look drastically different than it would with any other aggregation period.

CORE CONCEPTS

VWAP is a magnet, either attracting or repelling. Identifying the prevailing market style — towards or away from VWAP — should be your main objective.

There's an oft-repeated myth about VWAP which is that price is **ALWAYS** attracted to VWAP — this is not the case! Such interpretation leads to an oversimplified approach of shorting stocks that trade too far above VWAP and buying those that fall too far below, with the expectation that a reversal is imminent.

If this were true, we'd never witness sustained trends. The more nuanced reality is that **price can either be drawn towards VWAP or actively repelled from it.**

Trading the magnetism of VWAP — rather than merely the direction (long or short) of a chart — is a more sophisticated objective. If you've ever been aligned with the direction of the market but became frustrated when a breakout consolidates (or vice versa), you've experienced such magnetic 'misalignment'.

VWAP has inertia: a tendency to continue whatever it's currently doing.

By giving volume equal weight in its calculation, VWAP is **intuitively more responsive to price movements on significant volume** versus those with less money behind them. As VWAP absorbs more price and volume data over time, it becomes more resistant to random oscillations and sudden shifts. This allows it to accurately reflect only meaningful changes in a market's value, bolstering its credibility as a reliable reference point.

We consider this the inertia of VWAP, where its resistance to change makes it significantly more reliable than short-term indicators spitting out a new buy/sell signal every couple of minutes. **When VWAP does respond to market movement by sloping or trending, traders should pay attention.**

EVENT DRIVEN AVERAGES

The underlying idea behind VWAP is the launching of a cumulative, volume-weighted average from an **anchored starting point.** All effective VWAPs are initiated at a **significant event** that should indicate an expected shift in market behavior, representing the continuous average price from that moment.

Though most commonly known as a single-day indicator plotted from market open to market close, VWAP is applicable to longer (**multiday**) and smaller (**intraday**) durations.

Macro VWAPs - initiated from a meaningful fundamental (earnings, press release, etc) or technical event (large gaps, recent market opens, etc)

Micro VWAPs - initiated from intraday lows and highs to generate support and resistance boundaries derived from price extremes

This macro VWAP initiated from HOLX earnings on 5/1/19 served as both resistance and support on several occasions during the ongoing uptrend.
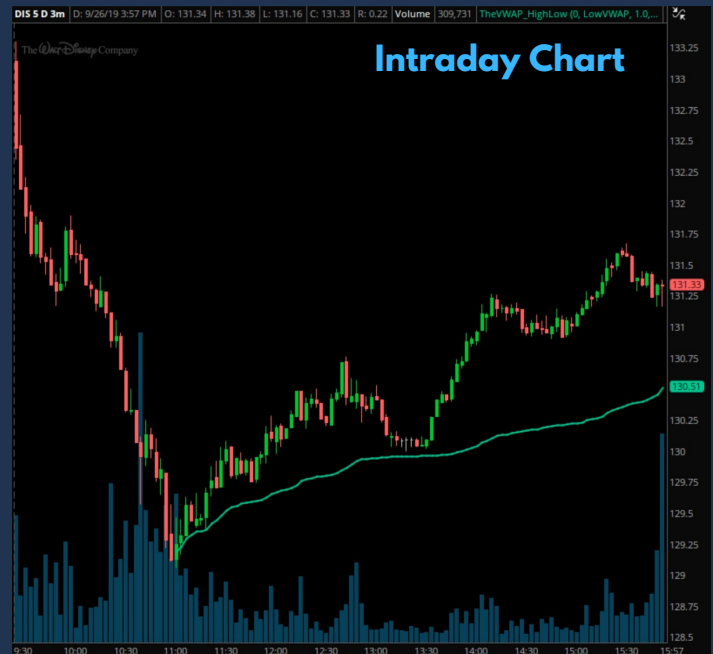
This micro VWAP initiated from the intraday low on DIS held as support twice on pullbacks while it continued to trend higher.

We tend to view the world through significant events rather than periodic lookbacks, so why not apply the same approach to our technical analysis? You wouldn't ask your friends "how have you been for the last 20/50/100 days?", so don't do the same to the chart you're analyzing.

Event driven averages makes it easier for us to relate to the chart, framing the data as a story rather than a series of random numbers.
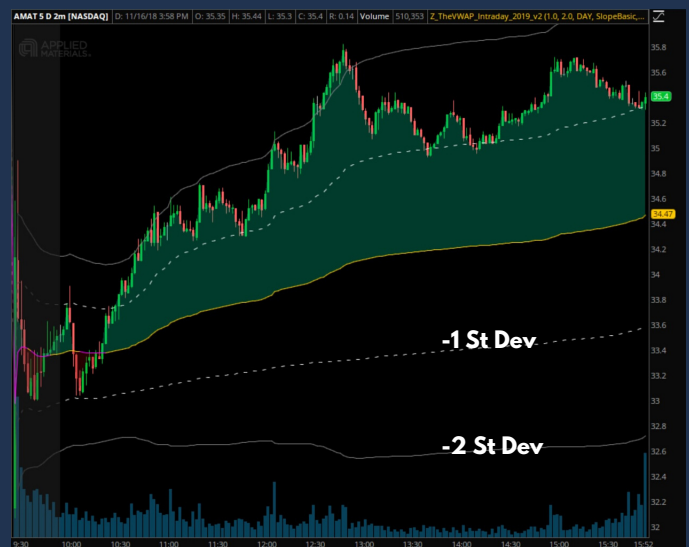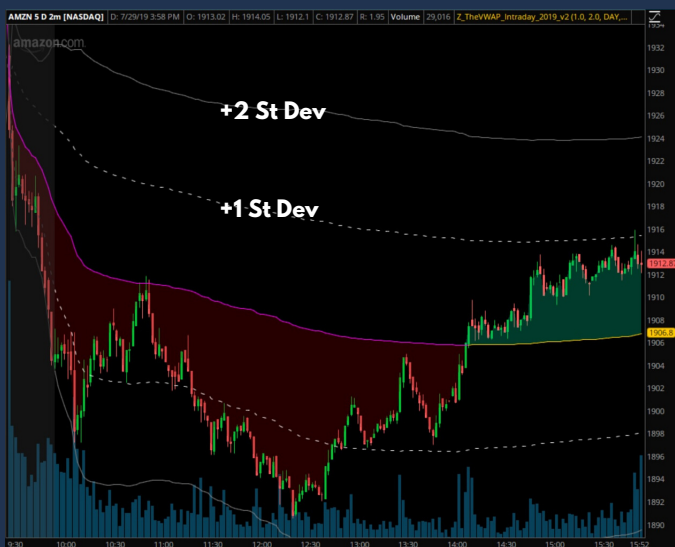
STANDARD DEVIATION BANDS

Without a metric to determine chart position relative to VWAP, our only evaluation method — *are we above or below?* — is drastically oversimplified. Standard deviations are an **objective statistical measurement that quantify variance in a data set**, with a small value indicating that most data points are close to the average and a larger value indicating a wider spread. By applying this tool to trading with VWAP serving as our average, we can plot these deviations as bands to create a visible unit of measurement to **characterize market movement and gauge volatility.**
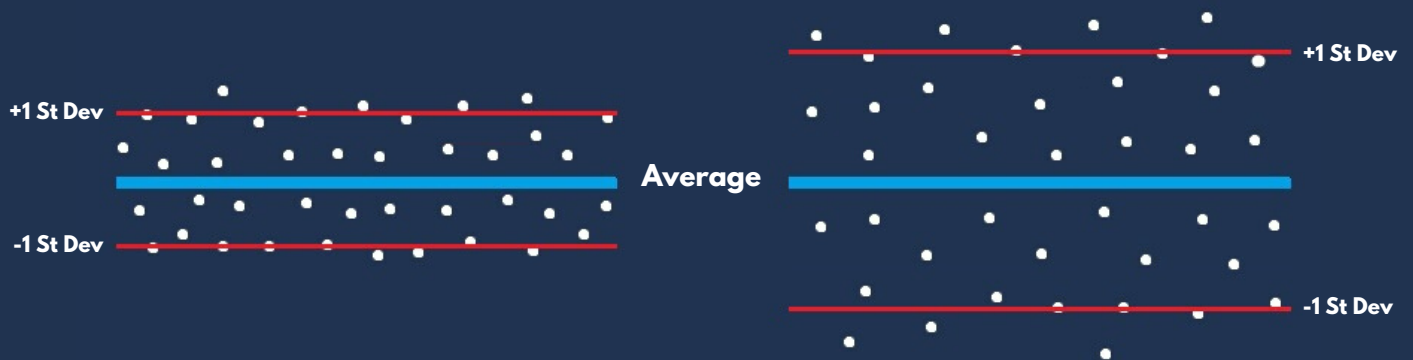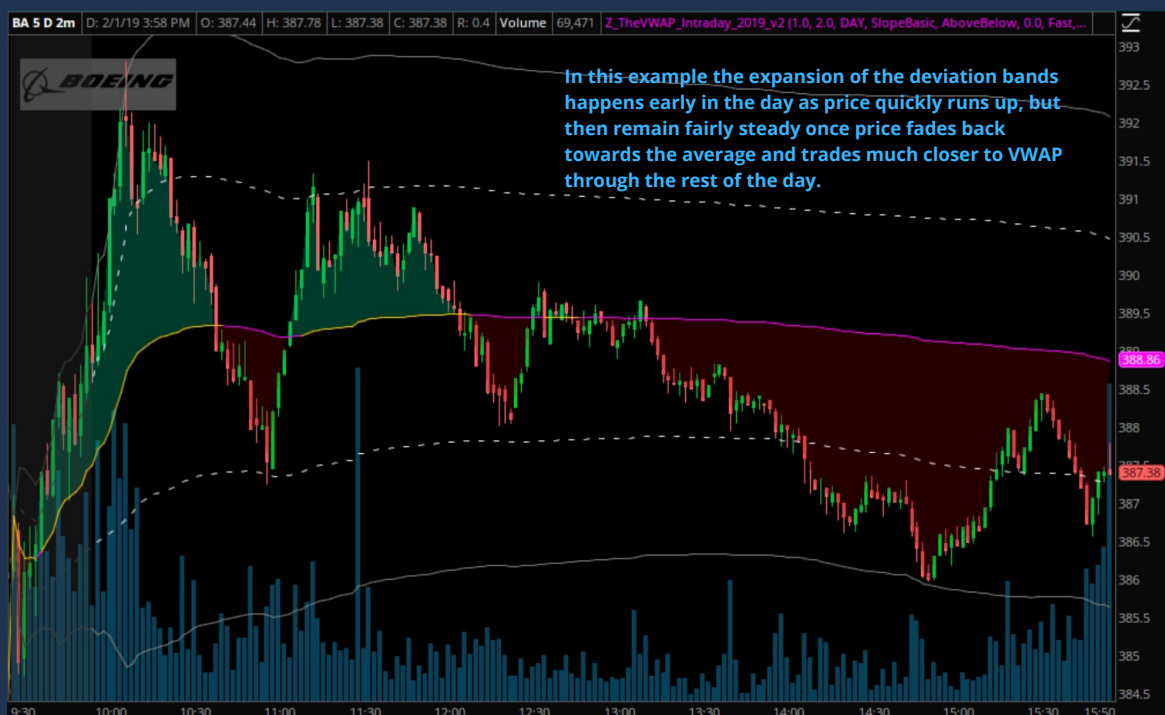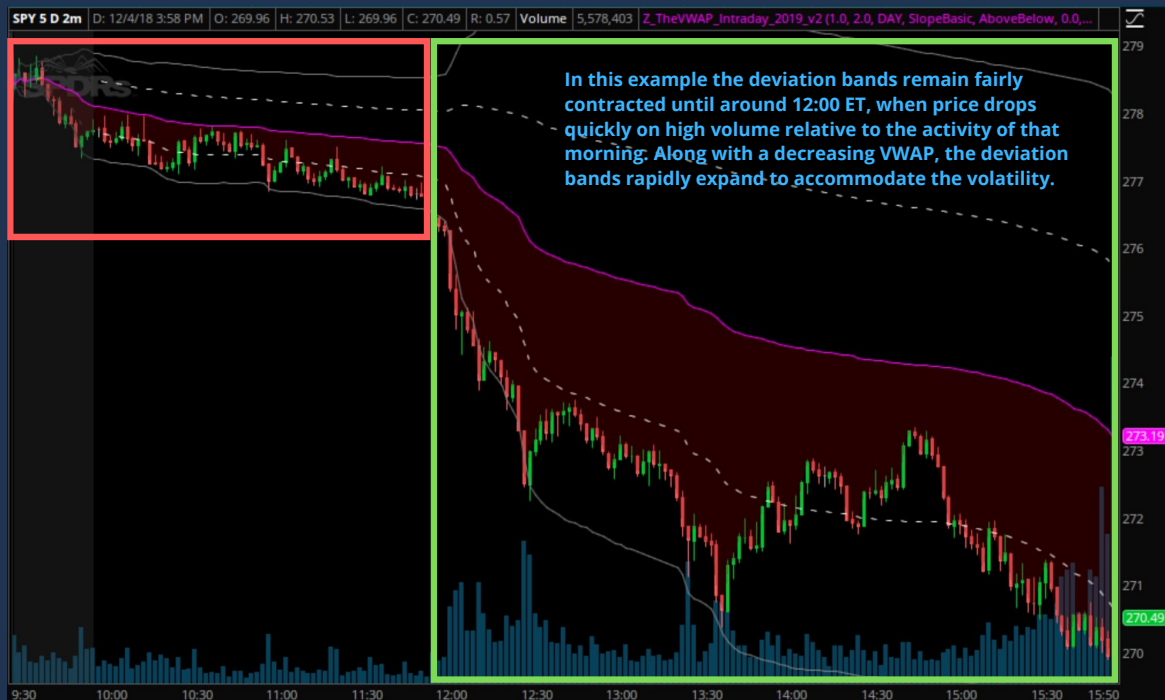

Deviation bands succeed where dollar or percent measurement cannot, standardizing volatility across stocks of all sizes.

Despite the vastly different prices of AMZN and AMAT (and StDev values of $8.64 and $0.87, respectively), deviation bands help us normalize their volatility and analyze them through the same lens.

Deviation bands are plotted continuously alongside VWAP, **automatically adjusting** as we receive more data. They typically start off small and expand as price begins to break away from the market's average, but lacking any notable volume or volatility they remain stable throughout the day.

The rate at which they change will vary depending on both **how far away from VWAP** we venture and **how much volume** is being transacted when we do.

In this example the deviation bands remain fairly contracted until around 12:00 ET, when price drops quickly on high volume relative to the activity of that morning. Along with a decreasing VWAP, the deviation bands rapidly expand to accommodate the volatility.

In this example the expansion of the deviation bands happens early in the day as price quickly runs up, but then remain fairly steady once price fades back towards the average and trades much closer to VWAP through the rest of the day.

TRADING WITH VWAP

Applying VWAP and deviation bands to a chart creates a virtual grid system that allows you to categorize market activity into meaningful themes. Like lane markers on a road, the deviation bands **thematically group the market into zones.** Each region has unique characteristics and different expectations (directional long/short versus no identifiable trend). This allows for a superior reframing of how we analyze a chart, shifting from "**is this a long or a short?**" to "**is this even moving?**".

Though simple and understandable, viewing every chart as a long or a short is a misguided binary choice. Rather than bull against bear, it's chop against trend (or random vs. non-random). **During periods of consolidation, there's no discernible edge to help you make money**. Accordingly, distinguishing between directional or non-directional markets should be your primary objective.

THE FOUR ZONES OF THE VWAP GRID

ABOVE VWAP
- Beyond +1 st dev (**expected to continue up-trending**)
- Between VWAP and +1 st dev (**expected to oscillate around VWAP**)

BELOW VWAP
- Between VWAP and -1 st dev (**expected to oscillate around VWAP**)
- Beyond -1 st dev (**expected to down-trend conservatively**)

Price crossing between VWAP zones is a noteworthy event, and more often than not it's met with a certain degree of resistance. The barriers separating the zones (VWAP and deviation bands) are **otherwise hidden areas of support and resistance** that can be utilized for trade entries and risk levels, as well as for ongoing trade management once a position has been initiated.

These barriers are **auto-calculating and dynamic**, fluctuating throughout the day as we receive new price and volume data. The zones expand when price sustains a trend, and contract when price consolidates towards VWAP. Price crossing into another zone typically signifies a change in trend, but **the slope of VWAP** (the rate at which it is changing) can foreshadow an upcoming shift even farther in advance.

DEVELOPING A STRATEGY

What will you be trading?

VWAP works on both equities and futures with ample liquidity. It is less reliable with lower volume, so avoid low-float stocks.

We mostly trade large-cap equities with sufficient average daily volume, typically familiar names that move smoothly and adhere well to VWAP levels.

When will you be trading?

Avoid pre and post market and the first half hour after the open. VWAP tends to be jumpy and unreliable during those periods while it establishes itself.

Our sweet spot for entries is 10:00 - 11:30a ET and 1:00 - 2:30p ET, though it's common to hold trend trades into the market close.

What type of trade will you be looking for?

VWAP excels in detecting the initiation or continuation of sustainable trends, so it lends itself more to longer hold times.

We typically focus on intraday trades held between 30 minutes and several hours.

How will you evaluate opportunities?

This is much more open-ended than the others, so to help give you an idea here's some of the additional criteria we consider when identifying a potential setup:

- **Alignment with the broader market**
- **Location of long-term VWAPs**
- **Volume pace vs expected average**
- **VWAP slope signaling chart strength**
- **Previous days' price action**
- **Using traditional technical patterns**

WRAPPING UP

At its core, the goal of technical trading is to:

- identify a probable trend or counter-trend that's expected to continue
- enter the trade at a credible support or resistance level with defined risk
- monitor the likelihood of continuation or impending reversal to optimize your exit

I may be biased, but **VWAP meets all of these criteria**. The grid system allows us to forecast expected market direction, and the dynamic barriers that border each zone provide us with detectable S/R and clear-cut risk levels that we can use to both initially enter trades and to actively manage them as they progress.

While VWAP is no holy grail, it is an exceptional utility for **differentiating between random (chop) and non-random (trend)** behavior. It won't save you from undisciplined trading, but it is an intuitive, objective and institutionally recognized indicator — one which provides much needed clarity in chaotic markets.

VWAP acts the way a trader would want their indicators to behave: appropriately responsive, giving numerous (but not too many!) credible signals, with few inputs for discretion — limiting the number of ways in which the trader can impact the analysis. It gives form and meaning to charts which otherwise seem arbitrary, **visualizing Adam Smith's 'invisible hand' of supply/demand mechanics** in a relatable, accessible way.

Thank you for your interest in VWAP and for taking the time to read this guide. If you're interested in further education, here's a few additional resources to consider:

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VWAP On-Demand

8+ hours of video instruction that dives even deeper into VWAP and details every aspect of my own strategy

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Roadmap Video Walkthrough

An hour-long webinar covering the concepts discussed in the Roadmap and answering audience questions

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Thanks again!

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