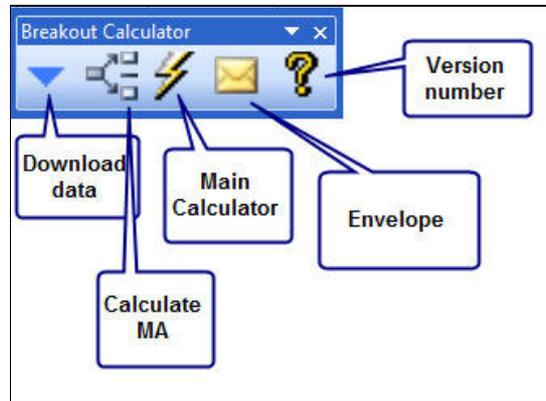# The Breakout Calculator

The Breakout Calculator is a Visual Basics software that runs in Excel Macros. This means that you need to accept macros in order to run this software. The Macros are accessible through the following icons:

1. Installation of the Breakout Calculator

The Breakout Calculator was developed in Excel 2003. If you own more recent versions, you need to follow the steps below:

1. Enable Macros by accepting appropriate pop-up warnings following initiation of the BC excel file.

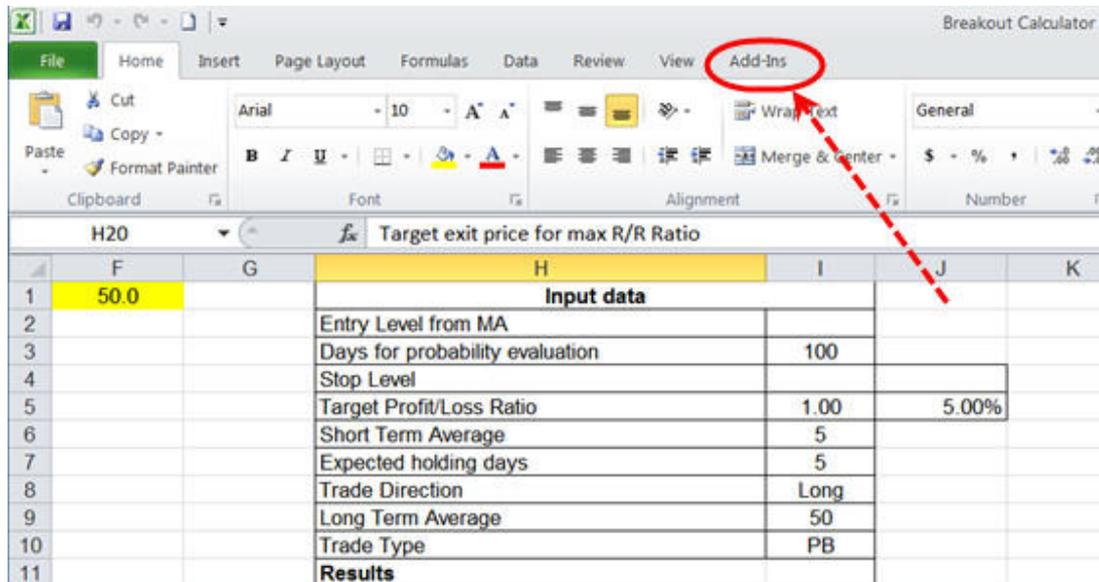2. "Add-Ins" tab should appear on the far right, select this tab. See Figure 2

Figure 2 Add-ins tab for the Breakout Calculator

3. The custom toolbar described in this chapter above should appear on the far left of your screen. See Figure 3
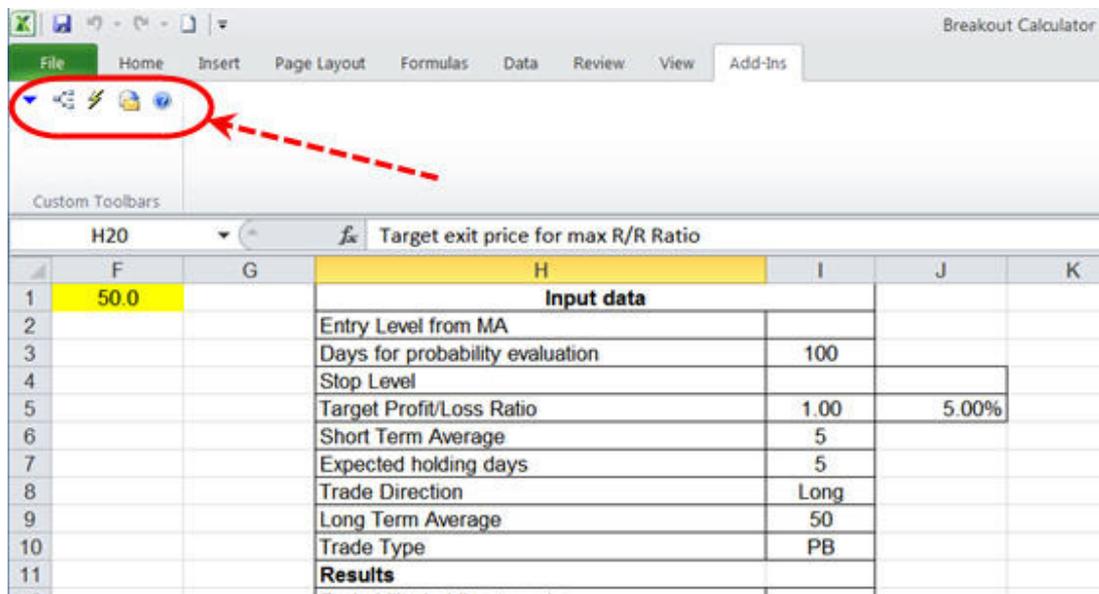

Figure 3 Custom toolbar for the Breakout Calculator

2. How to use the Breakout Calculator

2.1 Download data.

When you click on the download data icon, the Breakout Calculator will prompt you for a ticker symbol and a trade direction. The Breakout Calculator will then perform the following actions:
- Use the data historical downloader in CSV format of Yahoo to download daily data for the past three years (if you need more days, you will have to download the data manually from Yahoo and paste it in the stock data sheet.) **Note that the Breakout Calculator is dependent on the accuracy of Yahoo's historical data and if Yahoo decides to stop its service, the Breakout Calculator will stop working.**
- The Breakout Calculator will then check for splits that could have occurred in the past three years and will correct the data after informing you of its discovery. Note that you will need to check that the detected split was a real split and not a large dividend distribution, which is sometimes the case.
- The Breakout Calculator will then calculate the short-term and the long-term averages for the downloaded data.

2.2. Fill the Input data section.

This section will already be partly filled by the Breakout Calculator. For example:
- the "Entry Level from MA" will be set at -1% for Long trades and at +1% for short trades
- the "Days for probability evaluation" will be set at 60
- the "Stop Level" cells will be left blank
- the "Target Profit/Loss Ratio" will be set at 3
- the "Short Term Average" will be set at 5 days
- the "Expected holding days" will be set at 5 days
- the "Trade Direction" will be filled with your choice of "Long" or "Short."

- the "Long Term Average" will be set at 50 days
- the "Trade Type" is set as "PB"

The Breakout Calculator accepts "PB", "BO", "BOV" and OS as Trade types when the Trade Direction is Long and "Bounce", "BD", "BDV", OB when the Trade Direction is Short.
- "BD" stands for Breakdown
- "BDV stands for Breakdown on Volume
- "BO" stands for Breakout
- "BOV" stands for Breakout on Volume
- "OS" stands for Oversold
- "OB" stands for Overbought
- "PB" stands for Pullback

If you already know your stop level, fill in the corresponding cell. If you do not know it, the Breakout Calculator will use a stop level that is just outside of the envelope.

The "Days for probability evaluation" should be properly set as follows:
- For "Pullback" or "Bounce," we need to type the number of trading days from the starting point of the current trend. Note that the Breakout Calculator is a "trend-following" calculator, which means that if a new trend has just started, say, in the past ten days, the statistics produced will have little value.
- For "Breakout" and "Breakdown," the best is to use as many days as possible. Even 300 days seems correct. Indeed, a stock should react well on breakouts/breakdowns independently of the trend, especially if these are accompanied by a strong volume signature.

The "expected holding days" is an unknown here. Usually, I try to set it to at least the level of the short-term MA, which for me is five days. I indeed always evaluate my trades for an initial five days holding period. If the trade works after five days, then I revaluate the Risk/Return ratio and would try keep the trade for a longer period.

The short-term and the long-term averages are important. The short-term average defines your trading period and is used to calculate the envelope. Short-term traders use five days. Others use 20 days. The long-term average defines the longer-term trend under which you will not go long or above which you will not short. I use 50 days as a long-term average.

2.3 Launch the Main Calculator icon.

At this point, launch the main calculator icon and see what happens.

The following rules apply to determine the value of the stop level cells
- If both cells are empty, then the Breakout Calculator will automatically calculate them as the distance between your entry price and the extreme of the envelope extended by 0.1%. When automatically calculated, the minimum stop is however set at 2.5%.
- If you want to force a specific nominal stop, you need to fill out the first cell and then use the Main Calculator icon.
- If you want to force a stop in percentage terms from your entry price, clear the firts cell and type in the percentage value of the stop in the second cell.

2.4. Study the Results section:

- **The probability to hit the entry price** on the following day. Usually I would not consider monitoring a stock that has less than a 10% chance of reaching the entry price. What the Breakout Calculator does is to inspect the past 60 days - the days for probability evaluation - and simply start counting the number of times the price reached 1% below the 5MA of the previous day, but only if the price was higher than the long term average (50MA in this case). For Short trades, it is the mirror image search.
- For "Pullback" and "Bounce" trade types, **the Next entry price** is directly calculated using the "Entry level from MA" data that was typed in the input data section. For "breakout" and "breakdown" trades, the user is prompted for the entry price.
- The **ATR** is a value that might be useful to determine the inherent volatility of a stock. It is a 20D ATR. It is shown for information only.
- Two probability figures are then shown: **the probability to hit the Stop before the exit target** and **the probability to reach the exit target before the stop**.
- The **Occurrences for stop** shows the calculation for the **probability to hit the Stop before the exit target.** If the number of cases is too small, then the whole calculation carries less statistical significance and you might need to add more days.
- **The position size** is calculated in order to lower the trade risk to 5%. Hence, if your stop is higher than 5%, the position size will automatically be lowered.
- **The Risk/Return Ratio** is what should be optimized. It shows the potential of your investment using these settings. The Risk/Return ratio must always be higher than 1.
- **The Expected profit per trade** obviously tells what can be expected on average for each trade using this strategy. Note that the list of trades is also supplied for the user to inspect. Also note that this calculation includes overlapping trades.
- **The Envelope** informs you of the envelope size. To calculate the envelope, the Breakout Calculator takes the number of days stated in the "Days for probability evaluation" with a minimum of 100 days.

2.5. Study The Strategy Analysis Section

- The **Calculated strategy profit for the past 60 days** calculates the equity curve, which is the total results of non-overlapping trades.
- The **Calculated B/H Trend profit** calculates the profit of a buy and hold strategy.
- The **Ratio of invested days** shows how many days the strategy was invested in the market, stacked up against the number of days of the analysis period (here 60 days).
- The **Ratio of B/H Profit Captured** is simply the Calculated strategy profit for the past 60 days divided by The Calculated B/H Trend profit.
- The **Strategy efficiency** is the Ratio of B/H Profit Captured divided by the Ratio of invested days.

3. The Step-by-Step Guide

Figure 3 shows an example of a Flow Chart that is used as a guide for buying Breakouts. Six other different guides can be found in the Pyramid Trading Guide book.
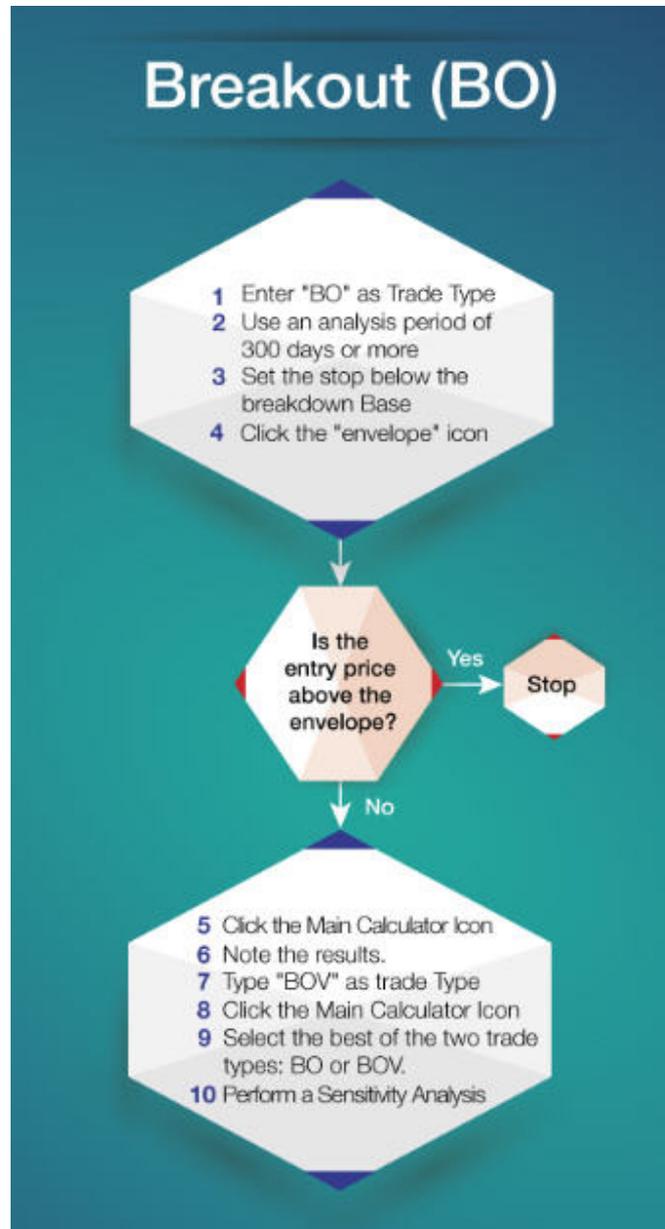

Figure 3 Flow chart for breakouts

4 Videos

This is a video that explains the envelope:
https://www.youtube.com/watch?v=cRJ4hirKaXs

This is a video that explains how to buy pullbacks
https://www.youtube.com/watch?v=ZNOyySbXvQU

This is a video that explains how to use the sensitivity analysis on the breakout calculator plus
https://www.youtube.com/watch?v=2WNA3lGEHr8