Heikin-Ashi [ChartSchool]

Table of Contents

Heikin-Ashi

Introduction

Heikin-Ashi Candlesticks are an offshoot from Japanese candlesticks. Heikin-Ashi Candlesticks use the open-close data from the prior period and the open-high-low-close data from the current period to create a combo candlestick. The resulting candlestick filters out some noise in an effort to better capture the trend. In Japanese, *Heikin* means "average" and *ashi* means "pace" (EUDict.com). Taken together, Heikin-Ashi represents the average pace of prices. Heikin-Ashi Candlesticks are not used like normal candlesticks. Dozens of bullish or bearish reversal patterns consisting of 1-3 candlesticks are not to be found. Instead, these candlesticks can be used to identify trending periods, potential reversal points and classic technical analysis patterns.

Calculation

Heikin-Ashi Candlesticks are based on price data from the current open-high-low-close, the current Heikin-Ashi values, and the prior Heikin-Ashi values. Yes, it is a bit complicated. In the formula below, a "(0)" denotes the current period. A "(-1)" denotes the prior period. "HA" refers to Heikin-Ashi. Let's take each data point one at a time.

1. The Heikin-Ashi Close is simply an average of the open,
high, low and close for the current period.

HA-Close = (Open(0) + High(0) + Low(0) + Close(0)) / 4

2. The Heikin-Ashi Open is the average of the prior Heikin-Ashi
candlestick open plus the close of the prior Heikin-Ashi candlestick.

HA-Open = (HA-Open(-1) + HA-Close(-1)) / 2

3. The Heikin-Ashi High is the maximum of three data points:
the current period's high, the current Heikin-Ashi
candlestick open or the current Heikin-Ashi candlestick close.

HA-High = Maximum of the High(0), HA-Open(0) or HA-Close(0)

4. The Heikin-Ashi low is the minimum of three data points:
the current period's low, the current Heikin-Ashi
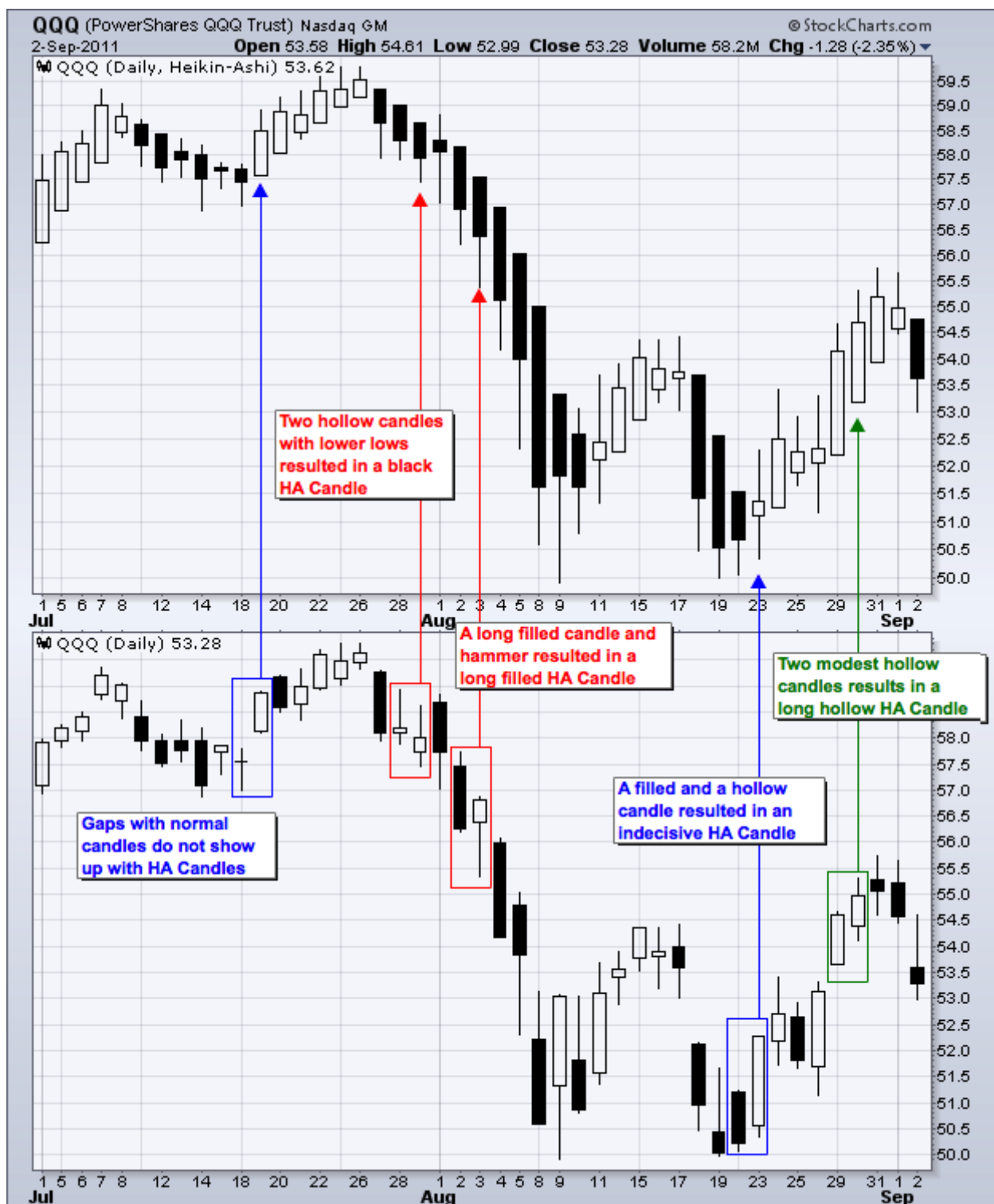candlestick open or the current Heikin-Ashi candlestick close.

HA-Low = Minimum of the Low(0), HA-Open(0) or HA-Close(0)

Before moving to a spreadsheet example, note that we have a chicken and egg dilemma. We need our first Heikin-Ashi candlestick before we can calculate future Heikin-Ashi candlesticks. Therefore, the first calculation simply uses data from the current open, high, low and close. The first Heikin-Ashi close equals the average of the open, high, low and close ((O+H+L+C)/4). The first Heikin-Ashi open equals the average of the open and close ((O+C)/2). The first Heikin-Ashi high equals the high and the first Heikin-Ashi low equals the low. Even though this first Heikin-Ashi candlestick is somewhat artificial, the effects will dissipate over time (usually 7-10 periods). StockCharts.com starts its Heikin-Ashi calculations before the first price date visible on each chart. Therefore, the effects of this first calculation will have already dissipated. The chart above shows examples of two normal candlesticks converting into one Heikin-Ashi Candlestick.

Heikin-Ashi Candlesticks

QQQ	Open	High	Low	Close	HA-Open	HA-High	HA-Low	HA-Close
01-Aug-11	58.67	58.82	57.03	57.73	58.67	58.82	57.03	58.06
02-Aug-11	57.46	57.72	56.21	56.27	58.37	58.37	56.21	56.92
03-Aug-11	56.37	56.88	55.35	56.81	57.64	57.64	55.35	56.35
04-Aug-11	55.98	56.09	54.17	54.17	57.00	57.00	54.17	55.10
05-Aug-11	54.79	55.03	52.32	53.83	56.05	56.05	52.32	53.99
08-Aug-11	52.21	53.12	50.59	50.59	55.02	55.02	50.59	51.63
09-Aug-11	51.31	53.08	49.93	53.03	53.32	53.32	49.93	51.84
10-Aug-11	51.82	53.04	50.80	50.86	52.58	53.04	50.80	51.63
11-Aug-11	51.58	53.69	51.34	53.10	52.11	53.69	51.34	52.43
12-Aug-11	53.42	53.90	52.88	53.57	52.27	53.90	52.27	53.44
15-Aug-11	53.77	54.36	53.53	54.36	52.85	54.36	52.85	54.01
16-Aug-11	53.82	54.35	53.18	53.90	53.43	54.35	53.18	53.81
17-Aug-11	53.98	54.42	53.02	53.58	53.62	54.42	53.02	53.75
18-Aug-11	52.13	52.14	50.48	50.95	53.69	53.69	50.48	51.43
19-Aug-11	50.43	51.67	49.99	50.03	52.56	52.56	49.99	50.53
22-Aug-11	51.21	51.24	50.06	50.21	51.54	51.54	50.06	50.68
23-Aug-11	50.56	52.28	50.34	52.28	51.11	52.28	50.34	51.37
24-Aug-11	52.18	53.42	51.71	52.69	51.24	53.42	51.24	52.50
25-Aug-11	52.64	52.91	51.65	51.83	51.87	52.91	51.65	52.26
26-Aug-11	51.68	53.31	51.15	53.13	52.06	53.31	51.15	52.32
29-Aug-11	53.64	54.67	53.64	54.61	52.19	54.67	52.19	54.14
30-Aug-11	54.39	55.30	54.11	54.97	53.17	55.30	53.17	54.69
31-Aug-11	55.29	55.74	54.60	55.06	53.93	55.74	53.93	55.17

QQQ (PowerShares QQQ Trust) Nasdaq GM
2-Sep-2011 Open 53.58 High 54.61 Low 52.99 Close 53.28 Volume 58.2M Chg -1.28 (-2.35%) ▼
QQQ (Daily, Heikin-Ashi) 53.62
© StockCharts.com

Two hollow candles with lower lows resulted in a black HA Candle

A long filled candle and hammer resulted in a long filled HA Candle

Two modest hollow candles results in a long hollow HA Candle

Gaps with normal candles do not show up with HA Candles

A filled and a hollow candle resulted in an indecisive HA Candle

QQQ (Daily) 53.28

Interpretation

Heikin-Ashi Candlesticks are similar to but different than normal candlesticks. A Heikin-Ashi Candlestick is hollow (white) when the HA-Close is above the HA-Open. Conversely, a candlestick is filled (black) when the HA-Close is below the HA-Open. This is similar to normal candlesticks, which are filled (black) when the close is below the open and hollow (white) when the close is above the open.

While traditional candlestick patterns do not exist with Heikin-Ashi Candlesticks, chartists can derive valuable information from these charts. A long hollow Heikin-Ashi candlestick shows strong buying pressure over a two day period. The absence of a lower shadow also reflects strength. A long filled Heikin-Ashi candlestick shows strong selling pressure over a

two day period. The absence of an upper shadow also reflects selling pressure. Small Heikin-Ashi candlesticks or those with long upper and lower shadows show indecision over the last two days. This often occurs when the two normal candlesticks are of opposite color.

The chart above shows QQQ with Heikin-Ashi Candlesticks over a four month period. The blue arrows show indecisive Heikin-Ashi Candlesticks that formed with two normal candlesticks of opposite color. Indecision can sometimes foreshadow a trend reversal. The red arrows show a strong decline marked by a series of Heikin-Ashi Candlesticks without upper shadows. This means the Heikin-Ashi Open marked the high and the remaining data points were lower. The green arrow shows a strong advance marked by a series of Heikin-Ashi Candlesticks without lower shadows. This means the Heikin-Ashi Open marked the low and the remaining data points were higher.

Doji and Spinning Tops

As with normal candlesticks, Heikin-Ashi doji and spinning tops can be used to foreshadow reversals. A Heikin-Ashi doji or Heikin-Ashi spinning top looks just the same as a normal doji or spinning top. A doji is a small candlestick with an open and close that are virtually equal. There are small upper and lower shadows to denote little price movement.
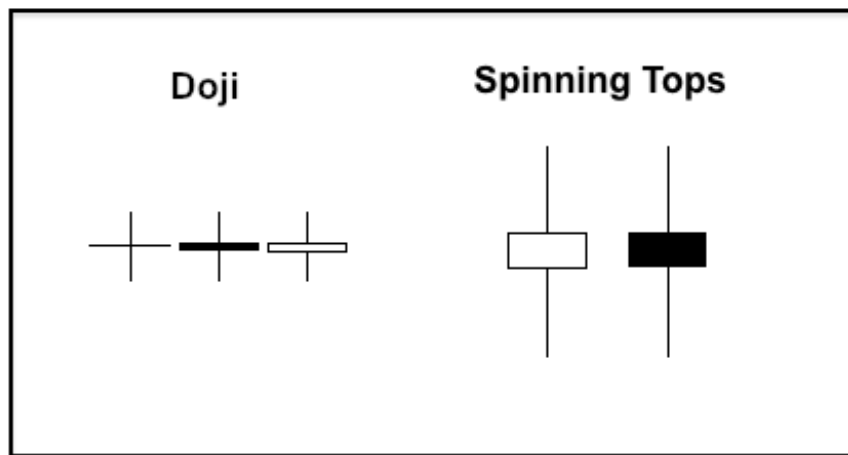
Spinning tops have small bodies (open-close range) and long upper/lower shadows (high-low range). Despite a lot of movement from high to low, prices finish near their opening point for little change. This shows indecision that can foreshadow a reversal.

When using Heikin-Ashi Candlesticks, a doji or spinning top in a downtrend is not right away bullish. It just shows indecision within the downtrend. Indecision is the first step to changing direction. Confirmation of a directional change (trend reversal) is required though. Once chartists spot a doji or spinning top in a downtrend, it is time to set a resistance level upon which to base a trend reversal.

The example below shows Caterpillar (CAT) with a spinning top forming in late May (1). The trend is clearly down so a resistance level is set to define a reversal breakout (confirmation). CAT did break this resistance level a few days later, but the breakout failed. Not all signals are perfect. The downtrend extended and CAT then formed two doji in mid-June. A resistance level was marked after the doji and CAT broke resistance to confirm a reversal.

Prices extended higher until the stock stalled around 110 in July. Two doji and an indecisive candlestick formed in mid-July (3). Also, notice that a clear support level was established. CAT broke support in late July to start a strong downtrend and confirm the trend reversal. A spinning top formed during this downtrend (4), but there was no upside follow through or reversal. Confirmation of a trend reversal is important.

Classic Chart Patterns

Classic chart patterns and trend lines can also be used on Heikin-Ashi charts. In contrast to normal candlesticks, Heikin-Ashi Candlesticks are more likely to trend with strings of consecutive filled (black) candlesticks and strings of consecutive hollow (white) candlesticks. The chart below shows Apache (APA) falling with a string of filled candlesticks in late October. The Heikin-Ashi candlesticks formed a falling wedge and APA broke resistance with a surge in early November. A triangle consolidation then took shape as the stock consolidated in November. The upside breakout signaled a continuation of the bigger uptrend.
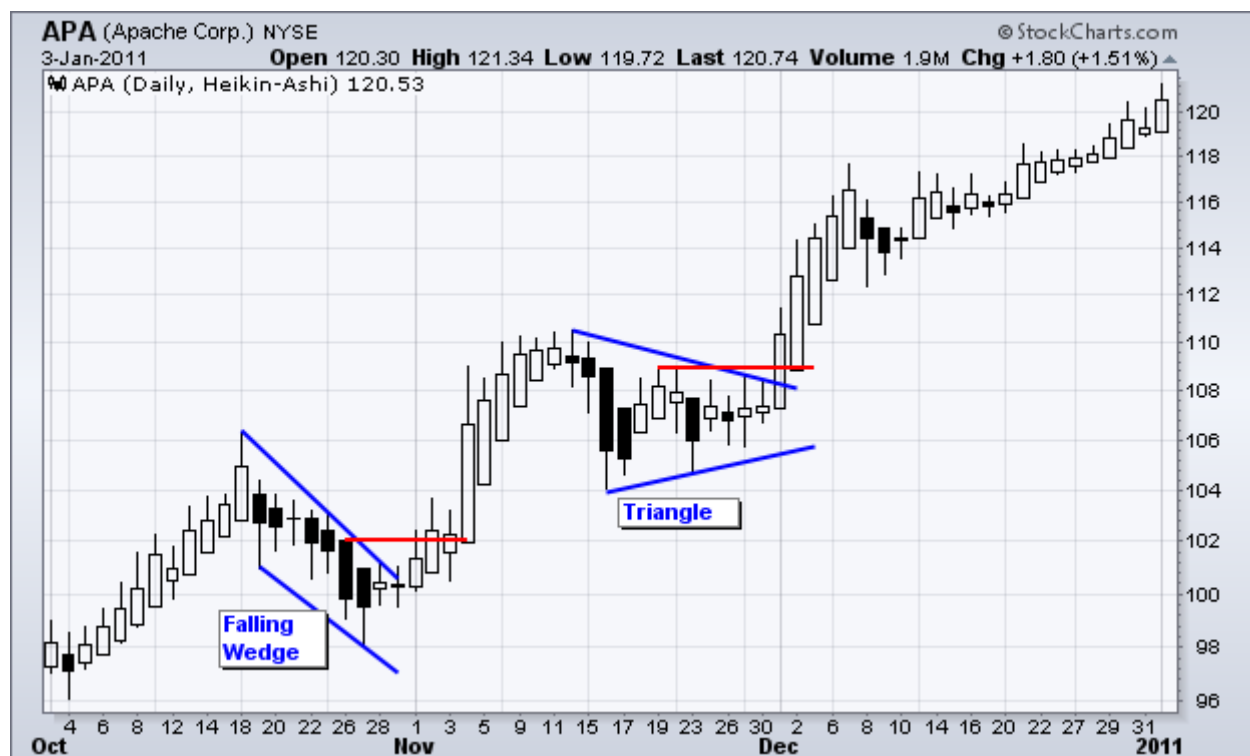
The next chart shows Monsanto (MON) with a classic correction in June 2011. The Heikin-Ashi Candlesticks were more than adequate to identify this correction and subsequent breakout. Notice how a falling channel formed as the stock retraced around 61.80% of the prior decline. The big breakout in late June signaled an end to this correction and resumption of the advance.

Conclusions

Heikin-Ashi Candlesticks provide chartists with a versatile tool that can filter noise, foreshadow reversals and identify classic chart patterns. In fact, all aspects of classical technical analysis can be applied to these charts. Chartists can use Heikin-Ashi Candlesticks to identify support and resistance, draw trendlines or measure retracements. Volume indicators and momentum oscillators also work well. **Click here** for a live Heikin-Ashi chart.

SharpCharts

SharpCharts users can find Heikin-Ashi under **"Chart Attributes"** and "Type". These candlesticks can be black and white or in color. Checking the "color prices" box will show red candlesticks for periods that closed lower and black candlesticks for periods that closed higher. A red filled candlestick means the close was below the open (filled) and the close was lower than the prior close (red). A black hollow candlestick means the close was above the open (hollow) and the close was higher than the prior close (black). The chart below shows both candlestick types side-by-side. Sorry, dual colors are not a charting option. The chart was created by cutting and pasting from one chart to the other.

SPY (S&P 500 SPDRs) NYSE © StockCharts.com
9-Sep-2011 2:08pm Op 117.68 Hi 118.10 Lo 115.52 Last 116.13 Vol 233.4M Chg -2.91 (-2.44%) ▼
ⓦ SPY (Daily, Heikin-Ashi) 116.86

Heikin-Ashi
(colored prices)

Red = Down versus Prior Close
Black = Up versus Priro Close
Hollow = Close > Open
Filled = Close < Open

ılı Volume 233,431,984

□ Chart Attributes

Periods	Range		Years	Months	Days	Extra Bars			
Daily ▼	Predefined Range ▼		0 ▼	6 ▼	0 ▼	5			

Type	Size	Color Scheme	Grid	Color	Opacity
Heikin-Ashi ▼	620 ▼	Murphy ▼	Normal ▼	- Auto - ▼	- Auto - ▼

Volume: Separate ▼ ☐ Full Quote ☐ Price Labels ☑ Log Scale ☑ Color Prices ☑ Color Volume ☑ Show Legends ☑ Smoothed Lines

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