

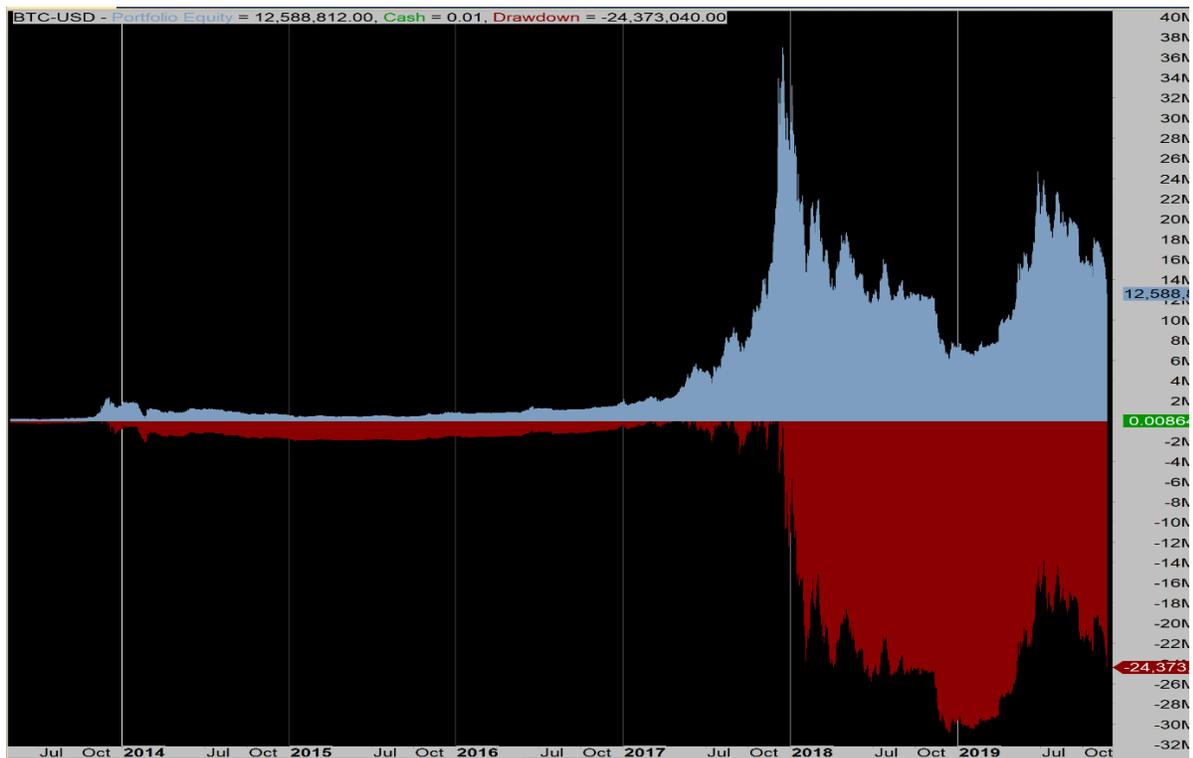
The Bull Bear Bitcoin Strategy

Key points

- This strategy can be used as a Bitcoin Buy & Hold replacement.
- It invests in Bitcoin during bull markets but exits to interest-bearing* cash during bear or side-way markets.

Why not just Buy & Hold

Buying and holding to Bitcoin (the so called “Hold On for Dear Life or HODL) can be a rather painful experience. Historically speaking holding Bitcoin had it’s worst moment in 2012, loosing 91% and again in 2015, 2017 and 2019 loosing roughly 80% from it’s peak. The Buy and Hold equity chart looks like this:



So yes, in theory you would have been a millionaire if you held on to Bitcoin but who in their right mind could withstand such deep and prolonged losses.

To put things into context if you were brave enough to invest \$100,000 in December 2018 you would have lost \$54,000 by February of the next year. Assuming you were patient enough to stick with the plan (the plan being 'HODL') you would slowly see what is left of your capital slowly decrease to \$34,000 by December 2019. After a year of losses, it would be very difficult to stay in this trade no matter who you are. It means that you would hope for a 250%+ Bitcoin price increase just to break even.

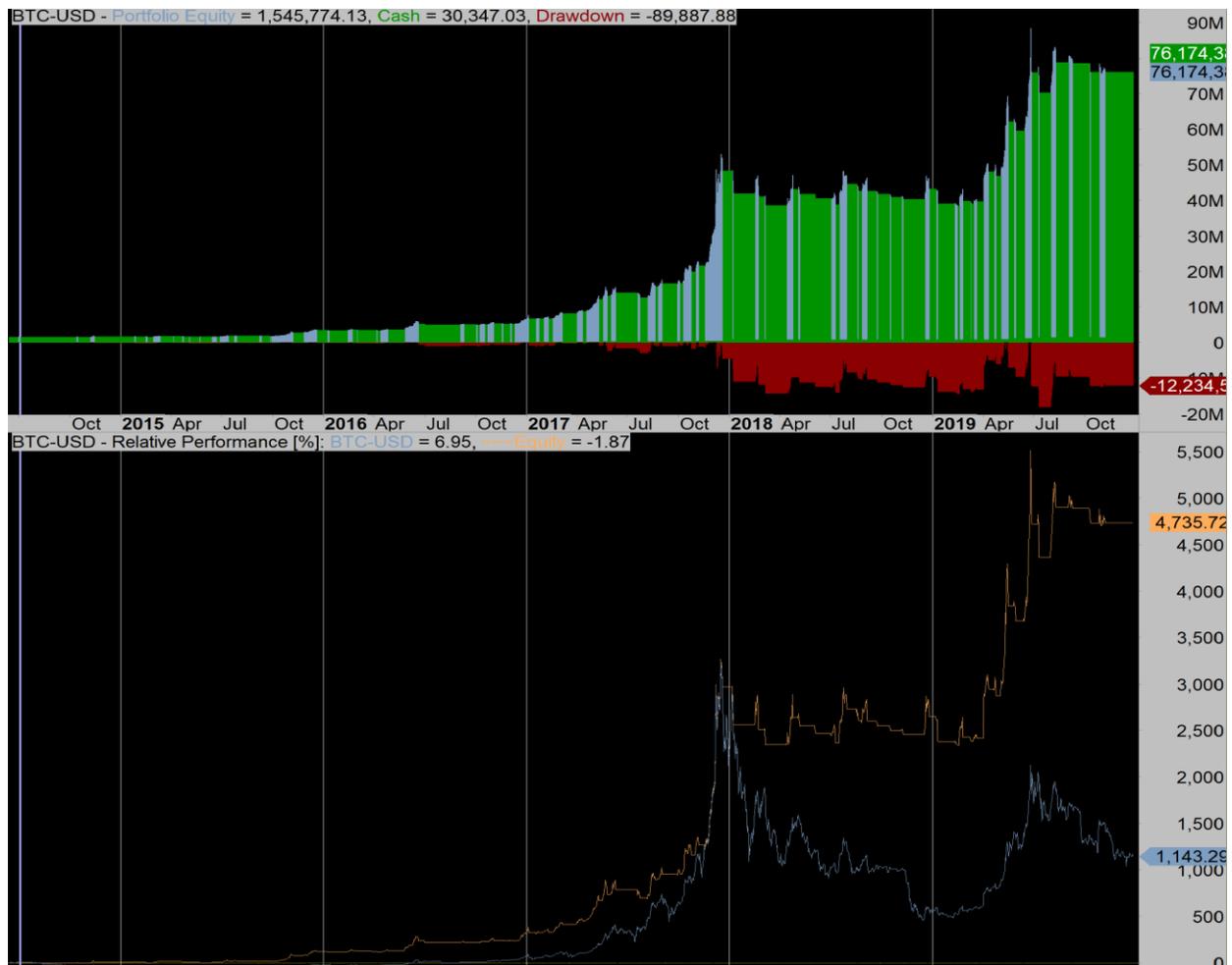
The Bull Bear Bitcoin strategy

Based on a small number of simple proprietary indicators we propose a strategy that can signal to either hold Bitcoin or exit to cash.

Unlike a trader who may be unwilling to chase a rising price, the Bull Bear Bitcoin (BBB) strategy will enter a position, without hesitation, early on during a bullish trend. Backtests show that it is nearly impossible to have one of those extended Bitcoin 100%+ runs without the strategy participating.

On the other hand, the exit criteria are strict and quick to trigger. The strategy will exit on signs of weakness and will do so early on. Again, history shows that it is preferable to have a quick exit mechanism even if this results in minor whipsaw losses. Without one, Bitcoin corrections can easily reach the - 50% to - 85% range.

The backtested equity curve of the strategy looks like this:



The top shows the equity of the system. The numbers are not what interests us but rather the behavior of the system.

Staying on the top pane, the green area under the equity curve signifies that the system is in cash. The grey area signifies that the system holds bitcoin. Our first observation is that the system is mostly in cash: 67% of the time. This sounds boring, but it does reduce the chances that the portfolio suffers from a random black-swan event. The enhanced version of the strategy puts this cash to work to earn interest.

On the bottom pane we have two lines. The blue-grey line is the equity representing profits of just holding Bitcoin. The orange line is the equity curve of the strategy. What we notice here is that during prolonged bear, the strategy suffers many small losses but none as deep as the Buy and Hold. The next time

Bitcoin goes off on a bull run, the strategy can start from a higher cash level and thus eventually outperform.

Although the strategy has been backtested since 2013, it is the last two years that are of interested to us, where Bitcoin trading was available to a wider public. These patterns of parabolic price increases followed by slow and painful losses have played out twice, in 2017-2018 and early 2019- to present (present being December 2019).

The BBB strategy during the popular years

Bitcoin became popular to the retail investor in 2017. Today, most retail investors are not active due to two extended bear markets. We will examine the periods from 1/1/2017-1/1/2020. This period include two bull runs as well as two -70% bear markets. The first bull run was from Jan 1 2017 to December 2017 and run at 1,845% profit. In reality, the bull market that caught the eye of the media and by retail investors was just after the summer starting at \$4000 and ending in a parabolic move above \$19,000. This was in December 2019. What followed was a steep and quick correction to \$13,000 and a bounce up to \$17,000. It took one painful year for Bitcoin to slowly reach a low of \$3,500 as if trying to rid of most investors before the next bull run.



The next leg up started around April 2019 from around \$4,000 to a high of almost \$13,000. We are currently at a bearish leg down to the 7,000 level.

The BBB strategy performance numbers

Starting with a modest capital of \$10,000 in January 1st 2017 the strategy would end up with **\$112,073, 1020% profit.**

If we just bought in 1/1/2017 and simply held, we would end up with **\$72,758, a more than descent 627% profit.**

The main difference comes in the reduction of risk: From a -83% loss to a more manageable -23% correction:

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The highlights:

	BBB Strategy	Buy & Hold
Net Profit %	1020.73%	627.59%
Max. system % drawdown	-27.58%	-83.40%
Exposure %	33.86%	100.00%
CAR/MaxDD	4.49	1.13

Full statistics below:

Initial capital is \$10,000. Backtest period 1.1.2017 -1.1.2020. Commission is 0.075% per trade.

Statistics

	The Bull Bear Strategy	Buy&Hold (BTC-USD)
Initial capital	10000.00	10000.00
Ending capital	112073.31	72758.79
Net Profit	102073.31	62758.79
Net Profit %	1020.73%	627.59%
Exposure %	33.86%	100.00%
Net Risk Adjusted Return %	3014.52%	627.59%
Annual Return %	123.95%	93.89%
Risk Adjusted Return %	366.06%	93.89%
Transaction costs	3556.79	62.10
All trades	44	1
Avg. Profit/Loss	2319.85	62758.79
Avg. Profit/Loss %	7.26%	628.06%
Avg. Bars Held	9.55	1092.00
Winners	22 (50.00 %)	1 (100.00 %)
Total Profit	157390.89	62758.79
Avg. Profit	7154.13	62758.79
Avg. Profit %	18.42%	628.06%
Avg. Bars Held	13.64	1092.00
Max. Consecutive	6	1
Largest win	39274.27	62758.79
# bars in largest win	34	1092
Losers	22 (50.00 %)	0 (0.00 %)
Total Loss	-55317.58	0.00
Avg. Loss	-2514.44	-nan(ind)
Avg. Loss %	-3.89%	-nan(ind)%
Avg. Bars Held	5.45	-nan(ind)
Max. Consecutive	5	0
Largest loss	-9429.11	0.00
# bars in largest loss	4	0
Max. trade drawdown	-18287.80	-163106.42
Max. trade % drawdown	-16.07	-83.40
Max. system drawdown	-26739.80	-163106.42
Max. system % drawdown	-27.58%	-83.40%
Recovery Factor	3.82	0.38
CAR/MaxDD	4.49	1.13
RAR/MaxDD	13.27	1.13
Profit Factor	2.85	inf
Payoff Ratio	2.85	nan
Standard Error	12031.93	31467.53
Risk-Reward Ratio	2.90	0.60
Ulcer Index	16.54	51.89
Ulcer Performance Index	7.17	1.71
Sharpe Ratio of trades	2.05	inf
K-Ratio	0.08	0.02

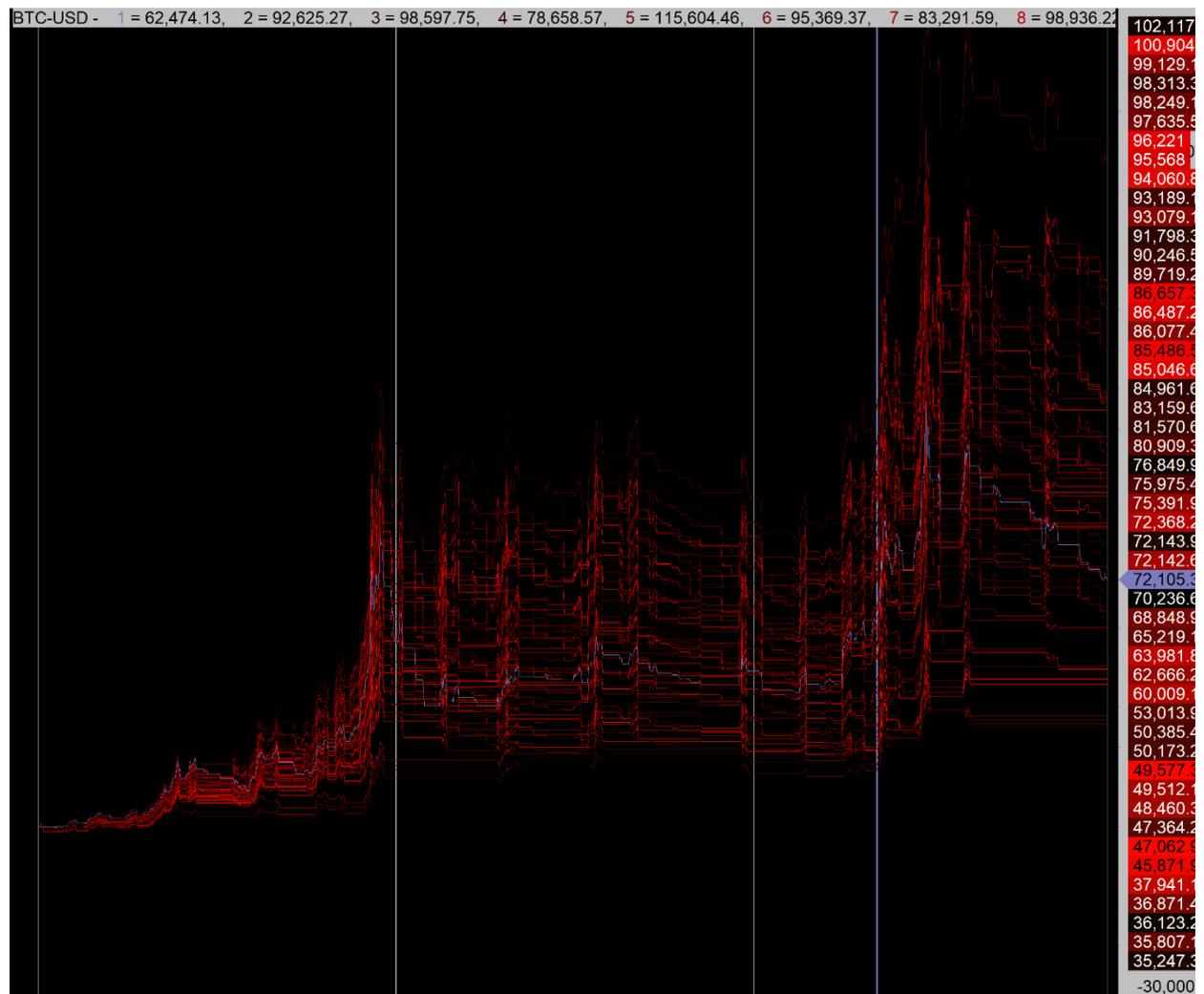
Robustness- Running through parameters

Backtests suffer from optimization bias. We will take a look at whether the BBB strategy works within a range of parameters.

To recap, there are 2 main elements that protect the strategy from overfitting:

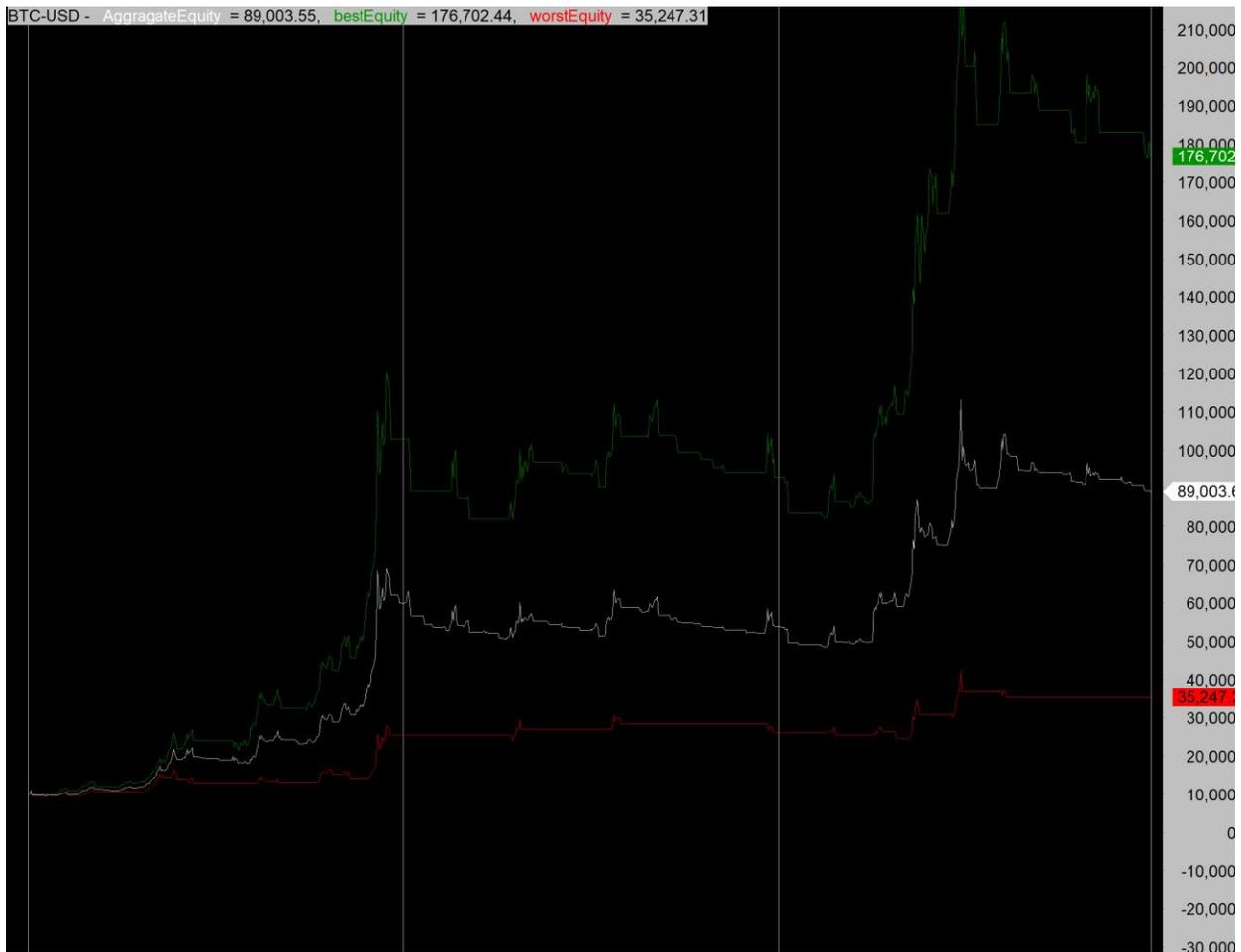
- The indicators are simple and the parameters are few, so there is no complexity to overfit.
- The strategy is based on market momentum which mirrors fundamental human behavior, has worked in Bitcoin in the past as well as in other similar markets (which would be futures markets).

Running through different parameters we end up with 75 iterations:



On the above chart we plot the equity curves of the 75 resulting systems. The main thing to notice is that the behavior remains similar throughout: Minimizing the drawdown on bear markets.

The following chart show the best, worse and 'mean' resulting equity:



Background on Bitcoin – The nature of the beast

Bitcoin is a different type of beast with 1000% up moves and 95% losses. To really understand what it would be like holding on to Bitcoin, it would be to “play back” a chart going back in 2013 and test whether you would have sold and when.

Bitcoin exhibits 'upside risk'

Normal equity markets move up slowly over the course of years only to 'crash' and lose multi-year worth of profits in a matter of months, if not weeks. This is the 'downside risk' that regular investors and managers should understand and develop ways to deal with.

Bitcoin on the other hand goes up faster than it goes down. The main concern one faces when trading Bitcoin is missing out the large move. When Bitcoin moves up, it does so rapidly and leaves little room for retail investors to enter a position. By the time an investor finds the courage to enter the market, chances are that the move has exhausted itself and is ready to start a side-ways and bearish stage.

A good example of this is the 2017 bull run that went from 3,000 to 6,000 in 35 days, then stayed around 7,000 for a few days before shooting up to 16,000. An investor looking at the 3,000 price and following a move to 6,000 will be very hard pressed to enter after he has missed a 100% move! Chances are he will wait for a correction that may be not fully materialize. Maybe he will eventually start buying at 13,000, feeling he is missing out. By the time the price has reached 17,000 he has grown desperate and might go all-in. Or on another scenario he may start accumulating on the way down from 19,000 to 13,000. This of course is all understandable but problematic as the price eventually slowly falls below \$4,000 testing his patience.



Much like futures during the 80's, the market is populated by large producers or in crypto terminology 'whales' that could manipulate it to a certain extent. A good reference for this type of trending markets and how to trade them is to read up on the Turtles, the legendary group that traded futures successfully during that time.

Trend-following strategies long-term

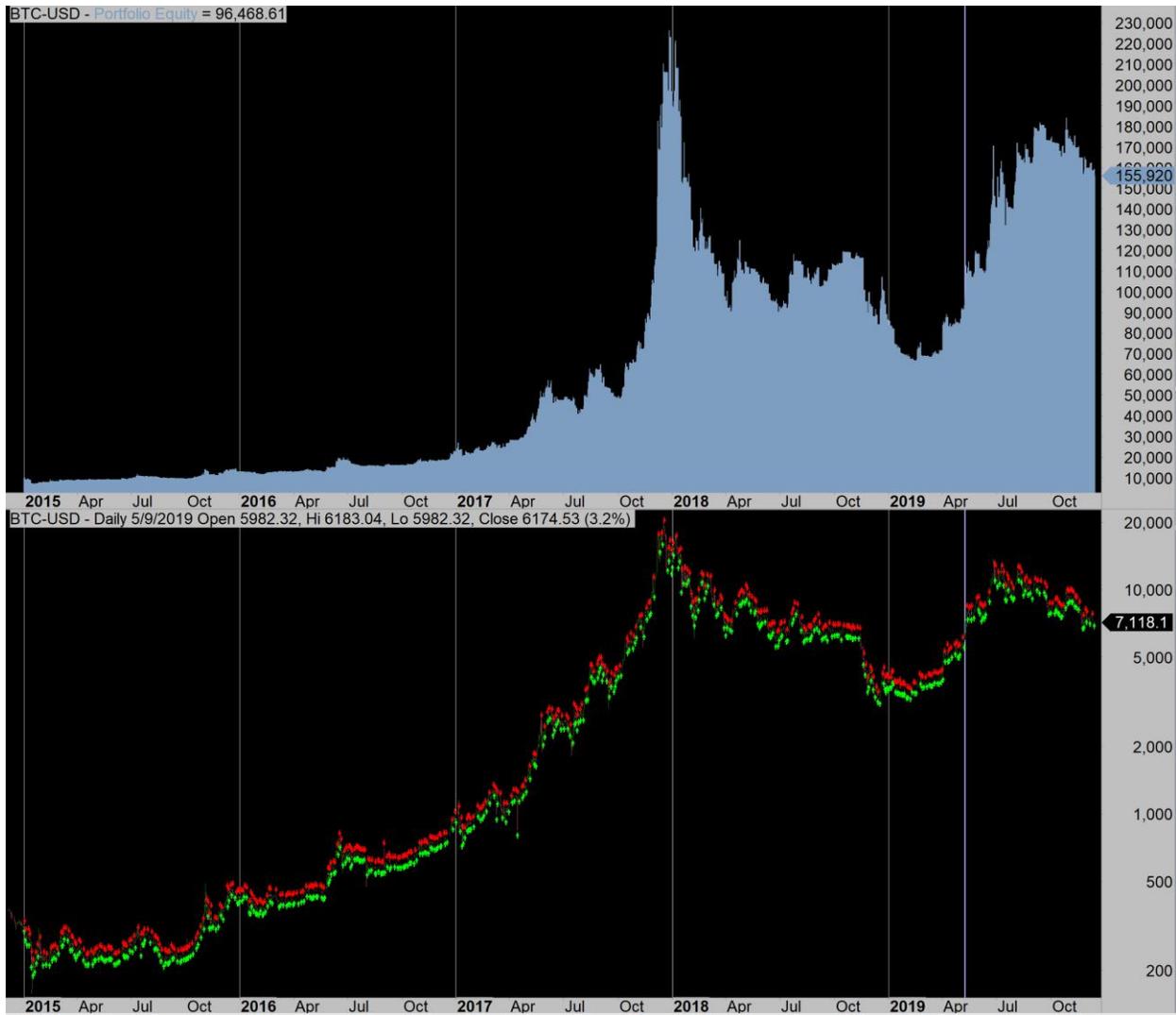
Backtests show that Bitcoin trends well. That means that an up-move in the price tends to be followed by further strength while a down move by further weakness. In other markets seasoned traders often 'fade' a move by shorting the asset and waiting for the price to revert back to the 'mean'. This would be a simplified mean-reverting strategy. In Bitcoin this has historically not worked, long term. It is best to go long after a large price increase rather than fade it.

The simplest trend following strategy (Starting with \$10K. Bitcoin price in logarithmic scale. Zero commission assumption.)

If close > close yesterday, buy tomorrow at the open.

If close < close yesterday, sell tomorrow at the open.

The strategy starts with \$10,000 and ends up with \$155,000.

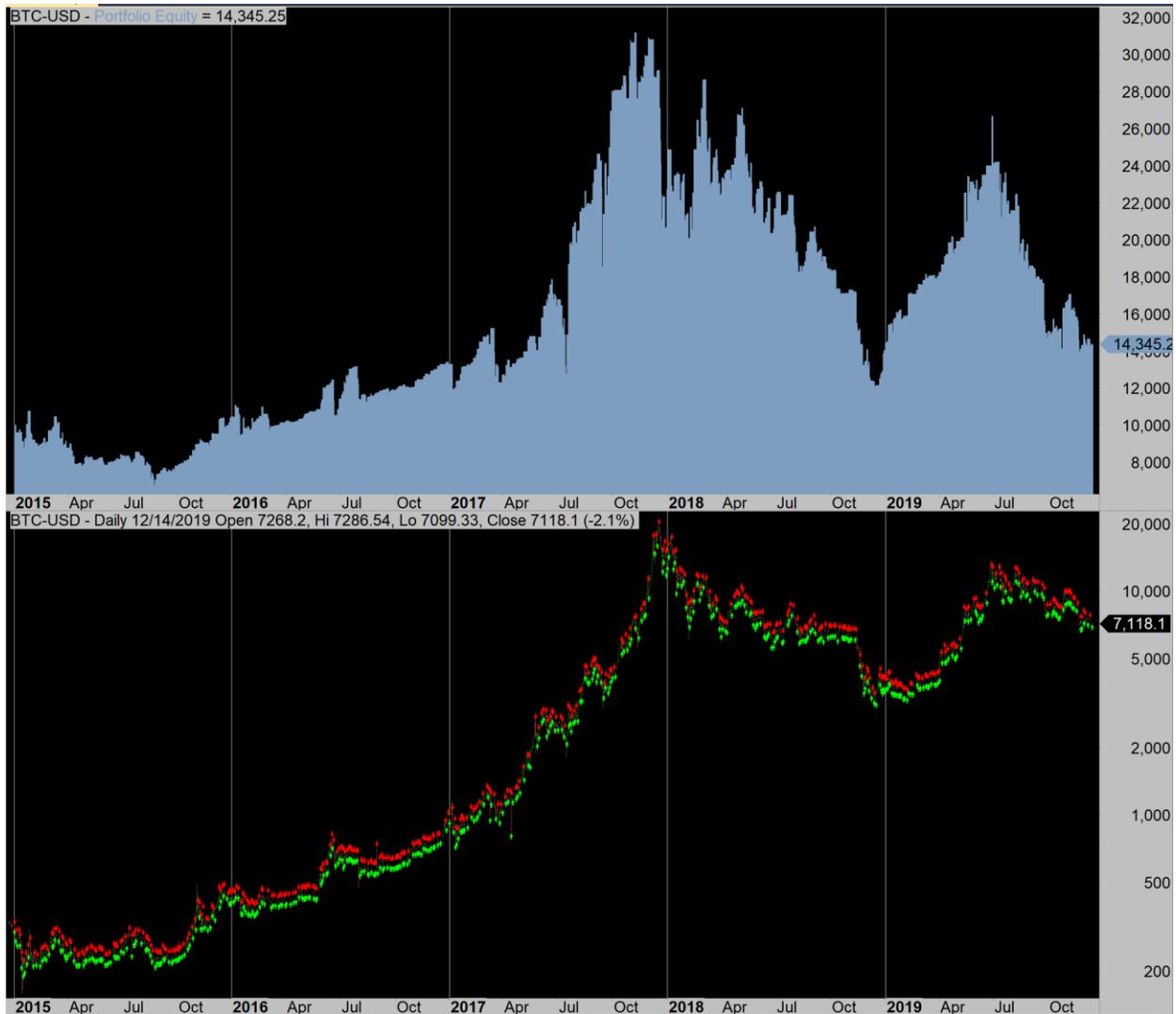


The simplest mean-reverting strategy:

If close < close yesterday, buy tomorrow at the open.

If close > close yesterday, sell tomorrow at the open.

The strategy starts with \$10,000 and ends up with \$14,000.



Of course, trend following strategies are more sophisticated than that and use a variety of indicators like moving averages, channels, the Relative Strength Index (RSI). Experience has shown that trend following strategies are all about risk

management (when to cut losses) rather than timing entrances (catching a move earlier rather than later).

Bitcoin is disaster friendly – a safe-haven asset characteristic

Unlike equity markets, Bitcoin price should not only remain unaffected by natural disasters, wars, social and political upheavals, bank runs or trade wars but should rise. This behavior is typical of what we call a safe asset. Safe assets are rare and very useful for portfolio construction as they are natural hedges to the stock market. So far there are very few safe heavens assets, namely Bonds, Gold, Cash (USD dollar) and the very expensive VIX, the stock market volatility index.

Being a safe-haven asset, like Gold, adds to Bitcoin's "upside risk" as unforeseen events may trigger a spike in the price.

Bitcoin could lose its value

Unlike other safe-haven assets, namely Bonds and Gold, Bitcoin's price could theoretically go to zero or very close to that. You may argue that Bonds can default and Gold could become worthless. But if that was to happen the current financial system would crumble. There is an incentive for powers to be to not let that happen. Bitcoin, on the other hand, being an unregulated currency, can be fought by governments and central banks without affecting their wellbeing. We are far from a world where we can pay and get paid in crypto so there is still a need for a crypto-to-fiat bridge. This bridge can be cutoff via regulation. As passionate as one may be about the value of Bitcoin there is no harm in exiting to cash during weak markets and jumping back in when the market shows strength again. Having an exit path ensures that our initial investment will not go to zero even if extreme scenarios do play out.

Bitcoin is an inflation hedge

What happens when a society has accumulated large debt? So large that it can never be repaid? Or it has a demographic imbalance that cannot sustain future pension promises?

A few possibilities come to mind: War, Government Default, Taxes, Inflation.

The least disruptive alternative is the last one: Inflation. Using inflation governments can eliminate debt from the system by making it loose value versus real assets. So if you owe \$300,000 and your house is worth 300,000, you owe your house. But if after 5 years your house (and all houses in the country) triple in value, you now owe 1/3 of your house and continue business as usual by refinancing.

Inflation deflates debt but is also an indirect tax on savings. Inflation should be considered the main threat for families that hold savings for kids or grandchildren.

Bitcoin is an excellent inflation hedge as there are only so many Bitcoins that can be created. Unlike fiat money, Bitcoin cannot be printed and diluted in value at will. One should of course keep in mind that so called Alt-coins (Litecoin, Ripple and hundreds of others) do increase the “crypto” money supply and may dilute, to a certain extent, the value of Bitcoin itself.

What is the purpose of the BBB Strategy?

The BBB strategy provides a better way to allocate a small percentage (5%) of your overall portfolio to Bitcoin. Using the strategy you hedge against inflation, against a stock market crash, participate in future Bitcoin upside while cutting the downside risk.

Vangelis
sanzprophet.com
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