

The decline and fall of angels: where did the historical top cap cryptos go?

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ABSTRACT: We followed up over 200 cryptocurrencies once among the top 50 capitalizations since 2013 and dropped out. Over 80% of them appreciated over the US dollars afterwards. A third of them beat Bitcoin, and only 10% outperformed Ethereum. Statistics suggests a gloomy future if one invests in ICOs in Bitcoin or Ethereum without astute vision or blind luck. However, small cap premium prevails once again and dominates the crypto growth if one invests in the crypto market as a whole.

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1 Introduction

Despite the fact that the crypto market grows exponentially over last few years, most top cap cryptos faded away. Fig. 1 shows the top 10 cryptos in 2013 ranked in cap. Apparently every dog has its day, but how many of them have you heard of nowadays? Did you ever wonder where they went and how they performed in cap or price later? Did they burst out ultimately, or perish in silence instead?

The paper is structured as follows. Section 2 follows up the performances of historical top 50 cryptos that dropped out, calculates their returns against the US dollars and offers statistics in histograms. Section 3 addresses a curious question arising from Section 2 - does it make sense that most cryptos outperformed the US dollars yet fell out of top 50 cap? Section 4 and 5 discuss the performances of these dropouts on the Bitcoin standard and Ethereum standard, respectively, followed by conclusions in Section 6.

2 Historical top 50 cap cryptos on the dollar standard

Starting from mid 2013, we kept selecting the top 50 cap cryptos consistently, and followed up the caps and prices for those dropped out of the list. In order to evaluate the true value of the projects, we removed the price movements during the first month upon inception, as volatility in this period is irrational due to frequent pump-and-dump. Projects with less than half a year history (up to February 2018) were still accumulating strength, it is unfair to judge their returns based on a short period as such, so we moved all these cryptos out of the picture too. Anchor currencies like USDT are removed too as they are binded to fiats and lack research value. We collected over 200 cryptos in total, and the final list changes frequently over the last few years.

Historical Snapshot - May 05, 2013

USD ▾

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#	Name	Symbol	Market Cap	Price	Available Supply	% 1h	% 24h	% 7d
1	Bitcoin	BTC	\$ 1,261,032,079	\$ 113.46	11,114,672	-0.07 %	15.32 %	?
2	Litecoin	LTC	\$ 61,100,880	\$ 3.53	17,331,892	-0.05 %	13.91 %	?
3	Namecoin	NMC	\$ 5,710,685	\$ 1.05	5,459,714	-0.17 %	10.36 %	?
4	Peercoin	PPC	\$ 5,596,144	\$ 0.297292	18,823,710	-0.08 %	12.82 %	?
5	Feathercoin	FTC	\$ 2,532,299	\$ 0.400646	6,320,547	-1.35 %	-3.51 %	?
6	Freicoin	FRC	\$ 2,109,841	\$ 0.107150	19,690,469	-0.55 %	-13.68 %	?
7	Terracoin	TRC	\$ 1,349,993	\$ 0.562622	2,399,467	-0.69 %	-1.19 %	?
8	Devcoin	DVC	\$ 1,208,631	\$ 0.000275	4,401,638,196	-0.12 %	18.85 %	?
9	Novacoin	NVC	\$ 971,890	\$ 3.53	275,218	-0.00 %	15.49 %	?
10	Mincoin	MNC	\$ 170,594	\$ 0.166895	1,022,167	-8.43 %	-23.36 %	?

* Not Mineable
** Significantly Premined

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Total Market Cap: \$ 1,341,783,035

Figure 1. The top cryptos in cap according to CoinMarketCap, May 2013.

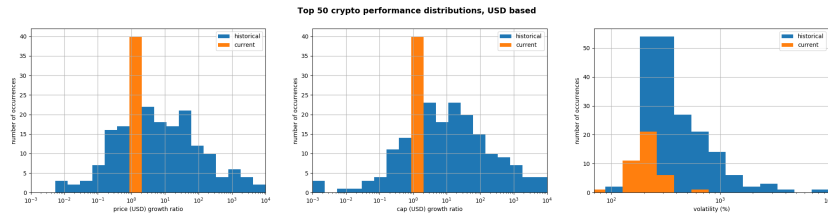


Figure 2. The price growth, cap growth and annual volatility distributions of top 50 cap crypto dropouts, US dollar based. The price and cap growths are compounded annually. The x-axes are set on logarithmic scale.

Most of these cryptos remained anonymous in their afterlife, only limited few are remembered. Note their lengths of price history varied a lot. Old cryptos like Bitcoin span the full period, but most new ones have merely one or two years of available data. We defined the initial price as the price before each of them fell out of top 50 cap, and final price as today’s price as of February 2018. The ratios of final and initial prices were then computed and compounded annually for comparison. All prices and caps are based on the US dollars.

Fig. 2 shows the results in histograms, in annual price growth, cap growth and volatility from left to right, respectively. Different cryptos varied in issuance and destruction mechanisms (if any). The issuance rate could be fixed or dynamic, and in some cases depends on mining difficulties, as a result the cap and price are not necessarily in proportion. We therefore offered the statistics on both price and cap ratios. The x-axes are price, cap growth rates compounded annually (left and middle) and annual volatility (right), and the y-axes are the numbers of cryptos found in corresponding ranges. Since small cap cryptos differed significantly in prices and caps, we took x-axes in logarithmic scale for better readability. The orange bars are in the current top 50 list and provided as reference, while the blue bars correspond to the dropouts. If a token failed to update its price in the last two months, we

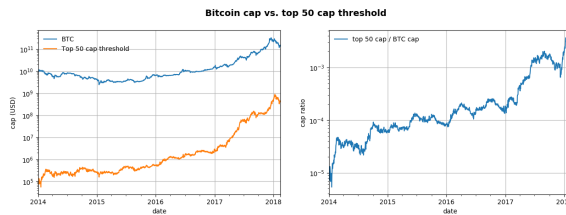


Figure 3. The evolutions of Bitcoin cap and the cap threshold to top 50 cryptos since 2014. The y-axes are set on logarithmic scale. Left: Bitcoin (blue) and top 50 cap threshold (orange), respectively. Right: The cap ratio between the threshold and Bitcoin.

returned its value to zero.

Two distinct categories manifest in Fig. 2: old, robust cryptos like Bitcoin, Ripple, and fledglings launched over the course of last few years and yet to prove their worthiness. We calculated their annual volatility earlier in Ref. [1], which corresponds to the orange area in the volatility plot on the right. Not surprisingly, the dropouts (blue area) carry much higher volatility than the survivors (orange area). And from the price and cap growth plots (left and middle), we see the survivors (current top 50 cap) have the ratio equaling 1. This validates our calculation: since they haven't fallen out of the list, their initial and final prices or caps are equal by definition.

Now we are ready to check what happened to the dropouts. From left and middle of Fig. 2, we see 1/6 of them gradually diminished or even returned to zero (blue area to the left of orange bar), and 5/6 of them kept growing and managed to stay to the right of orange. Note the prices and caps are based on US dollars, i.e. 5/6 cryptos still outperformed the dollar, most of which carried small caps, and some even appreciated hundreds of times. This seems highly counter-intuitive, as rumor has it that most of crypto projects are scams and regressed to doom eventually.

3 Top 50 cap threshold on the rise

We noticed most anonymous cryptos actually outperformed the dollar, and some even beat Bitcoin. Why didn't they stay in the top 50 cap list but dropped out instead?

Let's investigate the qualification to enter and stay in the list. Fig. 3 shows the evolution of Bitcoin cap (blue) and the cap threshold required to stay in top 50 (orange) over time (left), and the ratio of threshold and Bitcoin caps (right). The y-axes are both on logarithmic scale. The left plot indicates the cap requirement in early 2014 was low. There were not many cryptos available after all, one sneaked in easily if it passed hundreds of thousands US dollars in cap. But as time went by, the threshold rose exponentially and reached hundreds of millions dollars in early 2018. This can be seen more clearly on the right plot - their ratio increases exponentially over time, and the threshold climbs much faster than Bitcoin. In other words, if a new crypto intended to reserve a spot in the most wanted list, its growth rate must pass not only Bitcoin, but also this top 50 cap threshold,

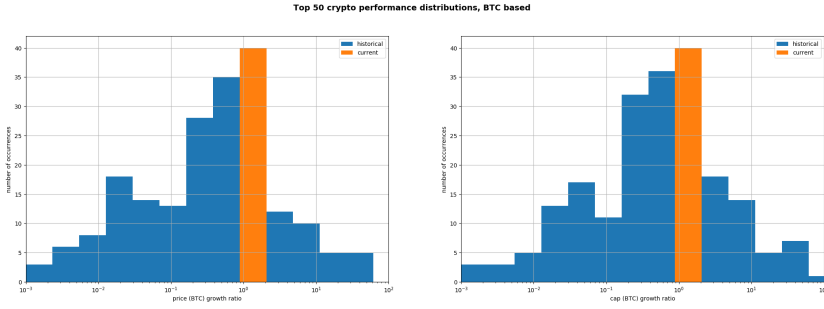


Figure 4. The price growth, cap growth and annual volatility distributions of top 50 cap crypto dropouts, Bitcoin standard. The price and cap growths are compounded annually. The x-axes are set on logarithmic scale.

or it would have lost the competition against other small cap cryptos and dropped out. Note the overall growth rate of this threshold amounts to 5,000 times over last 4 years, and hundreds of times in 2017 alone, whereas Bitcoin grew merely tens of times at its peak the same year. This is some truly remarkable caliber required of any new cryptos. We see once again the small cap premium prevails and dominates the crypto caps on the rise. Consequently, the Bitcoin dominance fell significantly. This is the first risk premium or smart beta reported on cryptos, as was pointed out in Ref. [2]-[3]. Passive investing in the whole crypto market would be more profitable than investing in Bitcoins alone.

4 Top 50 dropouts on the Bitcoin standard

How many of these anonymous cryptos outperformed Bitcoin? Why were they largely forgotten after all? We reran the statistics on the Bitcoin standard instead of US dollars in Fig. 4. The plots on the left and right are the compounded annual price and cap growths on Bitcoin. We see only 1/3 of the dropouts beat Bitcoin (blue areas to the right of orange bar), and 2/3 of them lost the race (blue areas to the left). From Fig. 2 we know 1/4 of the losers even failed to beat the dollar, while the rest of them appreciated over the dollar at least.

5 Top 50 dropouts on the Ethereum standard

Ethereum is only two years old as of early 2018. It was a small cap paradigm itself in 2017 and served as the basic currency in an abundance of ICOs, leading to its strong and bubbled surge. It is expected harder for a new crypto to outperform Ethereum statistically. The results on the Ethereum standard is shown in Fig. 5. Sadly, it turned out that only 10% of the dropouts beat Ethereum afterwards. This is the first evidence that most Ethereum based projects had their best days upon a successful top 50 rush, after which most gradually faded away. This observation is critical for primary market investors, as most ICOs raised funds in Ethereum lately. One probably ends up better swapping all crypto holdings back to Ethereum after a march to the top list, unless he knows very clearly what he is doing.

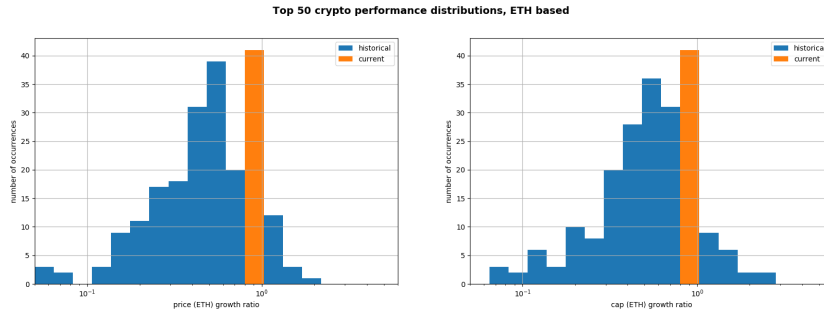


Figure 5. The price growth, cap growth and annual volatility distributions of top 50 cap crypto dropouts, Ethereum standard. The price and cap growths are compounded annually. The x-axes are set on logarithmic scale.

More importantly, this is a strong reason many ICOs should be regulated at the security level, as it is hard to judge if the project sponsors anticipated this disturbing process, or even worse, got involved in it. Is their interest truly aligned with the investors, or instead against it, which effectively turns them into counter parties? All investors should seek an appropriate answer to this question from as many channels as possible before any asset allocation. A healthy emerging market only arises and thrives upon moderate regulations, as has been the case in stocks and IPOs.

6 Conclusion

It is challenging enough for a crypto to ascend to the top 50 cap from scratch. Even if it turned out as a flash in the pan, 1/3 of them kept outperforming Bitcoin, and the reason they still dropped out was that they failed to beat the top 50 cap threshold on an exponential rise over Bitcoin, which is a totally different story. The chance they lived and beat the US dollar is still as high as 5/6. This is because all cryptos have potential to serve as media to store and transfer value upon consensus, and Satoshi’s ingenious cryptographic design offers them fundamental support. It is harder than most people think for a crypto to return zero. From another perspective, those that remain in the top cap list consistently almost surely have their strengths, as beating the top 50 threshold is a difficult mission on an exponential scale if at all possible.

However, if one has converted his wealth to the Bitcoin or Ethereum standard and invests with crypto assets, e.g. participates in private or public token sales with Bitcoin or Ethereum and holds on to the tokens for a while, it is another story. He must tread carefully on the next move. If unable to decide, it is never a bad idea to sell away for the base crypto. After all, most cryptos declined and fell after ascension to the top 50 cap, and the dropouts have a low probability (1/3) to beat Bitcoin, and only 10% chance to outperform Ethereum. In particular, if one invests in a small number of cryptos and does not get to make the head returns out of a large project pool like a private crypto capital, his chance to make the right bets would be rather slim.

(This paper is NOT to offer investment advice. You are responsible for your investment decisions at your own risk.)

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