

# An answer to crypto's unanswered question: At what price?

Crypto investors can employ a logical valuation framework by which they can make informed investment decisions



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A FEW foundational microeconomic assumptions and a discounted cash flow (DCF) framework can help inform crypto buy and sell decisions.

An article by Franklin Parker, *Crypto's Unanswered Question: At What Price?*, published last August, highlights a conversation I often have with other CFA charterholders, investors and clients. These discussions have led to both valuable thought exercises and rousing debates.

I am not a crypto expert and certainly not a crypto "bro". I have no strong opinion on whether crypto assets are undervalued or overvalued, whether they are the future of money and commerce, or a fad that we will all look back on in amusement. Nevertheless, I believe crypto investors can employ a logical valuation framework by which they can make reasonable and informed investment decisions.

By applying a DCF model, relying on microeconomic principles as inputs, and using gold and other commodities as guides, we can define a range of prices at which we could expect a reasonable, risk-adjusted rate of return over a given time horizon for a particular crypto asset.

Because crypto prices are directly observable, using a DCF valuation framework, we only need to

future prices which we can discount back to the present at a required cost of capital. The net present value of our expected future price would equal our estimated intrinsic value today.

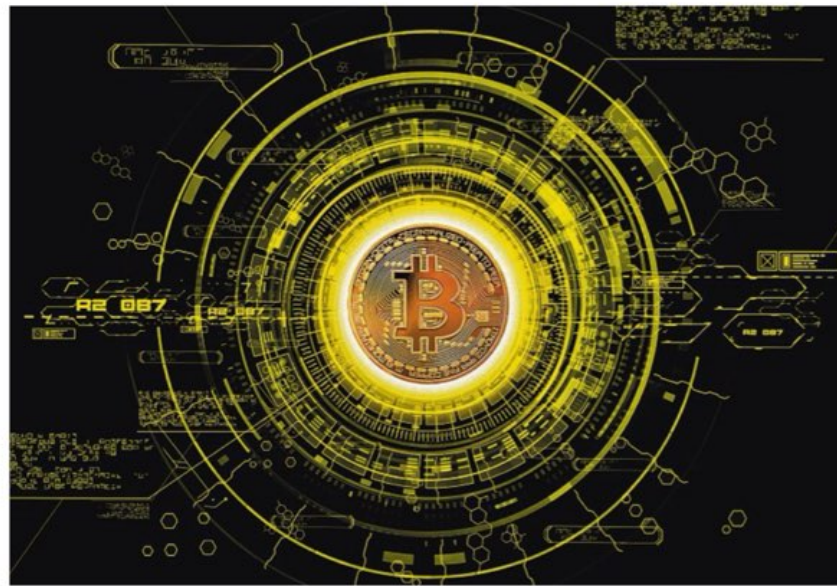
By comparing that to spot prices, we can make buy and sell decisions. Admittedly, some elements of this future price estimation process involve a high degree of uncertainty. But others can be reasonably estimated with a modest amount of effort.

For example, we know that over the long run, profit-maximising businesses will only produce if the marginal revenue exceeds the marginal cost to produce. As such, the marginal cost of mining a crypto coin sets a floor price around which supply will fluctuate.

## Variable costs

In the case of crypto assets, the variable costs are reasonably simple to assess – computing costs and energy consumption, taxes and transaction fees – and because computers can be turned on and off quickly, mining activities can be adjusted quickly depending on price fluctuations. In fact, we can observe this quick-response function at work when we juxtapose hash rates over spot prices or estimated mining profitability.

Accounting for pre-ordained "halvings" in the mining algorithm, estimating future variable costs associated with crypto assets is relatively simple and straightforward. Moreover, crypto miners presumably require a reasonable return on their physical capital investment over time. So we must also include an estimate for the future cost of hardware, as well as other capital and fixed costs.



A discounted cash flow method can be used to ascertain a range of prices at which a reasonable, risk-adjusted rate of return can be expected for a given time horizon for crypto assets. ILLUSTRATION: PIXABAY

costs, fixed costs, and an assumed required cost of capital for the miners, we can calculate the range of prices at which a crypto asset will be mined, thus setting the price floor at which we'd expect it to trade.

Estimating a crypto asset's price ceiling, or the degree to which the actual price could exceed the price floor, is more challenging because it depends on demand, which entails a large degree of uncertainty. But all investments involve uncertainty and investors employ various logical approaches to work through it.

For example, we can assess the

ence crypto asset owners by evaluating it as money. Like gold, crypto assets are generally divisible into smaller units, countable and fungible (unit of account); they are used by some to hedge against inflation (store of value), and used to buy and sell goods (medium of exchange). As such, crypto assets generally meet the criteria for the definition of money, which allows us to measure a cryptocurrency's demand based on its value as money and more specifically, its utility in these use cases.

As a store of value, a crypto asset may increase in price as confidence in fiat currency collapses or

spike. As a medium of exchange, a crypto asset may rise in value the more it is used in domestic and international commerce as a method of buying and selling goods and services.

We could incorporate a demand component based on the attractiveness of its anonymity, which has utility for both legal and illicit purposes. We could even incorporate our expectations about how central banks might use crypto assets to diversify their holdings in the future.

A crypto asset's value across these various use cases would influence demand, and with it, the

bly, the sum of a crypto asset's utility exceeds its cost and crypto assets would continue to exist.

The point is that, as with all investments, some assumptions must be made about future conditions, and as with gold, some of the key assumptions involve potential demand. Unlike gold, which has a long history and therefore offers some sense of what demand will reasonably look like from various users, crypto assets lack a long history of use and demand. Its story as money is still being written.

## Personal factors

Nevertheless, this is where the individual assumptions of the investor come into play – their own personal risk tolerance, their investment goals, objectives, and required rate of return, and, ultimately, their own personal determination about the potential risk and potential return, and whether, given their expectations for risk and return, a crypto asset is an attractive investment.

We may all argue about the inputs and assumptions that go into the framework. But that is, after all, exactly what makes financial markets work – the interaction of millions of investors applying their own assumptions and expectations to various investment opportunities, using a logical framework in order to avoid speculation.

Which brings me to my answer to Parker's unanswered question – at what price? I don't know at what price. But I know how those who want to answer that question could answer it for themselves.

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