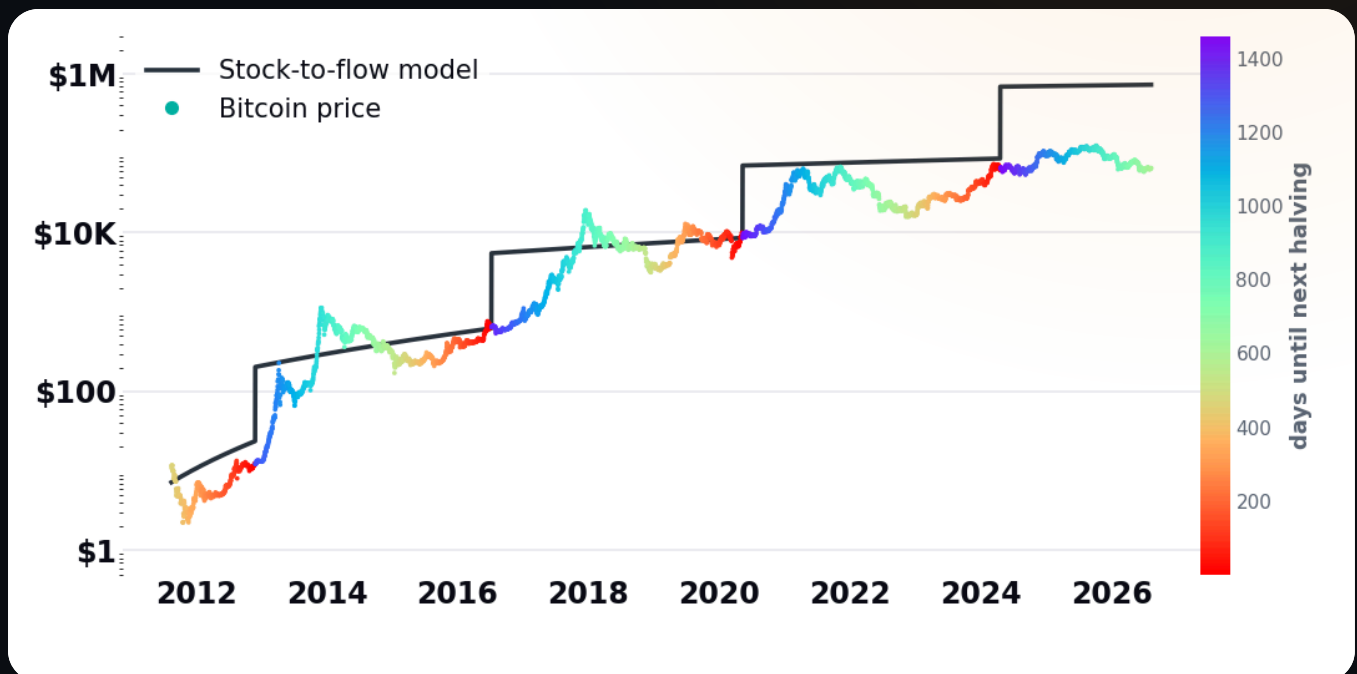


HOW TO SPOT A BACKFIT MODEL

Four checks that separate a real edge from a curve drawn through history.

Worked on the most famous Bitcoin price model ever built, the one that called \$714,000 for this cycle.



5.7x

how far the model missed
this cycle

91%

how far below the model
Bitcoin sits today

3 yrs

of genuine out-of-sample
life it had

Educational, not financial advice. Every figure is computed from daily price history and Bitcoin's known supply schedule, and reconciles with every chart in this guide.



Bitcoin Jae
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THE CASE FILE

THE MODEL EVERYONE TRUSTED

Stock-to-flow compares how much Bitcoin already exists to how much is mined each year. High ratio means scarce. The model turns that one ratio into a price with a simple formula, price equals 0.4 times the ratio cubed.

It was published in **March 2019** in an article called Modeling Bitcoin Value with Scarcity, fitted to monthly Bitcoin data running from **2009 to early 2019**.

The chart that came with it was extraordinary. Ten years of price movement hugging a single clean line, across two halvings and three separate bull markets. It spread further than any Bitcoin chart before or since, and plenty of people built an entire thesis on it.

THE DETAIL THAT MATTERS

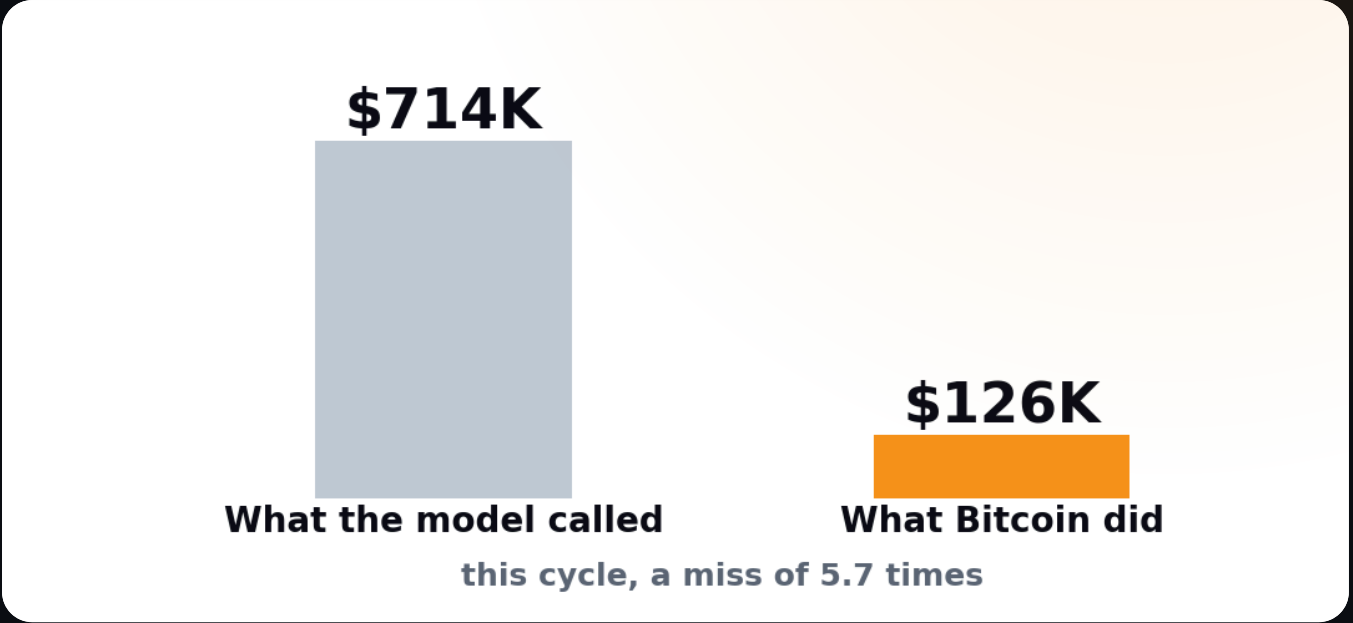
Hold those two dates next to each other. Published in 2019. Fitted to data ending in 2019. Every year of that famous fit was drawn after the events it was fitting.

WHEN	WHAT HAPPENED TO THE MODEL
Jan 2009 to Mar 2019	The window it was fitted to. Ten years of price it already knew.
March 2019	Published. The clock on a real test starts here.
May 2020	Third halving. The model steps up and the belief peaks with it.
Nov 2021	Cycle top. The closest the model ever got, and the last time it was close.
2022 onward	Price falls away from the line and never comes back.
Apr 2024	Fourth halving. The model steps to roughly \$714,000 for this cycle.
Oct 2025	Cycle top arrives more than five times below the model.

WHAT HAPPENED NEXT

THE FIRST REAL TEST

A model only starts being tested the day it is published. Everything before that is homework it had the answers to. So the honest question is what stock-to-flow did once the past ran out.



For this cycle the formula pointed at roughly **\$714,416**. Bitcoin topped at **\$126,272** on 6 October 2025, a miss of **5.7x**.

That is not a timing disagreement or an early call. It is a number Bitcoin never came within shouting distance of, in the exact cycle the model was most famous for predicting.

Now check every cycle top, not just this one. The pattern is not what most people assume.

CYCLE TOP	ACTUAL PEAK	MODEL AT THE TIME	MODEL VS ACTUAL	ERA
Nov 2013	\$1,163	\$291	0.3x	fitted
Dec 2017	\$19,666	\$6,565	0.3x	fitted
Nov 2021	\$69,000	\$75,796	1.1x	live
Oct 2025	\$126,272	\$714,416	5.7x	live

Peaks quoted on the intraday high. Model value taken on the day of each peak.

THE TRAP IN THAT TABLE

Look at the 2021 row. A ratio of 1.1x, almost perfect, at the exact moment the model was most widely believed. That was its single best call, and it was the last one before it broke. Peak accuracy and peak confidence arrived together, which is usually when a model is most dangerous.

THE PART THE CHART HIDES

THE SHAPE HELD. THE **LEVEL** COLLAPSED.

Here is the finding that makes this case worth studying, and it is easy to miss. Split the model's whole life into the period it was fitted to and the period it had to survive on its own.

PERIOD	FIT TO PRICE	BITCOIN AS A SHARE OF THE MODEL
2009 to Mar 2019, FITTED	+0.93	0.56x
Mar 2019 to end 2021, live	+0.75	0.68x
2022 onward, live	+0.86	0.17x

Fit is the correlation between log price and log model. The last column is the typical ratio of actual price to what the model said.

Read the two columns against each other. The **fit barely moved**, sitting at +0.86 even in the years the model was failing. But the **level fell off a cliff**, from 0.56x of the model down to 0.17x. Bitcoin trades **91% below the model** today.

WHY NOBODY NOTICED SOONER

A broken model does not always look broken. Correlation measures whether two lines move together, not whether either is right. Stock-to-flow kept moving with price while being wrong about price by a factor of five.

This is why defenders of a failing model can point at a chart and honestly say it still tracks. On a log scale, across fifteen years and six orders of magnitude, almost anything that generally rises will look like it tracks Bitcoin. The eye reads shape. The money cares about level.

The fix is simple and almost nobody does it. Stop looking at the two lines together. Plot the ratio between them instead, actual divided by predicted, and watch whether that ratio stays near 1. A model that is working produces a flat, boring line around 1. Stock-to-flow's ratio has been falling for four straight years.

You can run this on any model that produces a price target. One column for the prediction, one for what happened, one for the ratio. If the third column trends, the model is drifting even when the chart looks fine.

THE FOUR CHECKS

1. EARNED OR DRAWN? 2. WHAT IS MISSING?

Check one. Find the publication date, then ignore everything before it. Ask when the model was released and what window of data it was fitted to. Any track record inside the fitting window proves nothing, because the model was built knowing those answers. Only what came after counts.

Stock-to-flow fails this badly. Of the roughly sixteen years people cite, only the stretch after March 2019 was ever a real test, and the market broke it inside three years.

Check two. Ask what the model deliberately ignores. Every model simplifies. The question is whether the thing it drops can move the outcome on its own. If it can, the model is not simplified, it is one-sided.

Stock-to-flow measures supply and nothing else. Demand, liquidity, interest rates and who is actually buying are all invisible to it. Supply was fully known years in advance, so the only thing that could ever surprise this model is the half it refuses to look at.

Worth being fair here. Stock-to-flow is not a case of classic overfitting. It has very few moving parts, which normally counts in a model's favour. It failed for the two reasons above, not because it was stuffed with parameters.

How to actually run these two, in about ten minutes.

- 1** Find the original publication and write down its date. Not the date of the chart you were shown, the date the model was first released.
- 2** Find the data window it was fitted to. Any decent write-up states it. If it does not, that silence is itself an answer.
- 3** Redraw the track record starting from the publication date and see how much of it survives.
- 4** List every major force that moves the thing being predicted, then cross off the ones the model actually looks at. Whatever is left is your blind spot.

THE FOUR CHECKS

3. CAN IT LOSE? 4. DOES IT TRAVEL?

Check three. Ask what result would prove it wrong. A real model names the outcome that would kill it before that outcome arrives. If every result can be absorbed as early, late, or a temporary deviation, it is not a model. It is a belief with a chart attached.

This is the check stock-to-flow failed most quietly. As price fell further below the line, the gap was explained rather than counted, and the model was never formally declared broken by the people relying on it. A prediction that cannot fail cannot inform a decision either.

Check four. Test it somewhere it was never fitted. Another asset, an earlier era, a different market regime. A relationship that is real usually shows up somewhere else. One that only exists in the window it was built on usually does not.

Scarcity models applied to gold and silver were the original argument for stock-to-flow, and that comparison is where much of the debate has since focused. The Bitcoin version never had a second market where it worked out of sample.

How to run these two.

- 1 Ask the model's supporters what result would make them abandon it. Write the answer down. If there is no answer, or the answer keeps moving, you have your verdict.
- 2 Check whether past misses were counted or explained. Explained misses mean the scoreboard is not real.
- 3 Apply the same formula to a different asset or an earlier era and see whether the relationship survives.

HOW TO USE THESE

Run all four before you act on any model, including one that agrees with you. The comfortable ones deserve the checks most, because nobody volunteers to stress-test good news.

THE WORKED EXAMPLE

STOCK-TO-FLOW, SCORED

CHECK	VERDICT	WHY
1. Earned or drawn	FAIL	Published Mar 2019, fitted to 2009 to 2019. Most of the famous record predates the model.
2. What it ignores	FAIL	Measures supply only. Demand and liquidity, the things that actually moved this cycle, are invisible to it.
3. Can it lose	FAIL	No stated condition that would retire it. The growing gap was reinterpreted rather than counted as a miss.
4. Does it travel	WEAK	The cross-asset argument exists but the Bitcoin version never worked out of sample anywhere else.

Three clear failures and one weak pass. The striking thing is that all four were answerable in **2019**, using nothing but the model's own publication date and its own description of itself. None of this needed hindsight.

That is the whole point of a checklist. It is not there to tell you what price does next. It is there to tell you how much weight a claim can carry before you lean on it.

Score the next one yourself. Take whichever model is being shared around your timeline this month and answer four questions in writing.

- 1 What is its publication date, and how much of the track record I have been shown comes after it?
- 2 What force can move this price that the model does not look at?
- 3 What specific outcome would its supporters accept as proof it is finished?
- 4 Where else does this relationship hold, on an asset or an era it was not built on?

THE TWENTY MINUTE VERSION

Four honest answers takes about twenty minutes and will save you more money than any indicator you can buy. Two or more failures and the model is a story, not a tool.

THE HONEST LIMITS

WHAT THIS DOES NOT DO

It does not tell you a model is wrong. Failing these checks means a claim is unproven, not false. Plenty of unproven ideas turn out to be right. The checks tell you how much to risk on one, not whether to believe it.

It does not make you immune. The same four questions can be asked of any framework, including the ones in this guide and the ones I use. A model I like is still a model that has to answer them.

It does not settle the stock-to-flow argument. Its author has responded to criticism over the years and the debate continues in public. What is not in dispute is the arithmetic on page three, that the formula pointed at one number and the market delivered another five times smaller.

And it does not mean you should ignore models. The alternative to a flawed model is not no model, it is an unexamined gut feeling, which fails all four checks by definition. The goal is to know which of your beliefs are load-bearing and which are decoration.

THE PART THAT GENERALISES

Beliefs rarely die because they were wrong from the start. They die because the conditions that made them true quietly changed, and nobody rechecked. This one had ten years of evidence behind it, which is exactly what made it so hard to question.

If you take one habit from this guide, make it this. Whenever a chart makes you feel certain, go and find its publication date. That single question does more work than any other, and it takes thirty seconds.

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