



**BITCOIN**

## **Long-Term Projection and Valuation**

SC-BTC1 (Real) & SC-BTC-2 (Nominal) Models

HASHENOR

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# 1. Introduction & Context

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The **analysis of Bitcoin** faces a fundamental challenge: it is nearly impossible to determine with precision where we currently stand in its adoption cycle, or to anticipate the price trajectory that may result from it..

Unlike traditional assets, Bitcoin operates in an environment where technological, social, regulatory, and macroeconomic dynamics interact in a non-linear way. This structural uncertainty makes conventional valuation models largely inadequate for **assessing its long-term potential**.

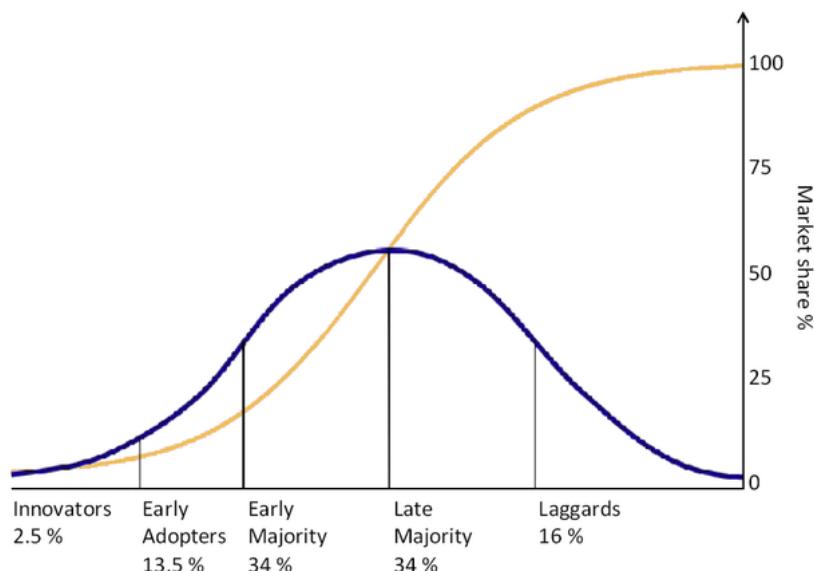
Given this opacity, an alternative approach is to view Bitcoin not merely as a financial asset, but as an innovation undergoing a diffusion process. From this perspective, technological adoption models — particularly the logistic Curve (S-Curve) — provide a relevant mathematical framework for analyzing its evolution. These models capture how a technology spreads through a population, from early adopters to full market saturation, passing through phases of acceleration and maturity..

The objective of this study is to explore an **S-Curve-based model applied to Bitcoin's price**, assuming that the asset's long-term value is correlated with its level of global adoption. This approach does not claim to predict an exact price, but instead offers a structured, coherent, and mathematically grounded perspective on its potential trajectory. It helps frame uncertainty, visualize different scenarios, and provide a complementary analytical tool alongside existing models.

## 1.1 What is an S-Curve?

The **S-Curve (logistic Curve)** is a mathematical model that describes how an innovation spreads through a population. It is generally divided into three distinct phases:

- **Phase 1 – Slow Start:** marginal adoption, slow growth.
- **Phase 2 – Acceleration:** network effects begin to take hold, exponential growth.
- **Phase 3 – Saturation:** market maturity, growth slows as it approaches an asymptote.



SOURCE MICHAEL B. CASEY, MEDIUM

In the graph above, the dark parabolic Curve represents an exponential increase in adoption up to a mid-point saturation, followed by a logarithmic slowdown until the majority of the potential population has adopted it.

If the bell Curve is made cumulative to represent the total number of users at a given point in time, it produces the S-Curve of adoption, illustrated by the orange line.

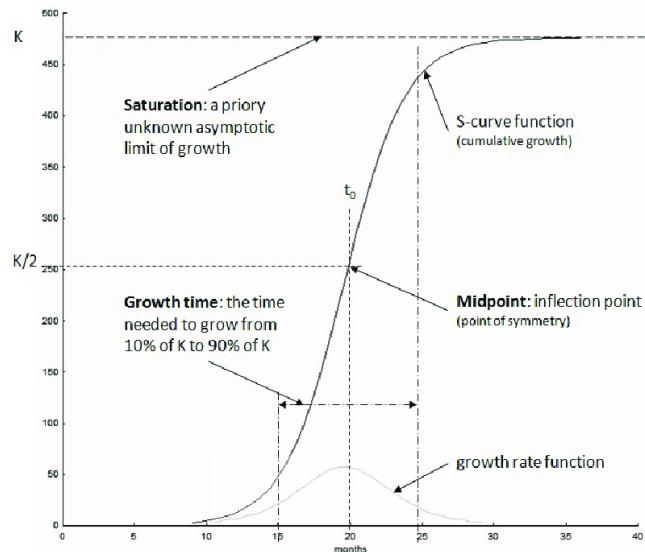
Assuming near-universal future adoption, Bitcoin (BTC) is likely still in the "Innovator" phase, or only just entering the "Early Adopter" phase.

## 1.2 Basic Mathematical Formula

$$P(t) = L / (1 + e^{-k(t-t_0)})$$

### Parameters:

- **L:** Asymptote (the theoretical maximum value of adoption or price).
- **k:** Growth rate (slope of the Curve).
- **t<sub>0</sub>:** Inflection Point (the year in which growth is at its maximum).
- **P(t):** Adoption or valuation level at time t.



SOURCE KUCHARAVY, DE GUIO

The SC-BTC-1 and SC-BTC-2 models described later also incorporate a volatility parameter into the mathematical formula used to compute the HIGH and LOW values (upper and lower price bands). Bitcoin's volatility gradually decreases as the asset matures. Historically, each cycle has shown smaller price swings than the previous one, due to increasing liquidity, deeper markets, and a broader diversity of investor profiles. This natural compression is consistent with an S-Curve adoption dynamic: as the user base expands, marginal changes in adoption have a diminishing impact on price. Over the long term, volatility therefore tends to converge toward a level consistent with that of a global macro asset.

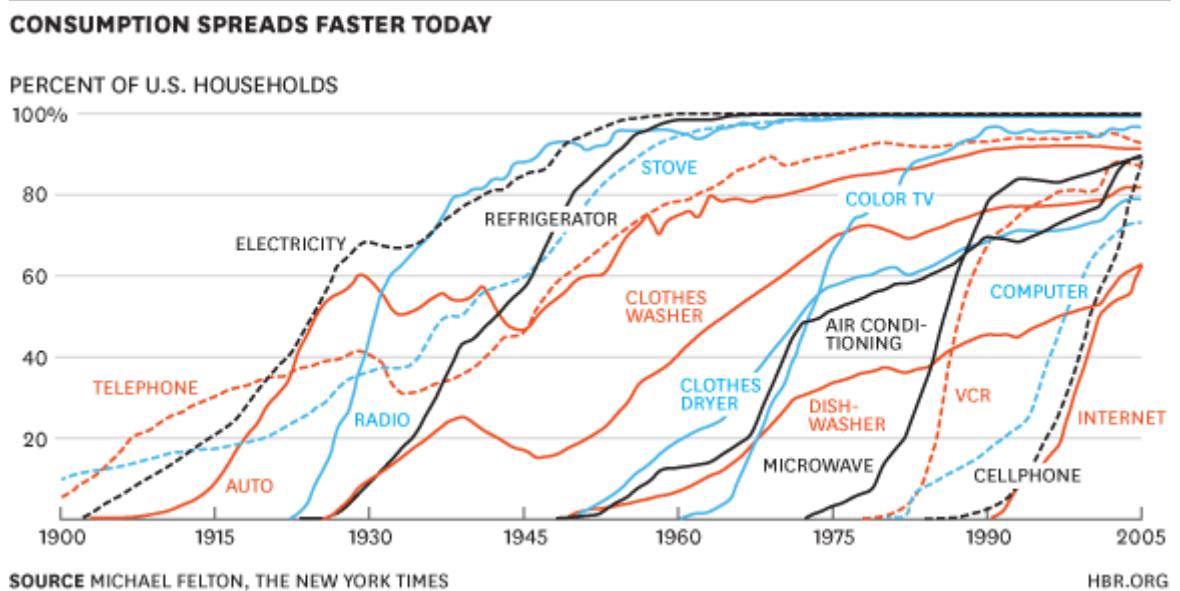
## 1.3 Why Bitcoin?

Over its first 15 years, Bitcoin has exhibited the typical characteristics of a rapidly adopted technological innovation. It features programmed scarcity, measurable network effects, and a developing global infrastructure.

### Historical Phases of Bitcoin:

- **2009-2013:** Slow adoption (innovators).
- **2013-2021:** Acceleration (early adopters).
- **2021-2024:** Beginning of the transition toward the early majority.

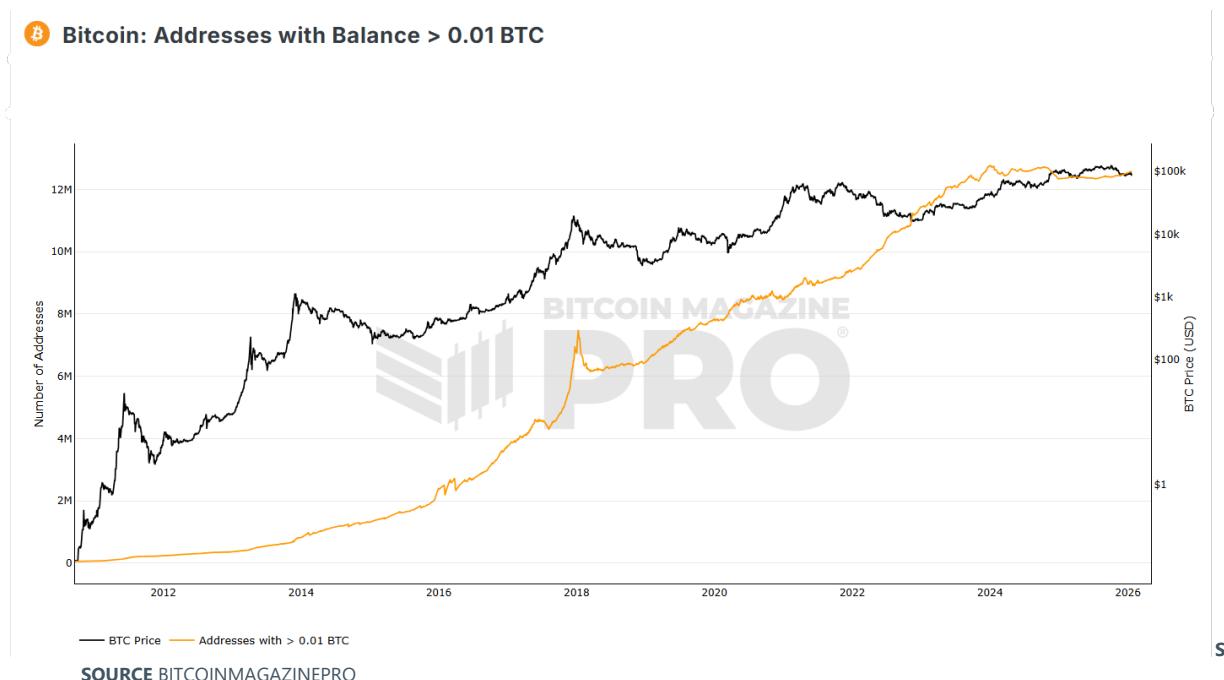
Here is, for comparison, a chart illustrating the adoption of the most widely used technologies and devices:



## 2. Key Data Supporting the S-Curve Logic

### 2.1 Global adoption

Adoption is following a strong trajectory. In 2024, the number of crypto-asset users worldwide is estimated at more than **460 million**. Bitcoin's user base has been growing at roughly **+35% per year** since 2016. The network records between 600k and 1.2M active addresses per day.



### 2.2 Network Effects

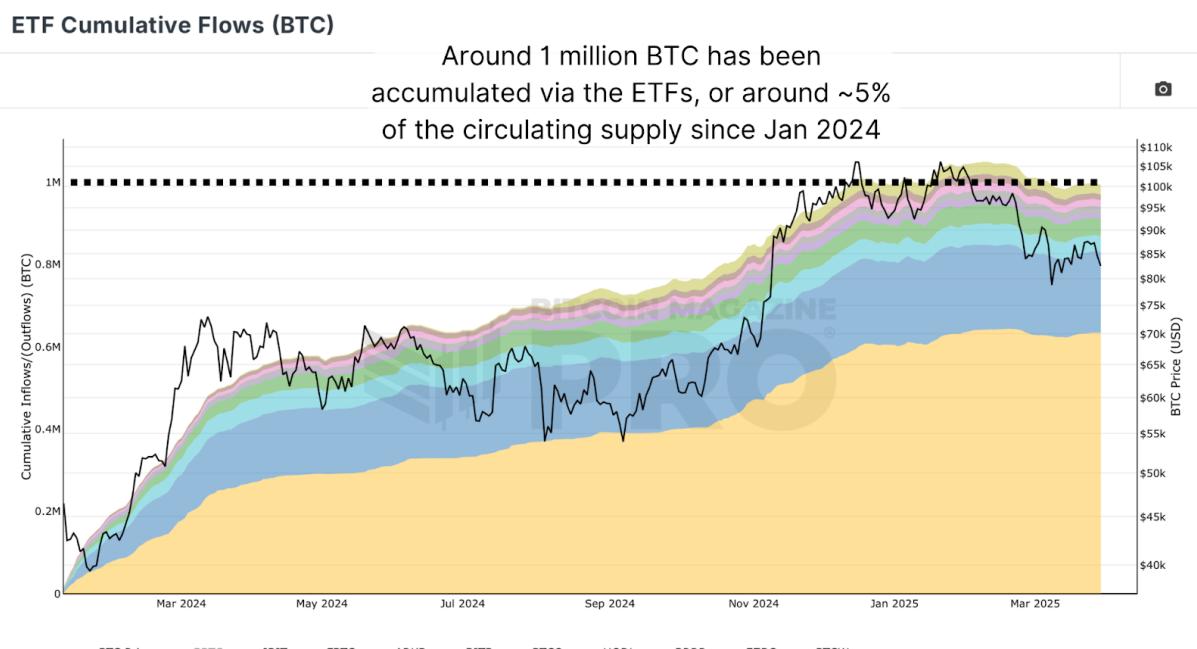
The security and robustness of the network are increasing exponentially. The **hashrate** has grown tenfold over the past five years, and the network now includes roughly 45,000 active nodes.

### 2.3 Institutionalization

The approval of **spot Bitcoin ETFs** in 2024 marked a major turning point, generating more than 15 billion dollars in net inflows. Adoption is now expanding to pension funds and private banks.

Indicator	Value	Impact
Net ETF Flows	> 15 B USD	Structural demand
Hashrate	x10 (5 years)	Network security
Users	+460 M	Network effect

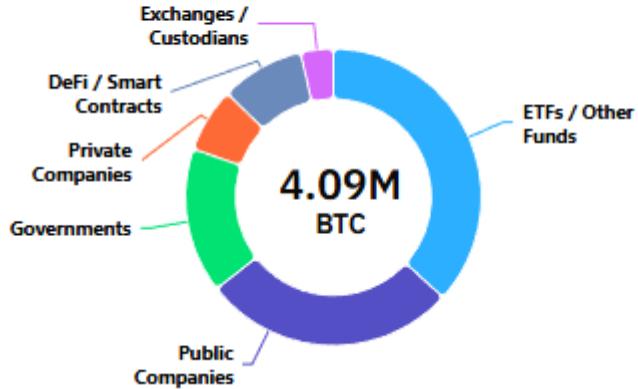
The chart below illustrates the rapid increase in the number of BTC held by ETFs between January 2024 and April 2025. In just over a year, nearly 5% of the total BTC supply had already been accumulated.



SOURCE BITCOINMAGAZINEPRO

In January 2026, roughly 19% of all BTC were already held by ETFs, private companies, and nation-states, reflecting a massive influx of institutional capital.

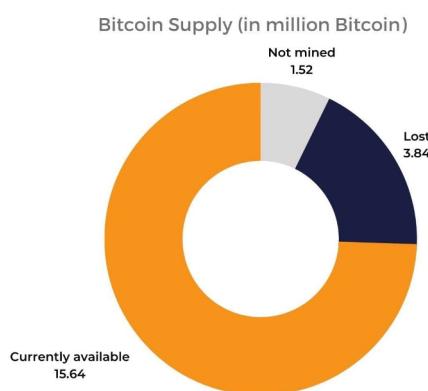
### BTC in Treasuries



SOURCE BITCOINTREASURIES

## 2.4 Programmed Scarcity

The supply is **strictly capped** at 21 million BTC. Bitcoin's annual inflation will fall below 1% in 2025, making it **scarcer than gold**. In addition, an estimated 15% of all BTC are lost forever, further reinforcing its scarcity.



SOURCE KRAUSS, REWALLET

## 2.5 Comparison with Gold

Gold's market capitalization is roughly **12 trillion dollars**, compared with about 1 trillion dollars for Bitcoin. The potential catch-up (capturing part of the gold market) is a major driver of the S-Curve thesis.

### 3. SC-BTC-1 Model: Real Price Projection

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The S-Curve model SC-BTC-1 estimates **Bitcoin's fundamental value** in constant dollars (current purchasing power), neutralizing the impact of future monetary inflation.

#### 3.1 Selected Parameters

Scenario	Asymptote (L)	Speed (k)	Inflection Point ( $t_0$ )
Pessimistic	1,000,000 USD	0.195	2035
Realistic	1,500,000 USD	0.240	2035
Optimistic	3,000,000 USD	0.314	2035

#### 3.2 Results

The asymptote corresponds to a geometric average of the scenarios, reflecting methodological prudence. It suggests a theoretical valuation around the year 2056 of approximately:

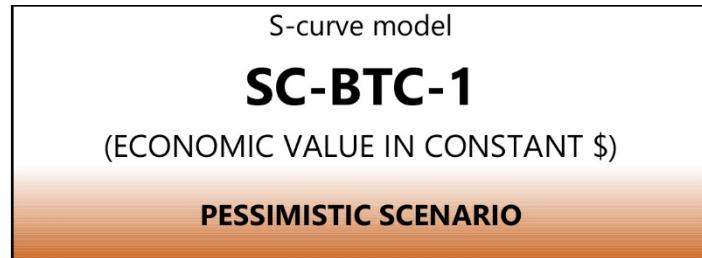
$$L_{\text{weighted}} \approx 1,430,000 \text{ USD (real terms)}$$

#### 3.3 Interpretation

This model provides an order of magnitude for valuation at near-maturity, based on adoption, scarcity, and network effects. **Note:** it is not intended to predict short-term market cycles.

#### 3.4 Tables and Charts

See following pages

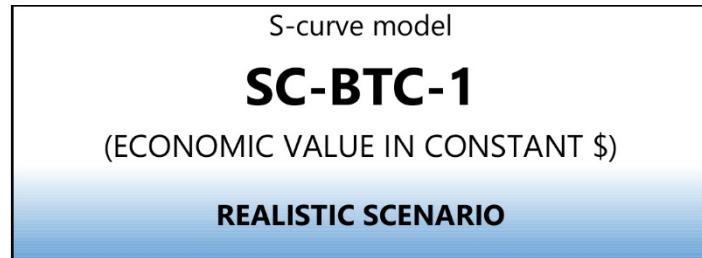
**k = 19,5%**

Year	Volatility	ATH	124.774 \$
2025	<b>0,7</b>		

		BTC PRICE		
		LOW	MEAN	HIGH
2026	0,66	50.200 \$	98.923 \$	147.647 \$
2027	0,62	66.074 \$	119.976 \$	173.879 \$
2028	0,58	85.536 \$	144.597 \$	203.658 \$
2029	0,54	109.054 \$	173.064 \$	237.074 \$
2030	<b>0,5</b>	137.043 \$	205.565 \$	274.086 \$
2031	0,48	163.537 \$	239.016 \$	314.494 \$
2032	0,46	193.278 \$	275.600 \$	357.922 \$
2033	0,44	226.136 \$	314.975 \$	403.815 \$
2034	0,42	261.843 \$	356.649 \$	451.454 \$
<b>2035</b>	<b>0,4</b>	300.000 \$	400.000 \$	500.000 \$
2036	0,38	340.099 \$	444.322 \$	548.546 \$
2037	0,36	381.559 \$	488.872 \$	596.185 \$
2038	0,34	423.771 \$	532.924 \$	642.078 \$
2039	0,32	466.144 \$	575.825 \$	685.506 \$
2040	<b>0,3</b>	508.140 \$	617.027 \$	725.914 \$
2041	0,29	541.200 \$	652.063 \$	762.926 \$
2042	0,28	572.371 \$	684.356 \$	796.342 \$
2043	0,27	601.519 \$	713.820 \$	826.121 \$
2044	0,26	628.611 \$	740.482 \$	852.353 \$
2045	0,25	653.684 \$	764.455 \$	875.226 \$
2046	0,24	676.838 \$	785.915 \$	894.992 \$
2047	0,23	698.205 \$	805.073 \$	911.941 \$
2048	0,23	717.945 \$	822.162 \$	926.380 \$
2049	0,22	736.223 \$	837.417 \$	938.611 \$
2050	0,21	753.207 \$	851.064 \$	948.922 \$
2051	0,20	769.056 \$	863.317 \$	957.579 \$
2052	0,19	783.919 \$	874.371 \$	964.823 \$
2053	0,18	797.932 \$	884.400 \$	970.868 \$
2054	0,17	811.217 \$	893.559 \$	975.900 \$
2055	0,16	823.881 \$	901.981 \$	980.081 \$
2056	<b>0,15</b>	836.016 \$	909.782 \$	983.549 \$

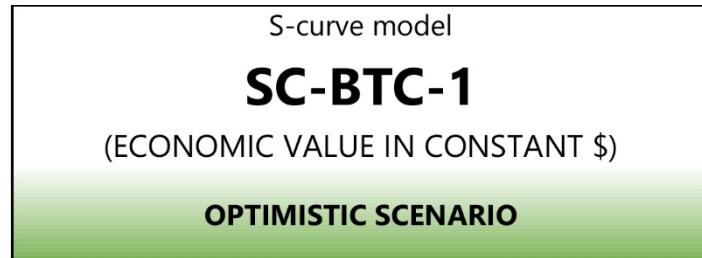
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**1.000.000 \$**

**k = 24,0%**

Year	Volatility	ATH	124.774 \$
2025	<b>0,7</b>		

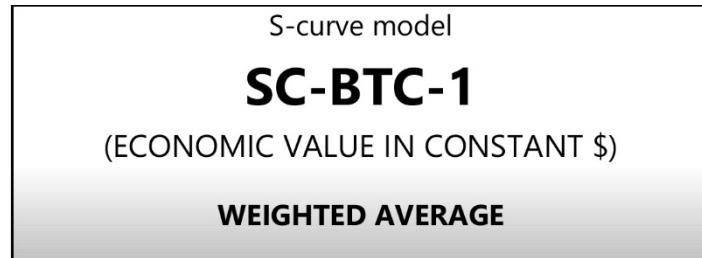
		BTC PRICE		
		LOW	MEAN	HIGH
2026	0,66	52.740 \$	103.928 \$	155.117 \$
2027	0,62	72.888 \$	132.349 \$	191.810 \$
2028	0,58	98.978 \$	167.320 \$	235.661 \$
2029	0,54	132.175 \$	209.755 \$	287.336 \$
2030	<b>0,5</b>	173.615 \$	260.423 \$	347.230 \$
2031	0,48	215.973 \$	315.653 \$	415.333 \$
2032	0,46	265.195 \$	378.149 \$	491.102 \$
2033	0,44	321.097 \$	447.242 \$	573.387 \$
2034	0,42	383.052 \$	521.743 \$	660.434 \$
<b>2035</b>	<b>0,4</b>	450.000 \$	600.000 \$	750.000 \$
2036	0,38	520.531 \$	680.048 \$	839.566 \$
2037	0,36	593.032 \$	759.822 \$	926.613 \$
2038	0,34	665.872 \$	837.385 \$	1.008.898 \$
2039	0,32	737.574 \$	911.120 \$	1.084.667 \$
2040	<b>0,3</b>	806.939 \$	979.854 \$	1.152.770 \$
2041	0,29	860.233 \$	1.036.449 \$	1.212.664 \$
2042	0,28	908.743 \$	1.086.541 \$	1.264.339 \$
2043	0,27	952.526 \$	1.130.358 \$	1.308.190 \$
2044	0,26	991.851 \$	1.168.367 \$	1.344.883 \$
2045	0,25	1.027.122 \$	1.201.174 \$	1.375.226 \$
2046	0,24	1.058.806 \$	1.229.440 \$	1.400.075 \$
2047	0,23	1.087.388 \$	1.253.825 \$	1.420.261 \$
2048	0,23	1.113.330 \$	1.274.943 \$	1.436.555 \$
2049	0,22	1.137.059 \$	1.293.348 \$	1.449.637 \$
2050	0,21	1.158.952 \$	1.309.524 \$	1.460.097 \$
2051	0,20	1.179.334 \$	1.323.883 \$	1.468.432 \$
2052	0,19	1.198.482 \$	1.336.769 \$	1.475.055 \$
2053	0,18	1.216.628 \$	1.348.468 \$	1.480.307 \$
2054	0,17	1.233.962 \$	1.359.214 \$	1.484.466 \$
2055	0,16	1.250.642 \$	1.369.198 \$	1.487.753 \$
2056	<b>0,15</b>	1.266.797 \$	1.378.573 \$	1.490.349 \$
		L		<b>1.500.000 \$</b>

**k = 31,4%**

<b>Year</b>	<b>Volatility</b>		
2025	<b>0,7</b>	ATH	<b>124.774 \$</b>

		<b>BTC PRICE</b>		
		LOW	MEAN	HIGH
2026	0,66	57.181 \$	112.680 \$	168.179 \$
2027	0,62	85.690 \$	155.595 \$	225.500 \$
2028	0,58	126.120 \$	213.203 \$	300.285 \$
2029	0,54	182.312 \$	289.321 \$	396.330 \$
2030	<b>0,5</b>	258.605 \$	387.907 \$	517.209 \$
2031	0,48	346.077 \$	505.804 \$	665.532 \$
2032	0,46	454.661 \$	648.313 \$	841.965 \$
2033	0,44	584.779 \$	814.514 \$	1.044.249 \$
2034	0,42	734.632 \$	1.000.620 \$	1.266.608 \$
<b>2035</b>	<b>0,4</b>	900.000 \$	1.200.000 \$	1.500.000 \$
2036	0,38	1.074.703 \$	1.404.048 \$	1.733.392 \$
2037	0,36	1.251.681 \$	1.603.716 \$	1.955.751 \$
2038	0,34	1.424.303 \$	1.791.169 \$	2.158.035 \$
2039	0,32	1.587.438 \$	1.960.953 \$	2.334.468 \$
2040	<b>0,3</b>	1.737.954 \$	2.110.372 \$	2.482.791 \$
2041	0,29	1.846.978 \$	2.225.324 \$	2.603.670 \$
2042	0,28	1.940.420 \$	2.320.067 \$	2.699.715 \$
2043	0,27	2.020.183 \$	2.397.341 \$	2.774.500 \$
2044	0,26	2.088.468 \$	2.460.144 \$	2.831.821 \$
2045	0,25	2.147.434 \$	2.511.330 \$	2.875.226 \$
2046	0,24	2.199.019 \$	2.553.406 \$	2.907.794 \$
2047	0,23	2.244.860 \$	2.588.461 \$	2.932.062 \$
2048	0,23	2.286.290 \$	2.618.171 \$	2.950.052 \$
2049	0,22	2.324.368 \$	2.643.853 \$	2.963.338 \$
2050	0,21	2.359.916 \$	2.666.519 \$	2.973.122 \$
2051	0,20	2.393.564 \$	2.686.938 \$	2.980.313 \$
2052	0,19	2.425.791 \$	2.705.690 \$	2.985.589 \$
2053	0,18	2.456.959 \$	2.723.208 \$	2.989.456 \$
2054	0,17	2.487.339 \$	2.739.814 \$	2.992.288 \$
2055	0,16	2.517.135 \$	2.755.748 \$	2.994.361 \$
2056	<b>0,15</b>	2.546.496 \$	2.771.187 \$	2.995.877 \$

**L****3.000.000 \$**



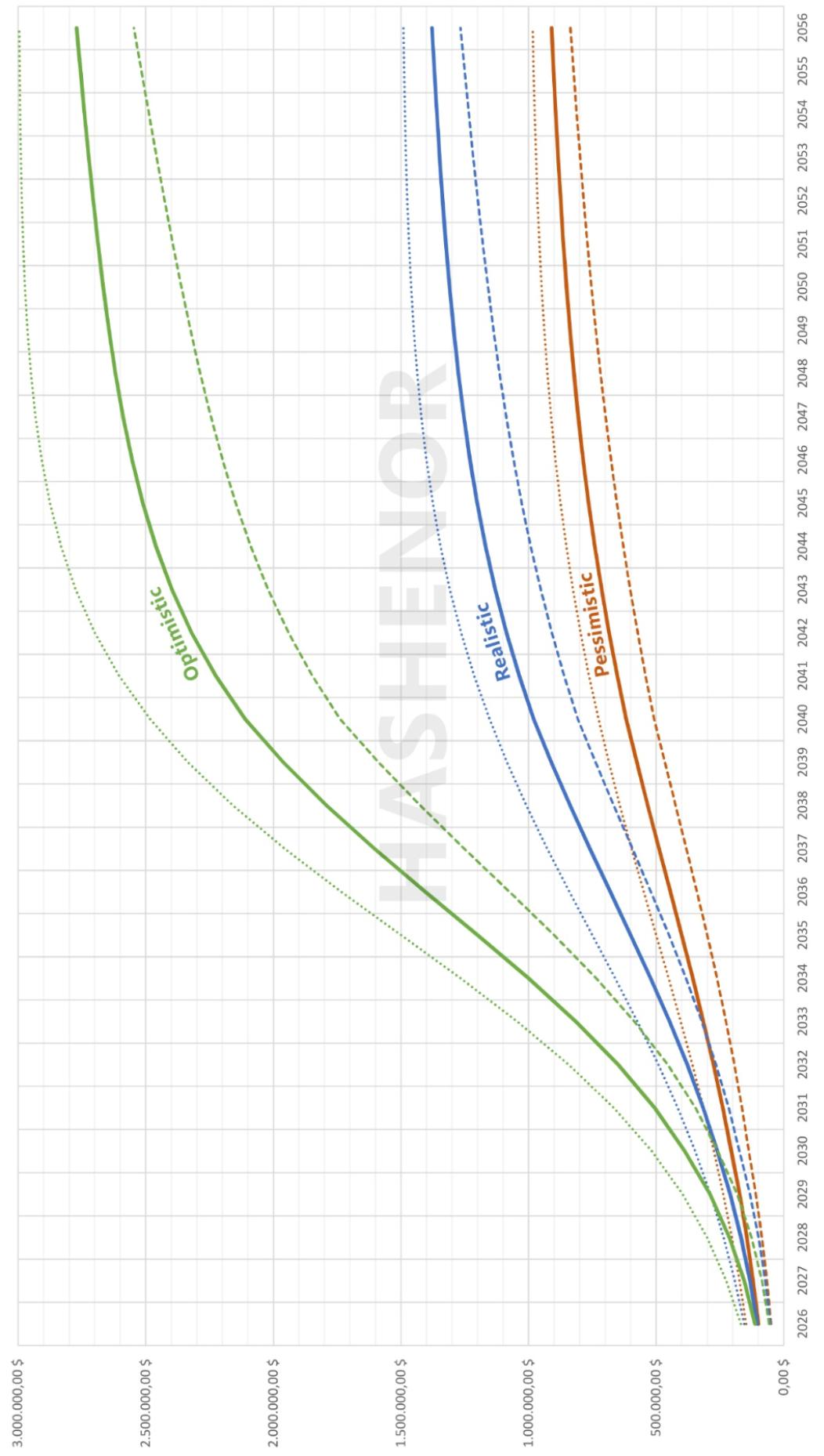
4/7 PESS. + 2/7 REAL. + 1/7 OPTI.

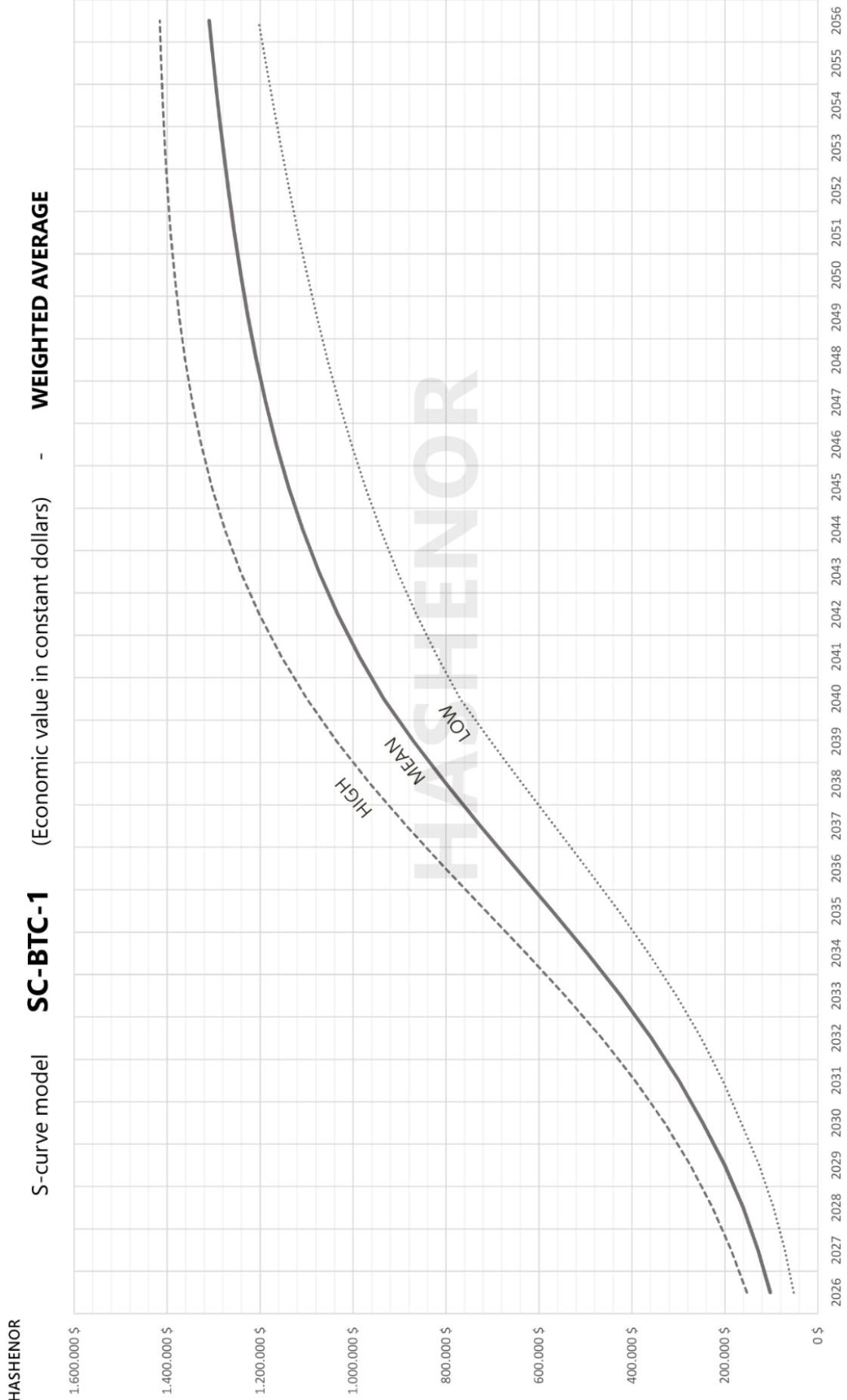
Year	Volatility	ATH	124.774 \$
2025	<b>0,7</b>		

		BTC PRICE		
		LOW	MEAN	HIGH
2026	0,66	51.923 \$	102.319 \$	152.714 \$
2027	0,62	70.823 \$	128.600 \$	186.376 \$
2028	0,58	95.174 \$	160.890 \$	226.606 \$
2029	0,54	126.125 \$	200.156 \$	274.186 \$
2030	<b>0,5</b>	164.858 \$	247.287 \$	329.716 \$
2031	0,48	204.596 \$	299.025 \$	393.454 \$
2032	0,46	251.166 \$	358.145 \$	465.123 \$
2033	0,44	304.503 \$	424.129 \$	543.755 \$
2034	0,42	364.016 \$	495.814 \$	627.613 \$
<b>2035</b>	<b>0,4</b>	428.571 \$	571.429 \$	714.286 \$
2036	0,38	496.594 \$	648.776 \$	800.958 \$
2037	0,36	566.283 \$	725.550 \$	884.817 \$
2038	0,34	635.876 \$	799.662 \$	963.449 \$
2039	0,32	703.880 \$	869.499 \$	1.035.118 \$
2040	<b>0,3</b>	769.199 \$	934.027 \$	1.098.855 \$
2041	0,29	818.892 \$	986.639 \$	1.154.386 \$
2042	0,28	863.913 \$	1.032.939 \$	1.201.965 \$
2043	0,27	904.473 \$	1.073.334 \$	1.242.195 \$
2044	0,26	940.945 \$	1.108.401 \$	1.275.857 \$
2045	0,25	973.774 \$	1.138.786 \$	1.303.797 \$
2046	0,24	1.003.426 \$	1.165.135 \$	1.326.844 \$
2047	0,23	1.030.351 \$	1.188.058 \$	1.345.764 \$
2048	0,23	1.054.961 \$	1.208.101 \$	1.361.240 \$
2049	0,22	1.077.626 \$	1.225.745 \$	1.373.865 \$
2050	0,21	1.098.664 \$	1.241.404 \$	1.384.143 \$
2051	0,20	1.118.351 \$	1.255.425 \$	1.392.499 \$
2052	0,19	1.136.919 \$	1.268.102 \$	1.399.285 \$
2053	0,18	1.154.563 \$	1.279.678 \$	1.404.792 \$
2054	0,17	1.171.447 \$	1.290.354 \$	1.409.260 \$
2055	0,16	1.187.706 \$	1.300.295 \$	1.412.884 \$
2056	<b>0,15</b>	1.203.451 \$	1.309.637 \$	1.415.824 \$

L

**1.428.571 \$**

**SC-BTC-1** (Economic value in constant dollars) - **Scenarios**



## 4. SC-BTC-2 Model: Nominal Price Projection

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The S-Curve model SC-BTC-2 incorporates an **annual inflation** component into the real price calculated with SC-BTC-1, in order to project the price in "future dollars".

### 4.1 Adjustment Formula

$$P_{\text{nominal}}(t) = P(t) \times (1 + T)^{t-t_0}$$

### 4.2 Inflation Assumptions

- **2 %:** Optimistic scenario (stable currency).
- **3 %:** Realistic scenario (moderate monetary debasement).
- **6 %:** Pessimistic scenario (high inflation).

The tables and charts shown on the following pages correspond to a **realistic scenario with 3% annual inflation**.

### 4.3 Mechanical Effect

Inflation acts as a multiplier on the nominal price.

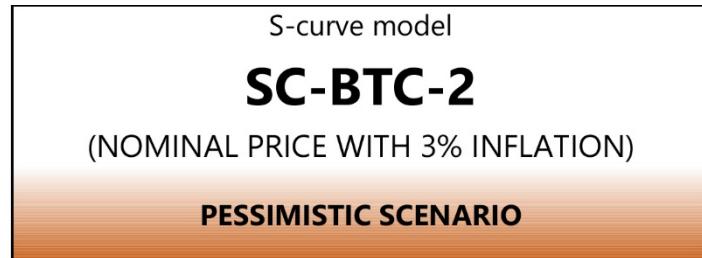
A Bitcoin worth \$1.5M in real terms could quite logically appear at much higher nominal prices by the 2035–2050 horizon:

- At 2% inflation: ~2,000,000 USD
- At 4% inflation: ~2,500,000 USD
- At 6% inflation: ~3,500,000 USD

Volatility, although still high, tends to decline as the asset matures.

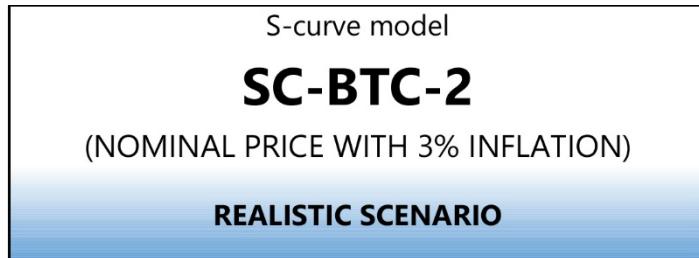
### 4.4 Tables and Charts

See following pages

**k = 19,5%**

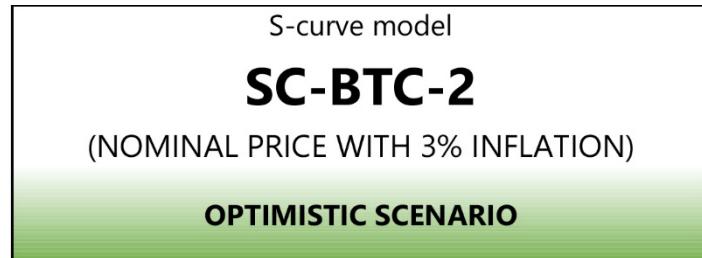
Year	Volatility	ATH	124.774 \$
2025	<b>0,7</b>		

		BTC PRICE		
		LOW	MEAN	HIGH
2026	0,66	51.706 \$	101.891 \$	152.076 \$
2027	0,62	70.098 \$	127.283 \$	184.468 \$
2028	0,58	93.468 \$	158.005 \$	222.543 \$
2029	0,54	122.741 \$	194.785 \$	266.829 \$
2030	<b>0,5</b>	158.870 \$	238.306 \$	317.741 \$
2031	0,48	195.272 \$	285.397 \$	375.523 \$
2032	0,46	237.708 \$	338.953 \$	440.199 \$
2033	0,44	286.463 \$	399.001 \$	511.540 \$
2034	0,42	341.646 \$	465.346 \$	589.045 \$
<b>2035</b>	<b>0,4</b>	403.175 \$	537.567 \$	671.958 \$
2036	0,38	470.776 \$	615.046 \$	759.316 \$
2037	0,36	544.011 \$	697.015 \$	850.018 \$
2038	0,34	622.322 \$	782.618 \$	942.913 \$
2039	0,32	705.085 \$	870.987 \$	1.036.889 \$
2040	<b>0,3</b>	791.665 \$	961.308 \$	1.130.950 \$
2041	0,29	868.468 \$	1.046.370 \$	1.224.272 \$
2042	0,28	946.041 \$	1.131.136 \$	1.316.231 \$
2043	0,27	1.024.047 \$	1.215.231 \$	1.406.416 \$
2044	0,26	1.102.273 \$	1.298.440 \$	1.494.607 \$
2045	0,25	1.180.627 \$	1.380.691 \$	1.580.756 \$
2046	0,24	1.259.117 \$	1.462.033 \$	1.664.948 \$
2047	0,23	1.337.833 \$	1.542.604 \$	1.747.374 \$
2048	0,23	1.416.926 \$	1.622.609 \$	1.828.292 \$
2049	0,22	1.496.590 \$	1.702.296 \$	1.908.003 \$
2050	0,21	1.577.047 \$	1.781.939 \$	1.986.831 \$
2051	0,20	1.658.539 \$	1.861.823 \$	2.065.107 \$
2052	0,19	1.741.311 \$	1.942.231 \$	2.143.152 \$
2053	0,18	1.825.611 \$	2.023.444 \$	2.221.276 \$
2054	0,17	1.911.686 \$	2.105.729 \$	2.299.773 \$
2055	0,16	1.999.774 \$	2.189.344 \$	2.378.914 \$
2056	<b>0,15</b>	2.090.108 \$	2.274.529 \$	2.458.950 \$

**k = 24,0%**

Year	Volatility	ATH	124.774 \$
2025	<b>0,7</b>		

		BTC PRICE		
		LOW	MEAN	HIGH
2026	0,66	54.322 \$	107.046 \$	159.771 \$
2027	0,62	77.327 \$	140.409 \$	203.491 \$
2028	0,58	108.156 \$	182.835 \$	257.514 \$
2029	0,54	148.764 \$	236.082 \$	323.399 \$
2030	<b>0,5</b>	201.268 \$	301.901 \$	402.535 \$
2031	0,48	257.883 \$	376.906 \$	495.929 \$
2032	0,46	326.157 \$	465.075 \$	603.994 \$
2033	0,44	406.756 \$	566.553 \$	726.350 \$
2034	0,42	499.796 \$	680.756 \$	861.717 \$
<b>2035</b>	<b>0,4</b>	604.762 \$	806.350 \$	1.007.937 \$
2036	0,38	720.536 \$	941.346 \$	1.162.155 \$
2037	0,36	845.522 \$	1.083.325 \$	1.321.128 \$
2038	0,34	977.856 \$	1.229.728 \$	1.481.600 \$
2039	0,32	1.115.646 \$	1.378.151 \$	1.640.656 \$
2040	<b>0,3</b>	1.257.184 \$	1.526.581 \$	1.795.978 \$
2041	0,29	1.380.422 \$	1.663.196 \$	1.945.969 \$
2042	0,28	1.502.014 \$	1.795.887 \$	2.089.759 \$
2043	0,27	1.621.612 \$	1.924.359 \$	2.227.106 \$
2044	0,26	1.739.217 \$	2.048.739 \$	2.358.260 \$
2045	0,25	1.855.096 \$	2.169.454 \$	2.483.811 \$
2046	0,24	1.969.692 \$	2.287.121 \$	2.604.551 \$
2047	0,23	2.083.547 \$	2.402.458 \$	2.721.368 \$
2048	0,23	2.197.253 \$	2.516.209 \$	2.835.166 \$
2049	0,22	2.311.407 \$	2.629.111 \$	2.946.814 \$
2050	0,21	2.426.588 \$	2.741.853 \$	3.057.119 \$
2051	0,20	2.543.342 \$	2.855.074 \$	3.166.807 \$
2052	0,19	2.662.175 \$	2.969.349 \$	3.276.523 \$
2053	0,18	2.783.556 \$	3.085.196 \$	3.386.836 \$
2054	0,17	2.907.912 \$	3.203.076 \$	3.498.240 \$
2055	0,16	3.035.637 \$	3.323.402 \$	3.611.167 \$
2056	<b>0,15</b>	3.167.094 \$	3.446.543 \$	3.725.993 \$

**k = 31,4%**

Year	Volatility	ATH	124.774 \$
2025	<b>0,7</b>		

		BTC PRICE		
		LOW	MEAN	HIGH
2026	0,66	58.896 \$	116.061 \$	173.225 \$
2027	0,62	90.908 \$	165.071 \$	239.233 \$
2028	0,58	137.815 \$	232.972 \$	328.130 \$
2029	0,54	205.194 \$	325.633 \$	446.073 \$
2030	<b>0,5</b>	299.794 \$	449.690 \$	599.587 \$
2031	0,48	413.233 \$	603.957 \$	794.680 \$
2032	0,46	559.176 \$	797.343 \$	1.035.511 \$
2033	0,44	740.781 \$	1.031.802 \$	1.322.823 \$
2034	0,42	958.529 \$	1.305.582 \$	1.652.636 \$
<b>2035</b>	<b>0,4</b>	1.209.525 \$	1.612.700 \$	2.015.875 \$
2036	0,38	1.487.641 \$	1.943.531 \$	2.399.420 \$
2037	0,36	1.784.597 \$	2.286.515 \$	2.788.433 \$
2038	0,34	2.091.637 \$	2.630.392 \$	3.169.147 \$
2039	0,32	2.401.143 \$	2.966.118 \$	3.531.093 \$
2040	<b>0,3</b>	2.707.675 \$	3.287.891 \$	3.868.107 \$
2041	0,29	2.963.858 \$	3.570.992 \$	4.178.126 \$
2042	0,28	3.207.218 \$	3.834.718 \$	4.462.217 \$
2043	0,27	3.439.226 \$	4.081.313 \$	4.723.401 \$
2044	0,26	3.662.141 \$	4.313.878 \$	4.965.615 \$
2045	0,25	3.878.505 \$	4.535.742 \$	5.192.978 \$
2046	0,24	4.090.823 \$	4.750.088 \$	5.409.353 \$
2047	0,23	4.301.383 \$	4.959.758 \$	5.618.133 \$
2048	0,23	4.512.192 \$	5.167.187 \$	5.822.183 \$
2049	0,22	4.724.962 \$	5.374.409 \$	6.023.856 \$
2050	0,21	4.941.140 \$	5.583.099 \$	6.225.058 \$
2051	0,20	5.161.939 \$	5.794.627 \$	6.427.316 \$
2052	0,19	5.388.383 \$	6.010.119 \$	6.631.856 \$
2053	0,18	5.621.345 \$	6.230.502 \$	6.839.659 \$
2054	0,17	5.861.578 \$	6.456.551 \$	7.051.523 \$
2055	0,16	6.109.746 \$	6.688.923 \$	7.268.100 \$
<b>2056</b>	<b>0,15</b>	6.366.444 \$	6.928.189 \$	7.489.934 \$

S-curve model

**SC-BTC-2**

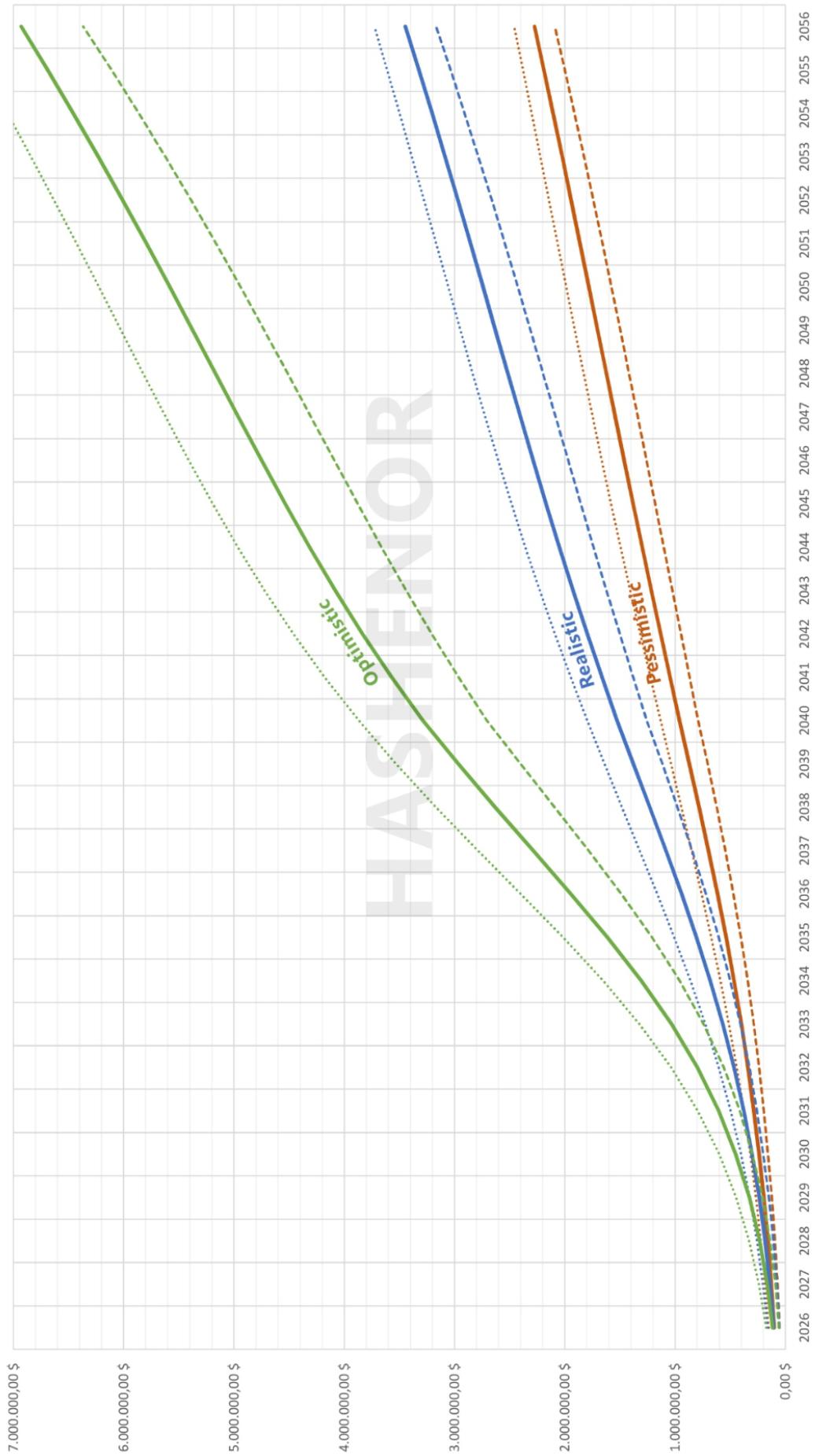
(NOMINAL PRICE WITH 3% INFLATION)

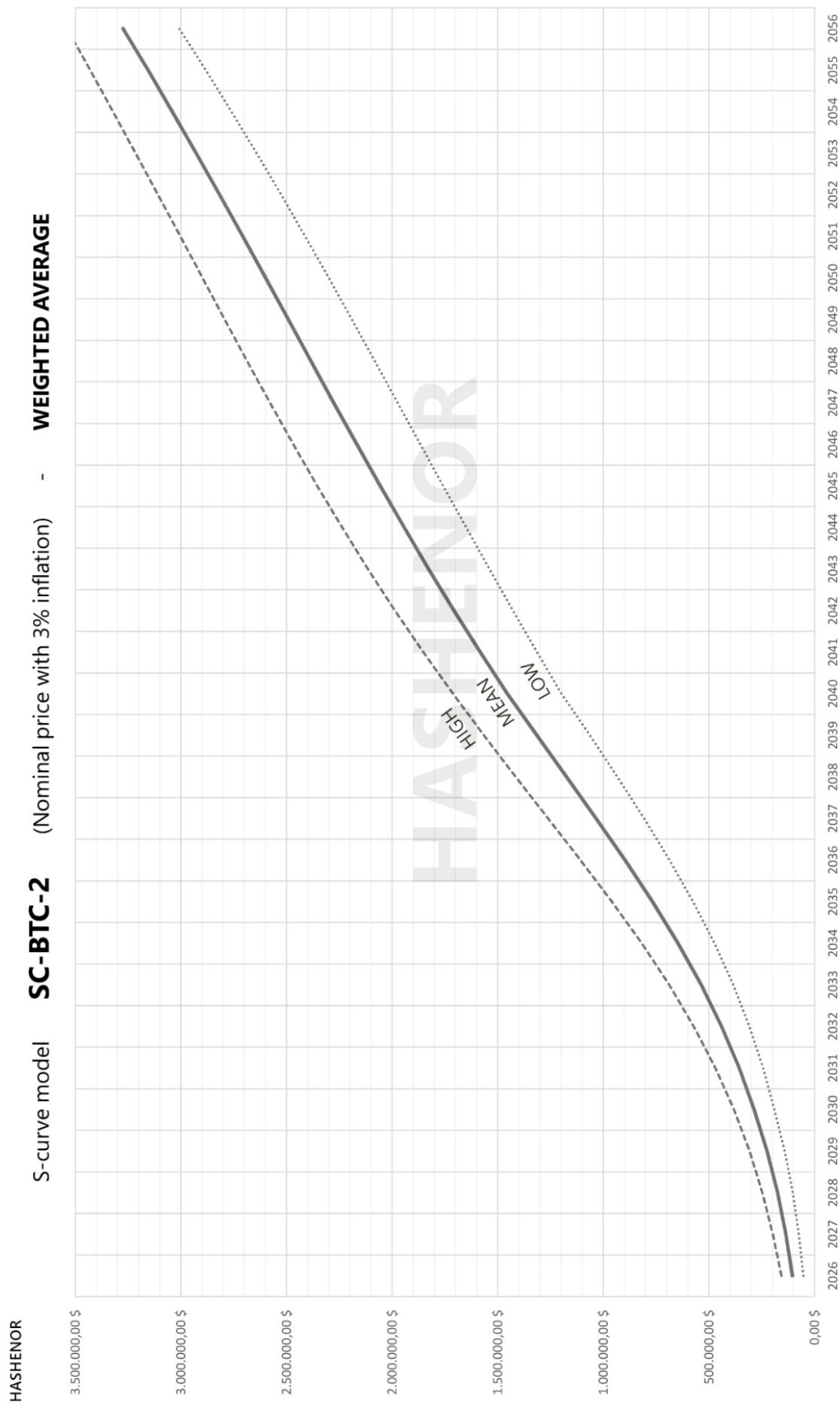
**WEIGHTED AVERAGE**

4/7 PESS. + 2/7 REAL. + 1/7 OPTI.

<b>Year</b>	<b>Volatility</b>		
2025	<b>0,7</b>	ATH	<b>124.774 \$</b>

		<b>BTC PRICE</b>		
		LOW	MEAN	HIGH
2026	0,66	53.481 \$	105.388 \$	157.296 \$
2027	0,62	75.136 \$	136.431 \$	197.727 \$
2028	0,58	104.000 \$	175.809 \$	247.618 \$
2029	0,54	141.955 \$	225.277 \$	308.598 \$
2030	<b>0,5</b>	191.116 \$	286.674 \$	382.232 \$
2031	0,48	244.298 \$	357.051 \$	469.804 \$
2032	0,46	308.903 \$	440.473 \$	572.042 \$
2033	0,44	385.735 \$	537.273 \$	688.812 \$
2034	0,42	474.958 \$	646.925 \$	818.893 \$
<b>2035</b>	<b>0,4</b>	575.964 \$	767.952 \$	959.940 \$
2036	0,38	687.402 \$	898.058 \$	1.108.714 \$
2037	0,36	807.384 \$	1.034.460 \$	1.261.537 \$
2038	0,34	933.806 \$	1.174.331 \$	1.414.857 \$
2039	0,32	1.064.682 \$	1.315.195 \$	1.565.709 \$
2040	<b>0,3</b>	1.198.386 \$	1.455.183 \$	1.711.980 \$
2041	0,29	1.314.082 \$	1.583.266 \$	1.852.450 \$
2042	0,28	1.427.916 \$	1.707.291 \$	1.986.666 \$
2043	0,27	1.539.805 \$	1.827.279 \$	2.114.754 \$
2044	0,26	1.649.952 \$	1.943.588 \$	2.237.223 \$
2045	0,25	1.758.744 \$	2.056.773 \$	2.354.803 \$
2046	0,24	1.866.668 \$	2.167.495 \$	2.468.321 \$
2047	0,23	1.974.259 \$	2.276.441 \$	2.578.624 \$
2048	0,23	2.082.057 \$	2.384.292 \$	2.686.526 \$
2049	0,22	2.190.591 \$	2.491.688 \$	2.792.785 \$
2050	0,21	2.300.358 \$	2.599.223 \$	2.898.089 \$
2051	0,20	2.411.825 \$	2.707.438 \$	3.003.051 \$
2052	0,19	2.525.425 \$	2.816.820 \$	3.108.216 \$
2053	0,18	2.641.558 \$	2.927.810 \$	3.214.062 \$
2054	0,17	2.760.593 \$	3.040.803 \$	3.321.014 \$
2055	0,16	2.882.874 \$	3.156.158 \$	3.429.441 \$
2056	<b>0,15</b>	3.008.723 \$	3.274.199 \$	3.539.674 \$

**S-curve model SC-BTC-2** (Nominal price with 3% inflation) - Scenarios



SC-BTC-2 (Nominal price with 3% inflation) -  10-YEAR PRICE PROJECTION



## 5. Interest of Bitcoin for Investors

### 5.1 Measurable Adoption

Unlike many other assets, Bitcoin provides transparent, real-time data since all activity is recorded and publicly verifiable on the blockchain: number of wallets with a non-zero balance, hashrate, and inflows into investment products.

### 5.2 Institutional Flows

ETFs generate structural, steady, and non-purely-speculative demand, which may help smooth long-term volatility.

### 5.3 Bitcoin as a Macro Asset

Bitcoin shows an increasing correlation with global liquidity (M2) and is gradually positioning itself as a digital alternative to gold within diversified portfolios.

## 6. Limits of the S-Curve Model

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### ⚠ Important Warnings:

- **Parameters sensitivity:** Small variations in  $k$  or  $L$  can significantly alter the trajectory.
- **Monetary uncertainty:** Future inflation cannot be predicted with certainty.
- **Exogenous risks:** Although conservative, the model does not account for major regulatory, technological, or geopolitical risks.
- **No short-term timing:** This model is ineffective for trading or forecasting market cycles (bull runs / bear markets).

So if Bitcoin follows a classic S-Curve, **why is it so volatile?**

Over the long run (decades or more), technological adoption Curves tend to look smooth and predictable. However, in the short term, adoption rates are extremely volatile. This leads to alternating phases of rapid expansion and sharp pull-backs, as illustrated in the historical price chart of Bitcoin :



SOURCE GLASSNODE

This volatility comes from several structural factors: adoption happens in waves, market depth is still limited, speculation amplifies fundamentals, macro liquidity cycles strongly influence short-term price movements, reflexivity ...

The massive arrival of institutions — through ETFs, derivatives, and corporate balance-sheet allocations — has shifted Bitcoin from an alternative asset held mainly by individuals to a genuine financial asset integrated into traditional markets.

This financialization changes its dynamics because major asset managers now arbitrage it like any other risky asset. During periods of stress, they sell the most liquid positions first... and Bitcoin is now one of them. As a result, its price movements become sharper and more synchronized with equities and other "risk-on" assets. Bitcoin remains a unique asset by nature, but its market behavior is increasingly correlated with global financial cycles.

Nevertheless, if Bitcoin does follow a classic S-Curve, the exponential growth in adoption by the majority will make **today's volatility appear extraordinarily small** by comparison. This is why it is preferable to analyze Bitcoin's price charts over the **long term** and on a **logarithmic scale**.

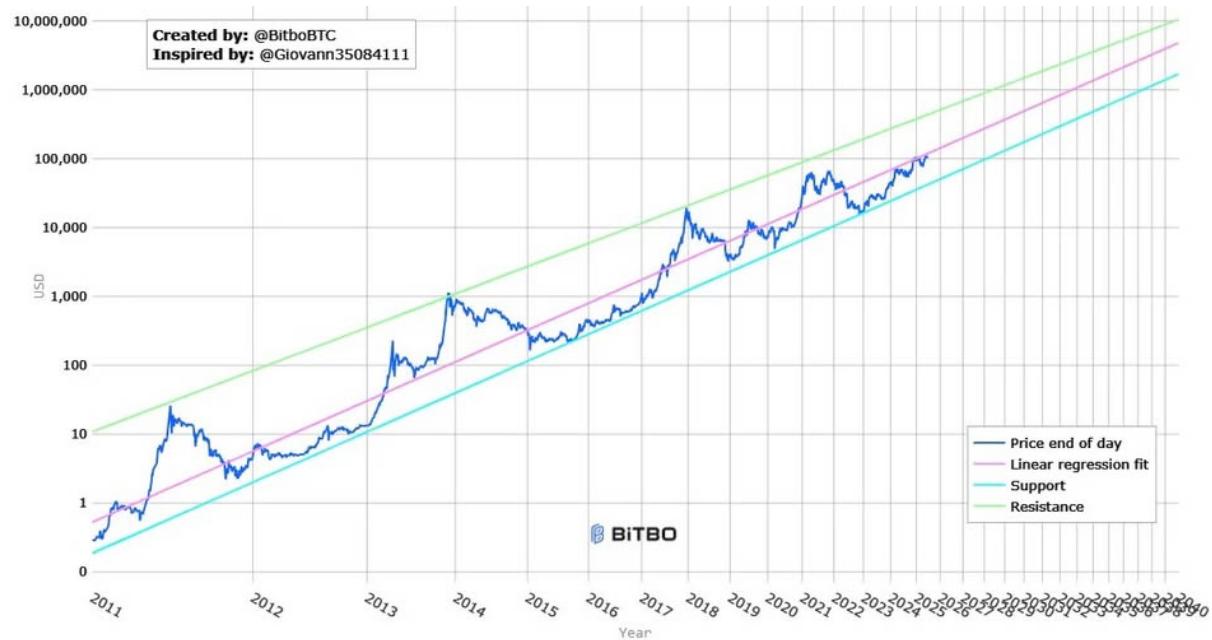
## 7. Overview of Other Predictive Models

Several predictive models attempt to capture Bitcoin's macro-dynamics over 10- to 30-year horizons. Each relies on a different underlying logic: technological diffusion, programmed scarcity, statistical regressions, or power-law relationships. The following are the most widely recognized models, along with their foundations and limitations.

### 7.1 Bitcoin Power Law Model

This model is one of the most documented and widely followed today. It is based on a log-log linear regression between Bitcoin's price and time, which reveals a relatively stable growth corridor spanning more than a decade. The model uses two bands (a support band and a resistance band), derived from a statistical regression on historical prices. It then extrapolates this trajectory into the future.

The central idea: Bitcoin follows a growth path that obeys a power-law relationship.



SOURCE BITBO

The Power Law model assumes infinite growth, whereas the SC-BTC-1 and SC-BTC-2 models incorporate adoption saturation as well as a probable upper limit to market capitalization.

## 7.2 Macro-cycle models (halvings, bull/bear cycles)

These models are not strictly mathematical but rely on the empirical observation of the 4-year cycles associated with the halving.

They attempt to project:

- a cycle top,
- a deep correction,
- an accumulation phase,
- a new bull market.

They are popular but less rigorous, as they are based on only 3–4 historical cycles.



## 8. Conclusion

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Analysis using an appropriate S-Curve mathematical model confirms that Bitcoin exhibits the characteristics of a technological asset transitioning toward maturity. Supported by global adoption, rapid institutionalization, and absolute scarcity, its long-term trajectory points toward high value asymptotes.

The SC-BTC-1 model suggests a fundamental valuation target (in constant dollars) between 1 and 3 million dollars per unit by around 2056, regardless of the future depreciation of fiat currency (see SC-BTC-2 model).

This study offers a rational, well-documented, and coherent interpretation of Bitcoin's potential trajectory. It is intended for individuals who want to understand the deeper mechanisms underlying its evolution and to have a tool for assessing its long-term potential.

*In a market often dominated by emotion, speculation, and shifting narratives, a model grounded in robust economic principles provides a valuable point of reference.*

If you found this study useful, you can support **HASHENOR**'s independent research work.

## Support of the author

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*This study required time and rigor. Your support is appreciated.*

*Any contribution to **HASHENOR** can be made exclusively via Bitcoin.*

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