Don't trust, verify.

Bitcoin 101

A Plain-English Guide to Money, Code, and the Future of Trust

M Z Babar

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Don't Trust, Verify: Bitcoin 101 — A Plain-English Guide to Money, Code, and the Future of Trust

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Use of AI tools. Artificial-intelligence tools assisted with research, drafting, editing, and the charts in this book. The author directed, reviewed, and is responsible for its content.

About the four readers. Sam, Priya, Walter, and Rosa, who appear throughout this book, are composite characters built from common situations. They are not real people, and their numbers are illustrations. The author's own story, told in the Introduction and in the "From the Author" boxes, is his own.

A companion book. This book is written to be fully consistent with the author's earlier book, *Beyond Fiat*. Where *Beyond Fiat* focuses on inflation, personal planning, and making a written decision about crypto, this book goes deeper into how Bitcoin works and what it may mean for society. Facts in both books reflect the dates stated in each.

Introduction: A New Kind of Money

On the evening of 3 January 2009, an unknown person using the name Satoshi Nakamoto switched on a piece of software and created the first block of a new kind of ledger. Tucked inside that block was a line of text copied from the front page of that day's *Times* of London: a headline about the British finance minister preparing a second bailout for the banks.

It was a timestamp, proving the block could not have been made earlier. It was also a message. The world's financial system had just come close to collapse. Governments were rescuing the banks that had caused the crisis, and they were paying for it by creating money on a scale never seen before. Satoshi was proposing something different: money that no government could print, no bank could freeze, and no company could control. Money that ran on mathematics and open rules instead of trust in institutions.

For the first year, almost nobody noticed. Bitcoin had no price at all. A coin was worth nothing because nobody had yet agreed it was worth anything. In May 2010 a programmer in Florida paid 10,000 bitcoins for two pizzas, and the world's first real-world bitcoin purchase was complete. Those coins would later be worth more than a billion dollars.

Seventeen years on, Bitcoin is a different creature. In October 2025 the price of a single bitcoin passed $126,000. The world's largest asset manager runs a Bitcoin fund holding tens of billions of dollars. Public companies hold more than a million coins on their balance sheets. The United States government has signed an executive order creating a Strategic Bitcoin Reserve. Millions of ordinary people in dozens of countries own some.

And yet, as this book goes to press in November 2026, Bitcoin trades near $74,000 — roughly 40 percent below that peak — after a hard year that saw it fall as low as $60,000. Anyone who bought at the top has lost a lot of money. Critics say this proves Bitcoin is a bubble. Supporters say it is the same pattern of boom and correction that Bitcoin has repeated, and survived, four times before.

Both groups are worth listening to. That is the spirit of this book.

Why I wrote this book

It was my son who first brought it up, at the dinner table, in 2017.

He talked about Bitcoin the way young people talk about something they have already decided is the future: fast, confident, and a little impatient with anyone who didn't see it yet. I was that anyone. I have spent my career in technology. I know how systems are built, how they fail, and how much trust we place in the people who run them. So when my son described a form of money with no bank behind it, no government standing behind it, and no company you could call when something went wrong, my first reaction was suspicion.

I told him so. He didn't argue much. He just kept sending me things to read.

I did what IT people do when something doesn't make sense: I went looking for the documentation. I read the white paper. I read about how the Federal Reserve works, how banks create money when they lend, and what happened in 2008. And I kept going. Since that evening in 2017 I have been reading, researching, and gathering information about Bitcoin — first about the money, then about the technology underneath it, and increasingly about its larger effect on society: on savers and workers, on families sending money home, on governments, on privacy, and on what trust means in a digital world.

Two things kept me reading. The first was the engineering. Bitcoin is a distributed system in which thousands of independent computers keep the

same record, and its supply schedule, written down in 2009, can be checked by anyone on Earth. The second was a question I couldn't stop asking: who decides how much money there is, and who pays when they decide to make more?

My family gave me the room to follow that question. They trusted me to put a small amount of our money into something most people still laughed at, and they gave me the time to read, test, make beginner mistakes, and keep learning when prices were not kind. I have watched bitcoin fall by more than three quarters from its peak, more than once. I have read far too many stories of people who lost their savings to scams, hacks, and their own haste. Those experiences are why this book spends as much time on risk as it does on promise.

My earlier book, *Beyond Fiat*, was written for the person sitting where I sat in 2017 — someone who wants to know why their money loses value and whether crypto belongs in their life at all, and how to make that decision in writing, calmly. *Don't Trust, Verify* goes further into Bitcoin itself: how it works, why it was built the way it was, and what it may mean for the future of money and trust. You can read either book first. They are written to agree with each other.

My son deserves the credit for starting all of this. He was right that it was worth understanding. I like to think I was right that it was worth understanding carefully.

— M Z Babar

Most books about Bitcoin fall into one of two camps. The first is written by true believers who see Bitcoin as the inevitable future of all money and treat every doubt as ignorance. The second is written by skeptics who see it as a fad, a fraud, or a tool for criminals, and treat every success as luck.

Neither is very useful if you are an intelligent adult trying to make sense of it all — and perhaps trying to decide whether to put some of your own money into it.

This book takes a clear position: **Bitcoin is one of the most important financial inventions of our lifetime, and it deserves to be understood seriously.** Its design solves a problem that computer scientists had struggled with for decades. Its rules have held for seventeen years without a single successful attack on its core ledger. Its adoption, by individuals, companies, and now governments, keeps growing.

But "important" does not mean "safe," and "understood" does not mean "bought." Bitcoin is volatile. It has suffered drawdowns of 50 to 90 percent. It has been used for crime. People have lost fortunes to hacks, scams, and their own mistakes. Its long-term future is not guaranteed. A good guide shows you both sides of the road.

What you will learn

By the end of this book you will be able to:

- **Explain what money is**, why the money we use today works the way it does, and why that matters for your savings.
- **Understand how Bitcoin works** — the blockchain, mining, cryptographic keys, halvings, and the famous 21 million cap — without needing a computer science degree.
- **Buy, store, send, and receive bitcoin safely**, and avoid the mistakes that cost beginners the most.
- **Think clearly about Bitcoin as an investment**: the "digital gold" argument, the four-year cycle, who the big holders are, what drives the price, and how to size a position you can live with.
- **Navigate the rules**: taxes, regulation, and the laws that are reshaping the industry in the United States, Europe, and beyond.
- **See where things are heading**: the rise of AI agents that need to pay each other, the quantum computing debate, and the long contest over the future of money.

Who this book is for

This book is written for three kinds of readers.

The curious beginner has heard about Bitcoin at dinner parties and in headlines, perhaps owns a little through an app, and wants to understand what it actually is. You don't need to know anything about economics or computers. Every technical term is explained the first time it appears, and the Glossary at the back is there whenever you need it.

The new investor is considering putting real money into bitcoin, or already has, and wants to do it sensibly. You will find practical guidance on buying, storing, taxes, and — above all — risk. The Investor's Notes throughout the book are written with you in mind.

The thoughtful skeptic suspects Bitcoin is overhyped and wants to understand what the fuss is about before dismissing it. You will find the strongest arguments against Bitcoin here, presented fairly, alongside the case for it. You may finish the book still skeptical. That's fine. You will at least be skeptical for the right reasons.

Meet four readers

Facts are easier to remember when they happen to someone. Throughout this book you will follow four readers through the same years you are reading about — the 2024 halving, the 2025 record high, the 2026 crash, and the new rules that came with them. They are composites, not real people, but everything that happens to them has happened to many real people.

- **Sam Okafor**, 41, teaches high-school chemistry in Columbus, Ohio. He and his wife, Grace, a nurse, have two children and about $120,000 saved for retirement. Sam is curious but cautious. He wants to understand bitcoin before he owns any.
- **Priya Raman**, 29, is a software engineer in Austin, Texas, with $60,000 invested. She understands the technology faster than anyone in this book — and that confidence is exactly what gets her into trouble.

- **Walter Brooks**, 68, is a retired machinist and widower in Scranton, Pennsylvania. He lives on a pension and a $310,000 IRA, and he thinks bitcoin is “funny money.” He is the reader the scammers want most.
- **Rosa Mendes**, 52, came from Venezuela twenty years ago and now owns a bakery in Doral, Florida. She has watched a currency die once already, and she sends money home to her mother every month.

You won’t agree with all of their choices. That’s the point. Watch what they do, notice what you would do, and borrow what works.

A note on balance

I am enthusiastic about Bitcoin. I believe it is a genuine innovation, and I believe that understanding it is increasingly important for anyone who cares about their financial future. But enthusiasm is not the same as cheerleading. Some of the most expensive mistakes in Bitcoin’s history were made by people who believed so strongly in its future that they ignored its risks — borrowing to buy, trusting exchanges that collapsed, or putting in money they couldn’t afford to lose.

So throughout this book you will find the bull case and the bear case side by side. When the evidence is strong, I’ll say so. When it’s mixed, I’ll say that too. When something is genuinely unknown — and much about Bitcoin’s future is — I won’t pretend otherwise. My aim is not to persuade you to buy bitcoin. It is to help you understand it well enough to make your own decision, and to make it well.

A snapshot in time

Bitcoin’s story changes month by month. This book captures it as of **November 2026**, a moment that happens to be unusually instructive. The market has just lived through a full cycle: a historic peak driven by Wall Street’s arrival, followed by a sharp decline that tested everyone’s conviction. Governments have moved from hostility to cautious embrace — and in some cases, back to stalemate. Artificial intelligence has opened a new

chapter in the story of money. And the oldest questions — what is money, who controls it, and whom can we trust — have never felt more urgent.

The facts in this book will date. The principles will not. Learn the principles, and you'll be able to read the next headline — whatever it says — with a clear head.

The one idea to hold on to

If you remember only one thing from this book, let it be this: **Bitcoin replaces trust in people with verification of rules.**

When you keep money in a bank, you trust the bank to keep accurate records, to stay solvent, and to let you have your money when you want it. When you hold dollars, you trust the central bank not to create so many new ones that yours lose their value. Most of the time, that trust is rewarded. Sometimes it is not.

Bitcoin asks for a different kind of trust. You do not need to trust any person or institution. You need to trust that the open-source rules, which anyone can read, will be enforced by tens of thousands of independent computers around the world — and that the mathematics underneath is sound. Bitcoin's users have a four-word motto for it — **don't trust, verify** — and it gives this book its title. Everything in these pages flows from that simple shift. Let's begin with the oldest question of all: what is money, anyway?

> **In Plain English** — Bitcoin is a digital money with a fixed supply, run by a global network of computers instead of a bank or government. You can own it directly, send it to anyone in the world, and check every rule for yourself.

How to read this book

This book is built in five parts, and you can read it in two ways.

If you are brand new, read it front to back. Each chapter builds on the one before it, and no prior knowledge of finance, computers, or mathematics is assumed.

If you mainly want to invest, read the Introduction, Chapter 3, Chapter 7, and then jump to Parts III and IV. Come back to the technical chapters when you are curious about *why* things work the way they do.

Along the way you will meet four kinds of boxes:

> **In Plain English** — a short, jargon-free summary of a tricky idea.

> **Deep Dive** — extra technical detail for readers who want to see under the hood. Safe to skip.

> **Investor's Note** — what an idea means for your money, your risk, and your decisions.

> **Warning** — common mistakes that cost people real money.

Every chapter ends with **Key Takeaways**, so you can review the whole book in an afternoon. A **Glossary** and a **Timeline** sit at the back for quick reference.

A note on numbers: Bitcoin moves fast. This book focuses on ideas that last, and every figure in it is dated — most were checked in November 2026. When you read a number here, treat it as a photograph, not a promise. For current figures, free calculators, and corrections, visit the companion website at **bitcoin101.mzbacademy.com**. A **Check Your Understanding** quiz for every chapter is at the back of the book.

You'll also find a fifth kind of box, **From the Author**, where I share my own experiences with Bitcoin — the good decisions and the mistakes.

Part I — Money and Its Problems

Chapter 1: What Is Money?

Imagine you are a fisherman on a small island, and you want a pair of shoes. The shoemaker, unfortunately, does not want fish. She wants firewood. The woodcutter wants bread. The baker wants fish — but only on Tuesdays.

To get your shoes, you would need to find a chain of trades that happens to line up. Economists call this problem the **double coincidence of wants**, and it is the reason every human society that has grown beyond a village has invented money.

Money is not a thing. It is a *tool* — a shared agreement that lets strangers cooperate. Once everyone on the island agrees to accept, say, rare shells in exchange for goods, you can sell your fish to anyone for shells and spend the shells on shoes. Trade explodes. People specialize. Wealth grows.

To understand Bitcoin, you have to understand what makes a good money, because Bitcoin was designed from the ground up to score well on those tests.

The three jobs of money

Textbooks list three jobs that money does.

1. Medium of exchange. Money is what you hand over to get something. It is the thing that solves the double coincidence of wants.

2. Unit of account. Money is the ruler we use to measure value. Prices, wages, debts, and profits are all expressed in it. When you say a coffee "costs four dollars," the dollar is the unit of account.

3. Store of value. Money lets you move value through time. You can work today and spend next year. A good store of value keeps its purchasing power; a poor one leaks.

These jobs usually reinforce each other, but they do not always arrive together. Historically, something first becomes a **store of value** (people collect it because it holds value), then a **medium of exchange** (people start trading with it), and finally a **unit of account** (people start pricing things in it). Many Bitcoin supporters believe Bitcoin is following exactly that path, and that today it sits mostly in the first stage. Keep that idea in mind; we will return to it in Chapter 17.

The properties of good money

Over thousands of years, humans tried many things as money: cattle, salt, grain, beads, shells, stones, cigarettes in prisons, and of course metals. The winners shared five core properties: good money is **scarce, durable, portable, divisible, and accepted**. (My earlier book, *Beyond Fiat*, uses the same five.) Two more matter a great deal once money goes digital: it should be **uniform**, so every unit is interchangeable, and **verifiable**, so anyone can check that it is real.

Property	What it means	Gold	Paper dollar	Bitcoin
Scarce	Hard to make more	Very good	Poor (supply set by policy)	Excellent (capped at 21 million)
Durable	Doesn't rot, rust, or wear out	Excellent	Fair (digital form is good)	Excellent (data, copied worldwide)
Portable	Easy to carry and move	Poor in large amounts	Good	Excellent (any amount, anywhere, minutes)
Divisible	Splits into small units	Fair	Good (to the cent)	Excellent (to 100 millionth)
Accepted	People take it in payment	Good (valued worldwide, rarely spent)	Excellent (by law, at home)	Growing (widely held, rarely spent)
Uniform	Every unit is the same	Good	Excellent	Excellent
Verifiable	Easy to check it's real	Fair (needs testing)	Fair (forgeries exist)	Excellent (checked by software)

Look at the first row closely. **Scarcity** is the property that matters most for a store of value. If anyone can easily make more of your money, its value will eventually be diluted away. That is why cattle and grain eventually lost out to metals, and why metals eventually lost out to gold. Gold is scarce because it is hard to mine: the world's gold stockpile only grows by around 1.5 to 2 percent a year, no matter how high the price goes.

Bitcoin was the first time anyone had created a *digital* object that is truly scarce. Before 2009, anything digital could be copied infinitely — a photo, a song, a spreadsheet. Bitcoin solved that problem, and that is the single biggest reason it has value.

A short history of money in five steps

Step 1: Commodity money. For most of history, money *was* something valuable in itself — salt, cattle, silver, gold. Its value came from its usefulness or beauty.

Step 2: Coins. Around 600 BCE, the kingdom of Lydia (in modern Turkey) began stamping lumps of precious metal with an official mark, guaranteeing their weight. Coins made gold and silver easier to trade. They also gave rulers a temptation: by mixing cheaper metals into their coins, they could quietly create more "money" than they had gold. The Roman Empire did exactly this. The silver content of the denarius fell from nearly pure to almost nothing over two centuries, and prices soared.

Step 3: Paper receipts. Carrying metal was heavy and dangerous, so people left their gold with goldsmiths and banks, and traded the paper receipts instead. Those receipts became the first banknotes. Banks soon noticed that not everyone came for their gold at once, so they issued more receipts than they had gold — the beginning of modern banking.

Step 4: The gold standard. In the 1800s and early 1900s, most major currencies were officially convertible into a fixed amount of gold. A dollar was a claim on gold. This limited how much money governments could create.

Step 5: Fiat money. In stages during the 20th century — finally and completely in 1971 — the link to gold was cut. Today's dollars, euros, pounds, and yen are **fiat money**: money by government decree (*fiat* is Latin for "let it be done"). Their value rests on law, on taxation, and on trust in the institutions that manage them.

Each step made money more convenient. Each step also moved control further from the people holding the money and closer to those issuing it. Bitcoin is, in a sense, an attempt to keep the convenience of step 5 while restoring the hard scarcity of step 1.

Why does anything have value?

A common objection to Bitcoin is: "It isn't backed by anything." It is worth pausing on this, because the answer reveals a lot.

Gold is not "backed" by anything either. Most of its value comes not from industrial use — only a small share of gold goes into electronics and den-

tistry — but from the fact that people have agreed for thousands of years that it is a good store of value. The dollar is not backed by gold anymore; it is backed by the power of the US government to tax and by the size of the US economy.

Value, in the end, is a social agreement grounded in useful properties. Something becomes money when enough people believe that others will accept it in the future. That belief is easier to sustain when the asset is scarce, durable, portable, and hard to counterfeit. Bitcoin's supporters argue it has these properties in a stronger form than anything before it. Its critics argue that a social agreement that formed in fifteen years could dissolve just as quickly. Both claims are logically possible. The rest of this book gives you the facts to weigh them.

> **In Plain English** — Money is a shared agreement that lets strangers trade. The best money is hard to make more of. Bitcoin is the first digital thing that can't be copied or inflated, which is why people value it.

> **Investor's Note** — When you ask "what is Bitcoin worth?", you are really asking "how many people, for how long, will agree that it is a good store of value?" That number has grown for seventeen years, but there is no law of nature guaranteeing it keeps growing. This is the core risk and the core opportunity.

The stone money of Yap

One of the best stories for understanding Bitcoin comes from a small group of islands in the western Pacific called Yap.

For centuries, the people of Yap used giant limestone discs, called **rai stones**, as money. Some were small enough to carry; others were taller than a person and weighed several tonnes. The limestone wasn't found on Yap. It had to be quarried on Palau, hundreds of kilometers away, and carried back across open ocean in canoes and on rafts — a dangerous journey that made the stones genuinely scarce and costly to produce.

The largest stones were far too heavy to move when they changed hands. So the people of Yap didn't move them. Instead, everyone in the community simply *remembered* who owned each stone. When a stone was used in a payment, it stayed exactly where it was; what changed was the shared public memory of its owner.

One famous story tells of a stone that was lost at sea during transport, sinking to the bottom of the ocean. Since everyone agreed it existed and knew who owned it, it continued to be used as money for generations, even though nobody had seen it.

Notice what this means. On Yap, money was not really the stone. It was the **shared public record of ownership**, maintained by the whole community. The stone's scarcity — guaranteed by the cost and danger of quarrying it — gave that record its value.

Bitcoin works in a strikingly similar way. Your bitcoin doesn't sit in your phone. It exists only as an entry in a shared public ledger that the whole network maintains. The ledger is valuable because the coins it records are scarce and costly to produce. Bitcoin is, in a sense, a global, digital, mathematically enforced version of the stone money of Yap.

The Yap story has a cautionary ending, too. In the late 19th century, an Irish-American trader named David O'Keefe began bringing large numbers of stones to Yap using modern ships and iron tools. Suddenly stones were much easier to produce. Over time, the newer stones came to be valued less than the old, hard-won ones. **When money becomes easy to make, it loses value.**

The glass beads of West Africa

An even harsher lesson comes from West Africa. For centuries, glass beads were used as money in parts of the region, because glass-making was rare and beads were hard to produce locally.

When European traders arrived with beads mass-produced cheaply in Venice and elsewhere, they could exchange them for valuable goods, labor, and, tragically, enslaved people. The traders were effectively printing money that was hard for local people to produce. Over time, the beads' value collapsed, and the wealth of those who had saved in beads was transferred to those who could make them cheaply.

The economist Saifedean Ammous uses this story in *The Bitcoin Standard* to make a point that runs through all monetary history: **people who save in money that others can easily produce eventually lose their wealth to the producers.** This is why scarcity — specifically, scarcity that cannot be overridden by the powerful — matters so much.

Gresham's law: why bad money circulates

There's a famous principle in economics called **Gresham's law**, usually summarized as "bad money drives out good." When two kinds of money circulate side by side at the same official value, people spend the one they think is worse and hoard the one they think is better.

In the 1960s, the US stopped putting silver in its dimes and quarters. Within a few years, the older silver coins had almost vanished from circulation. People kept them in drawers and spent the new copper-nickel coins instead.

Gresham's law helps explain an apparent puzzle: if Bitcoin is such good money, why do so few people spend it? Because people who believe bitcoin will hold its value better than their national currency will naturally spend the currency and save the bitcoin. Low spending doesn't necessarily mean low value. It may mean the opposite.

Critics point out a less flattering explanation: spending bitcoin is often still inconvenient, triggers tax paperwork in many countries, and exposes you to price swings. Both explanations are probably partly true.

Money as a technology

It helps to think of money not as a fixed thing but as a **technology** — one that keeps being improved.

Each new form of money has solved the problems of the last. Coins solved the difficulty of weighing and testing metal. Paper solved the burden of carrying coins. Bank accounts and cards solved the risk of carrying cash. Digital payments solved distance.

But each improvement also introduced a new weakness, usually by adding a trusted middleman who could fail, cheat, or be pressured. Bitcoin's claim is that it is the first monetary technology to improve convenience *without* adding a middleman — that it combines the hardness of gold with the speed of the internet. Whether that claim proves true is the subject of the rest of this book.

Key Takeaways

- Money solves the double coincidence of wants and does three jobs: medium of exchange, unit of account, and store of value.
- Good money is **scarce**, durable, portable, divisible, and accepted; digital money must also be uniform and verifiable. Bitcoin is strong on every property except acceptance, which is still growing.
- History is full of rulers debasing money by creating more of it.
- Today's dollars and euros are fiat money: valuable because of law and trust, not because they are redeemable for gold.
- Bitcoin is the first truly scarce digital asset. Its value rests on social agreement, just as gold's does.