

TALK NOTES • FALL 2025 • FGCU

What a blockchain actually changes: settlement, custody and capital

A finance view of crypto. The settlement gap a blockchain closes, the trade-off every chain has to make, what it means to hold your own keys, and the capital-markets engineering already being built on top of bitcoin.

THE IDEA

A blockchain's real innovation for finance is that the trade and the settlement become the same event, and that you can own an asset with no custodian between you and it. Both are double-edged, and every chain buys speed by giving up some decentralization. What matters now is the financial plumbing being built on top: preferred stock, collateralized lending and institutional custody.

These notes come from two sections of “Crypto Conversations,” a practitioner panel in FIN 4443, Financial Policy / Senior Seminar, at Florida Gulf Coast University. Teams of graduating finance seniors presented on blockchain fundamentals, the pros and cons of blockchain, bitcoin as an asset class, a case study of a bitcoin treasury company, and the risks of crypto. I responded from the practitioner side alongside a co-panelist. I am head of treasury at Ava Labs; the views here are my own, and nothing in them is investment advice. Market facts are as of December 2025 unless dated otherwise. A companion set of notes from the spring 2026 sessions covers how bitcoin behaves under stress, stablecoins and regulation, and AI.

The ledger, and the settlement gap it closes

Strip away the vocabulary and a blockchain is a book. Each page is a block, and each page carries a hash (a fingerprint) of the page before it, so you cannot change an old page without breaking every page after it. Pending transactions wait in a public queue, the mempool, and the miners or validators who build the next block choose which ones to include. That choice is not neutral: on busy chains, validators can earn extra by how they order transactions.

The part finance students should care about is the gap between a **transaction** and its **settlement**. When you buy a share of Pfizer on Fidelity, the trade happens now but ownership changes the next business day (T+1 in the US since May 2024), and in between a clearing and settlement system (DTCC, for US stocks) does real work to move ownership. A wire to El Salvador goes from your bank through correspondent banks before it arrives, and can take days. On a blockchain you hit send, the transaction lands in a block, and once a few more blocks have been added on top it is final. On Bitcoin, blocks come about every 10 minutes, so final means roughly half an hour to an hour. Ethereum adds a block every 12 seconds, and newer chains such as Solana and Avalanche confirm in about a second or less. It does not matter whether the person you pay sits across the table or in Australia.

The trilemma: pick where you compromise

A ledger wants three properties that are hard to get at once: **decentralized** (no single party runs it), **immutable** (no one can change history) and **scalable** (fast and cheap enough to use). Most chains today still have a weak spot.

- Bitcoin is very decentralized and very hard to change, but slow. You are not doing high-frequency trading on 10-minute blocks.
- Solana sits near the other end: very fast, also hard to change, but criticized as centralized, and it has had network-wide outages.

Decentralization is the property most often oversold. On October 20, 2025, an Amazon Web Services outage left Base, Coinbase's Ethereum layer-2 network, running at reduced capacity for hours, and disrupted the services many wallets use to read Ethereum and other chains. If your chain stops when one cloud provider has a bad day, it is not decentralized, however many transactions per second it handles. You might as well use ordinary rails.

Owning it yourself

Self-custody is a blessing and a curse. If you hold crypto in your own wallet, nothing sits between you and the asset, which is not true of your Walmart shares unless you hold a paper certificate. But lose the keys and there is no 1-800 number. Estimates of permanently lost bitcoin vary widely; Chainalysis put it at about 3.7 million coins in 2020, close to a fifth of all bitcoin mined at the time. If you know what you are doing, self-custody is excellent. If you do not, it is a risk.

The upside is portability and control. Memorize a seed phrase of 12 or 24 words and you carry your wealth in your head, across any border, and no one can take it from you. People call gold portable wealth; crypto is far more portable. That is also why it threatens people. Americans were barred from owning gold from 1933 to 1974. The financial system today can say no in small ways and large ones: I once had a Venmo payment held because I typed "Cuban" (the food) in the memo, and many people who work in crypto have been refused service by a bank. In 2022 the US and its allies cut major Russian banks off SWIFT and froze Russia's central-bank reserves held abroad. Being able to cut off bad actors is good; the question is what happens when you are the one judged a bad actor. Bitcoin is a regime change, and the incumbents of any regime are rarely happy about the next one. Keep that in mind when you read about it.

The honest cost of that freedom is anti-money laundering. Permissionless means anyone can send value outside the banking system, including drug cartels, and I do not have a clean counter to that.

Capital markets on top of bitcoin

The bitcoin treasury company is financial engineering worth studying whatever you think of bitcoin. Strategy (formerly MicroStrategy) began buying bitcoin in 2020 and from late that year funded much of it with **convertible bonds**: a bond with a call option on the stock attached. Selling converts was a way to monetize volatility. As volatility in bitcoin and in the stock came down, that option was worth less, and converts became a less efficient way to raise money.

So the company moved to **perpetual preferred stock**, in five flavors, each built for a different buyer: STRF (10%, cumulative, senior, positioned like long-duration credit), STRD (10%, **non-cumulative**, junior, positioned like high yield), STRC (a variable monthly rate set to keep the price near its \$100 par,

positioned like a short-duration cash product), STRK (convertible into common) and STRE (denominated in euros). Preferred stock suits the problem. Bitcoin pays no income and the software business does not come close to covering roughly \$800 million a year of preferred dividends and interest; but a company can skip a preferred dividend without defaulting, and on a non-cumulative issue the skipped dividend is simply gone. On December 1, 2025, Strategy announced a \$1.44 billion cash reserve, raised by selling common stock, which it said covered 21 months of dividends. It then held 650,000 bitcoin, about 3.1% of the 21 million that will ever exist. Copycats have followed for ether, solana and other tokens; how many succeed depends on how much investor demand there really is.

The same engineering happens without a company in the middle. **Decentralized finance** is what pulled me from trading and derivatives into this industry: around 2020 I watched a full capital market develop on-chain. Aave, the largest lending protocol, lets you deposit one asset and borrow another, for example deposit wrapped bitcoin and borrow USDC, a dollar stablecoin. On its main Ethereum market in late 2025 you could borrow up to about 73% of the value of wrapped bitcoin, with liquidation at 78%; borrowing at the limit is asking to be liquidated. Aave's net deposits, above \$50 billion during 2025, would rank it around 50th among US banks. Uniswap is the largest decentralized market maker; Hyperliquid runs perpetual futures. The use case is simple: people who made money in crypto want to buy a house or a car without selling.

One application gets too little attention: **micropayments**. Today's rails cannot move a fraction of a cent, and fees eat most payments under a few dollars. On a fast, low-fee chain, an unknown musician can be paid a fraction of a penny every time someone plays a song, and a thousand listeners playing it ten times a day adds up to something.

From early adopters to institutions

Bitcoin is changing hands, from early adopters to long-term institutional holders. As of early December 2025, Strategy and the US spot bitcoin ETFs, which launched in January 2024, held roughly 1.95 million bitcoin between them, close to one in ten coins mined. That week Vanguard reversed its long-standing position and let clients trade crypto ETFs, and Bank of America told its wealth advisors they could recommend a 1% to 4% allocation to digital assets. In October, JPMorgan said it would let institutional clients pledge bitcoin and ether themselves, not ETF shares, as loan collateral. A few governments, including the US by executive order in March 2025, now hold bitcoin as a reserve asset.

Scale those allocations against the world. At about \$1.8 trillion in early December 2025, bitcoin was roughly 1.4% of global equity value (about \$127 trillion at the end of 2024, SIFMA) and well under half a percent once you add bonds (about \$145 trillion) and real estate (about \$393 trillion, Savills). Much of today's volatility comes from that handover: a lot of buying and selling, with flows that do not always match. My expectation is that, as the handover completes, bitcoin's volatility and market value move toward gold's, because I think of it as digital gold.

When you judge the price, remember the unit. The dollar's purchasing power changes over time and across places; The Economist's Big Mac index exists because the same burger costs different amounts in different countries. Pricing an asset in what it buys, such as how many bitcoin a house costs, is often more informative than its dollar price.

Why bitcoin gets singled out

We were in a finance class, not an environmental class, and I want the planet to survive for my grandchildren. But miners use renewable power mostly because it is cheap and because they can do what almost no other industry can: switch off when the wind stops and on when it blows. You cannot run a hospital like that. It is a profit motive, and that is fine.

Every form of money costs energy to secure. Gold cost real work to mine, which is part of why it held value for thousands of years; the dollar left gold in 1971 and is now backed by the US financial system, its courts and its aircraft carriers, none of which run on air. Data centers as a whole used about 415 TWh of electricity in 2024 (IEA), roughly two to three times the estimates for bitcoin mining, and AI is the fastest-growing part. Some miners are already converting sites so they can host AI workloads as well as mine, with the choice driven by which pays more.

And inflation is a US-centric blind spot. Inflation here has been among the most manageable in the world. If you live where it runs far higher and your government will not let you hold gold or dollars, an asset you can own outright, with no one's permission, is a refuge.

Takeaways

- Separate the trade from the settlement. A blockchain's practical edge is that the two collapse into one event, final in minutes or seconds, wherever the counterparty sits.
- Every chain trades off decentralization, immutability and scale. Ask where a given chain compromises, and treat "decentralized" as a claim to test (a single cloud outage is a good test).
- Self-custody removes the custodian and the safety net together. If you take your own keys, learn to keep them.
- Read bitcoin treasury companies as capital-structure engineering. Ask which investor each instrument is built for and what happens to the dividend if the price falls.
- When you read a criticism, compare it with the same standard applied elsewhere, and ask who gains from the argument.

Go further

- Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2008), nine pages at bitcoin.org.
- Strategy Inc., annual report on Form 10-K (SEC EDGAR), for the terms of each preferred stock.
- IEA, *Energy and AI* (2025), on data-center electricity demand.

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