

“Cryptocurrencies, Decentralized Finance, and Key Lessons from the 2008 Financial Crisis”

Remarks by Acting Comptroller of the Currency Michael Hsu

Blockchain Association

September 21, 2021

Good afternoon and thank you for the invitation to speak today. I am pleased to be addressing the Blockchain Association, especially during this time of great change in the digital asset space.

Today, I would like to talk about innovation, purpose, and learning from the past. Innovation that is guided by clear purpose can bring enormous benefits. The problem of persistent inequality, for instance, could benefit greatly from purposeful innovation. Innovation for innovation’s sake, however, risks creating a mountain of fool’s gold. I have seen one fool’s gold rush from up close in the lead up to the 2008 financial crisis. It feels like we may be on the cusp of another with cryptocurrencies (crypto) and decentralized finance (DeFi). The 2008 crisis holds lessons that can help industry and regulators chart a better path and avoid repeating the mistakes of the past.

In 2004, I joined the Securities and Exchange Commission (SEC) to prudentially oversee the five major U.S. investment banks. Every month, my colleagues and I would meet with senior risk managers at Bear Stearns, Goldman Sachs, Lehman Brothers, Merrill Lynch, and Morgan Stanley. We had a front row seat to the rapid scaling up and industrialization of innovations in derivatives, securitization, and trading. We saw innovations that brought genuine improvements to clients and risk managers; but we also saw innovations that would imperil the firms that

promoted them and amplify the 2008 crisis. I see similarities with emerging risks in the crypto and DeFi space today.

To frame my remarks, I am going to start with a quote and a book recommendation. The quote is from philosopher/poet George Santayana who stated: “*Those who cannot remember the past are condemned to repeat it.*” The book, Fool’s Gold by Financial Times journalist Gillian Tett, was published a decade ago and tells the story of the rise of credit default swaps (CDS) and their role in the 2008 crisis.¹ All of your members, and anyone who believes in the potential of blockchain and digital assets to revolutionize banking and finance, should read it. It puts today’s situation with the propagation of crypto and DeFi into perspective and, I hope, will encourage innovators and leaders in the space to reexamine their efforts. Crypto/DeFi today is on a path that looks similar to CDS in the early 2000’s. Fortunately, this group has the power to change paths and avoid a crisis.

Part 1 of *Fool’s Gold*: Innovation

Innovation is exciting because it often begins with trying to solve an intractable problem and, in doing so, unlocking great potential.

In Fool’s Gold, Tett captures well the excitement that the swaps traders at JPMorgan felt when they met in Boca Raton in June 1994 and began innovating the credit default swap. At the time, it was nearly impossible to hedge the risk of a borrower defaulting. Shorting loans or bonds was difficult. Banks could not risk manage their credit exposures as effectively as they could their equities, foreign exchange, and rates exposures. What if there was a way to solve that problem and to make credit risk hedgeable? It would free up balance sheets and enable banks to

¹ Gillian Tett, Fool’s Gold: The Inside Story of J.P. Morgan and How Wall Street Greed Corrupted Its Bold Dream and Created a Financial Catastrophe (2010).

lend much more, to make credit more available. A member of the team recalled that the meeting in Boca Raton felt like the Manhattan Project, “being present at the creation of something incredibly important.”²

By the time I joined the SEC in 2004, innovation with credit derivatives had shifted to “correlation trading” and bespoke tranches. Advocates proselytized about how correlation was a new asset class and could provide investors with higher risk-adjusted returns. By trading bespokes, investors could make more money and take less risk.

These and other innovations relied heavily on math and financial engineering. The intellectual challenges and the money attracted the brightest minds from finance to physics. They believed that they were leading a financial revolution, creating an entirely new asset class, using an entirely different set of models.

Sound familiar? Today, I hear a lot about the great potential of blockchain, distributed ledger technologies and digital assets to “democratize” finance and banking. The origin story of bitcoin, captured in the beautifully written eight-page paper by the pseudonymous Satoshi Nakamoto, talks about protecting buyers and sellers from fraud, making possible “small casual transactions,” and building a system that allows willing parties to transact “without the need for a trusted third party” (i.e., a bank).³ Inside bitcoin’s genesis block, Nakamoto tucked the headline: “The Times 03/Jan/2009 Chancellor on brink of second bailout for banks.” In other words: *The banking system will always fail you; this is a better way.*

Many believe that crypto/DeFi can dramatically increase financial inclusion. The tagline for July’s B Word conference, headlined by Catherine Wood, Elon Musk, and Jack Dorsey, sums it up: “Bitcoin as a Tool for Economic Empowerment.” The Blockchain Association’s stated

² *Ibid.*, p 22.

³ Satoshi Nakamoto, “[Bitcoin: A Peer-to-Peer Electronic Cash System.](#)”

mission strikes a similar theme: “to co-create a digital future that’s transparent, inspiring, secure, and equitable.”

Today, programmers and coders, instead of quants and financial engineers, are the core innovators. Instead of Gaussian copulas, one needs to know hash functions and Byzantine Fault Tolerances. The promise is a financial system that is democratized, decentralized, and secure. No banks. No bailouts. No more being ignored or betrayed. As Jack Dorsey tweeted: “#Bitcoin will unite a deeply divided country (and eventually: world).”⁴

Those in traditional finance may laugh at this. But crypto/DeFi is able to pose a threat to the status quo because many people feel ignored, taken for granted, or exploited by banks, a topic I will return to later.

Part II of *Fool’s Gold*: Perversion

I recall when synthetic CDO-squared deals began hitting the Street in size. Dealer banks were re-securitizing existing CDOs, using a blend of CDS and funded positions. In some cases, the structuring bank was also the counterparty on the CDS trades with its own securitization vehicle.

Was this innovation? Or something different? Tett is blunt in her assessment. Part II of her book is titled, “Perversion.” The original idea – to create an instrument that could improve risk management and thus lower the cost of credit – had been turned onto itself, cloaked in impenetrable math and jargon, and supercharged with yield and fees to ensure growth. This was not innovation with a clear purpose. It was innovation for innovation’s sake.

This phenomenon was not limited to derivatives. Mortgages underwent their own innovation-to-perversion journey. By the mid-2000’s, borrowers could get a negative

⁴ <https://twitter.com/jack/status/1424854924194729984>.

amortization mortgage with no money down and limited documentation. This was made possible by insatiable investor demand for yield. It started with money market funds. To earn more than deposits, money funds invested in high yielding commercial paper. Those commercial paper issuers invested in CDOs, which invested in mortgage backed securities, which funded and packaged mortgage loans. To provide more yield to money fund investors, the underlying mortgages had to be riskier than the standard 30-year fixed rate mortgage.

Is crypto/DeFi innovation similarly morphing into perversion? As of last week, several exchanges were offering “stablecoin savings accounts” with annual percentage yields between 4 and 14.5 percent.⁵ For investors seeking even higher returns, a wide range of DeFi platforms offer staking, yield farming, or liquidity mining.⁶ All of these are marketed as passive investing plays. No active buying and selling is necessary.

How are the returns generated? It is hard to get straight answers that don’t quickly devolve into cryptospeak. If one follows the money, what lies at the end?

I find it both concerning and ironic that the crypto/DeFi space is replete with scams. Far from “protecting buyers and sellers from fraud” or facilitating “small casual transactions,” most innovation seems focused on enhancing trading. Crypto/DeFi solutions to problems in the real economy are rare.

Two stats made public last month should remind us all of who is exposed to crypto/DeFi today. Morning Consult did a poll focused on the unbanked and underbanked. When asked “Do you own a cryptocurrency?”, 10 percent of the fully banked answered yes, while 12

⁵ See, e.g., [BlockFi](#), [Crypto.com](#), and [Gemini](#).

⁶ See, e.g., Werner Vermaak, “[What Is Yield Farming?](#)”

percent of the unbanked and 37 percent of the underbanked answered yes.⁷ A Harris poll several weeks later asked the same question, with answers publicized by race: 13 percent of whites, 18 percent of African Americans, and 20 percent of Hispanics reportedly own crypto.⁸ To the extent there is fool's gold in the crypto space, some of those who are going to be hurt most are going to be those least able to bear it.

Part III of *Fool's Gold*: Crisis

The public and press use September 15, the day Lehman Brothers failed, to mark the anniversary of the 2008 crisis. For bank regulators and central bankers, though, the crisis started more than a year prior, in August 2007. That is when short-term, wholesale funding markets endured a run, a small bank in Germany had to be bailed out, and nearly every quant fund lost more money than they thought statistically possible, catching everybody by surprise. That is when the depth and scope of uncertainty and the interconnectedness of the financial system became real, transforming concern into fear. That is when central banks first injected unprecedented amounts of liquidity into the banking system to keep the financial system from freezing up.

Could a similar unraveling occur in the crypto/DeFi space? In terms of “known knowns,” a run on a large stablecoin could be highly destabilizing.⁹ Stablecoins are not the only potential trigger, however. Forks, hacks, rug pulls, vampire attacks, and flash loans all have the potential to surprise, erode trust, and spark fear.¹⁰ Thus far, the crypto/DeFi world has been able to

⁷ See Morning Consult, [“Banking the Unbanked Requires Raising Trust and Awareness. For the Underbanked, Better Service Means Payments Innovation.”](#)

⁸ See The Harris Poll (March 2021), [“Speculative Investing.”](#)

⁹ See, e.g., Bank for International Settlements, [“Investigating the impact of global stablecoins”](#) (October 2019), and Bank of England Speech, [“Stablecoins: What's Old is New Again”](#) (June 2021).

¹⁰ See World Economic Forum, [“Decentralized Finance: \(DeFi\) Policy-Maker Toolkit”](#) (June 2021).

withstand events such as the DAO exploit, the Compound oracle exploit, the SushiSwap vampire attack, the Polygon hack, and the Solana rug pull. Advocates would point to these as evidence of the trust-resilient nature of cryptocurrencies and decentralized finance. Perhaps. My hypothesis is that until recently, most users have been hardcore believers in the technology and thus are both understanding of the risks and willing to forgive them. As the scope and reach of crypto/DeFi expands, though, more mainstream users, with regular expectations of safe and sound money, will dominate and drive reactions. As every financial advisor says, “Past performance is not indicative of future results.”

Lessons

Fortunately, we can learn from the past. I believe there are three lessons in particular that would be wise to apply today:

First, financial innovation should be anchored in purpose. Be clear about the “why” – not just clear about the problem that needs to be solved, but also *why* it is important to solve it. Just because something can be innovated, doesn’t mean it should. “We need to meet client demand for correlation,” was a rationale I heard many times in the lead up to the 2008 crisis. Meeting that demand created vulnerabilities in the financial system and amplified shocks.

Increasing financial inclusion is cited often as a goal of crypto/DeFi advocates. I strongly support the goal of increasing financial inclusion. It aligns with my priority for the OCC of reducing inequality and with the OCC’s Project REACH.¹¹ It is difficult to see how the current set of activities is achieving that goal, however. How is crypto/DeFi making it less expensive to

¹¹ See OCC News Release 2021-97, “[Acting Comptroller Discusses Priorities, Safeguarding Trust in Banking](#),” and [Remarks by Acting Comptroller Hsu on The Promise of Project REACH](#) (July 15, 2021).

be poor? How is it helping to expand access to banking services and credit? How is it making housing more affordable and building long-term wealth?

Second, speak up. One of the most interesting parts of Tett’s book is her analysis of the “social silence” around derivatives, which suppressed scrutiny, debate, and common sense.

*The situation was akin to that of the European medieval church: although almost nobody in the congregation really understood the financial Latin in which the service was being conducted, few rebelled, because they were receiving blessings. The congregation was mystified, but it accepted that the priests were the keepers of the faith.*¹²

Not all are mystified and silent, of course. Some have raised difficult and inconvenient questions. For instance: What differentiates the core blockchain developers from fiduciaries in banking?¹³ Why isn’t miner extractable value seen as front-running?¹⁴ Others have pointed out that “trustless” and “immutable” are false descriptors of blockchains and that much more thought needs to be dedicated to clarifying blockchain governance and crypto law in order for the technology to succeed and thrive in the long term.¹⁵ Such voices and questions may slow growth and profits in the short term, but will help ensure better and more sustained innovation in the long term.

Third, follow the money. One thing I have learned as a banking supervisor is that the most important task when overseeing a trading desk is being able to explain how money is made

¹² Tett, p. xiv.

¹³ See, e.g., Angela Walch, “[Cryptocurrencies: What are they good for?](#),” Testimony before the Committee on Banking, Housing, and Urban Affairs, United States Senate (July 27, 2021).

¹⁴ See, e.g., Philip Daian et al., “[Flash Boys 2.0: Frontrunning, Transaction Reordering, and Consensus Instability in Decentralized Exchanges](#),” (April 10, 2019).

¹⁵ See, e.g., Vlad Zamfir, “[Against Szabo’s Law, For A New Crypto Legal System](#)” (January 26, 2019).

and lost. I have seen my share of trading blow-ups over the years. While the causes have varied, in each and every case, the ability to explain profits and losses broke down at some point.

How is money being made and lost in crypto/DeFi? For the industry to grow in a responsible way, there needs to be a straightforward way to answer this question. It cannot be cloaked in jargon if it is to build trust and resilience over time.

Conclusion

I will close by circling back to the Santayana quote: “*Those who cannot remember the past are condemned to repeat it.*” The crypto/DeFi world’s past, whether you accept it or not, is derivatives.

In the early days of derivatives and CDS trading, industry leaders understood that regulation and central clearing could constrain growth and profits. ISDA and similar groups were formed to develop standards. The Group of Thirty published a detailed report on best practices. Ultimately, though, industry players were unwilling to concede or compromise growth and profits. The standard-building initiatives were used to forestall regulation. After large derivatives losses by Gibson Greetings and Orange County in 1994, four bills circulated in Congress to regulate derivatives. None passed, due to the successful lobbying efforts of the pro-derivatives industry. Over a decade later, a mountain of fool’s gold would be created and then rapidly destroyed.

You, “the reputable members of the U.S. blockchain and cryptocurrency industry,”¹⁶ have an opportunity to do things differently. I applaud your commitment “to *responsibly* building and investing in the next generation of digital services.” If you apply the lessons from the 2008

¹⁶ [The Blockchain Association](#).

crisis – anchor innovation in clear purpose, foster an environment for skeptics to speak up, and follow the money – the risks of fool’s gold can be mitigated and the real promise of blockchain innovation can be achieved.