

Acting Comptroller of the Currency Michael J. Hsu

Remarks at DC Fintech Week 2022

“Skeuomorphism, Commingling, and Data Gaps in Crypto”

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Thank you, Chris, for inviting me to speak at this year’s DC Fintech Week conference. I’m honored to be here to open one of the leading gatherings globally of academics, officials, and practitioners focused on financial technology and regulatory issues.

A lot has happened in the crypto space since last year’s conference.

Back then, the crypto industry seemed unstoppable. Financial regulators were working to keep up with the pace of change. On some days, it felt like the primary risk facing us was the risk of being left behind.

Today, things are different. The collapse of Terra, the associated crash in crypto markets, and the demise of numerous platforms exposed severe weaknesses in the risk management practices at a range of crypto firms.¹ The events also revealed the scope of risks to consumers, the hidden interconnectedness between many crypto participants, and the risk of contagion.²

To protect consumers and the financial system, regulators must be able to identify and monitor crypto risks efficiently and effectively. With my time this morning, I’ll be discussing three lenses, which may help that risk identification.

¹ [Why the 2022 ‘crypto winter’ is unlike previous bear markets](https://www.cnbc.com) (cnbc.com)

² Financial Stability Oversight Council, [Report on Digital Asset Financial Stability Risks and Regulation](https://www.treasury.gov) (2022) (treasury.gov)

Lens #1: Skeuomorphism: Bridge or Disguise?

The crypto industry arose out of a desire to disrupt and disintermediate the traditional financial system (“TradFi”).³ Yet, crypto has mimicked TradFi concepts to market itself and grow.⁴

This reliance is understandable. Few know what a distributed ledger is, let alone how it can store and transmit value. But everyone is familiar with a bank deposit and many are invested in stocks and bonds. Referencing or analogizing to what is familiar can help make what is novel less scary to newcomers. Once users engage, the theory goes, they can then discover, learn, and use what is actually new.

This approach has a name: skeuomorphism.⁵ Skeuomorphism is a design concept that was generalized and made popular by tech leaders like Steve Jobs at Apple.⁶ When the iPhone was released in 2007, it was novel. The public at the time was used to mobile devices with physical buttons and maybe a scroll wheel. Apple faced a challenge. How would it get consumers to interface with a touchscreen?

Apple designed certain functions to look familiar, even though it did not have to. The keypad and keyboard, clockface, calculator, and other features looked and operated like traditional devices. These skeuomorphic designs enabled the uninitiated to pick up the iPhone

³ [Bitcoin: A Peer-to-Peer Electronic Cash System](https://bitcoin.org) (bitcoin.org)

⁴ [Joint Letter Regarding Potential Violations of Section 18\(a\)\(4\) of the Federal Deposit Insurance Act](https://www.federalreserve.gov) (federalreserve.gov)

⁵ [What is skeuomorphism? - Definition from WhatIs.com](https://www.techtarget.com) (techtarget.com); [Tokens: A New Digital Primitive](https://www.future.com) (future.com)

⁶ [Steve Jobs's Signature Design Style](https://www.businessinsider.com) (businessinsider.com)

and use it immediately, without having to invest time and energy learning how to use a whole new kind of technology.

In short, skeuomorphic design helped bridge the past to the future. Technically, it was not necessary and, to some Apple engineers, probably seemed unduly dumbed down. But to the public, the device's interface was intuitively understandable, which made it immediately usable and provided a path for rapid adoption.

In this example, skeuomorphism served as a bridge, which was positive—a catalyst for transformational change. This may be how crypto advocates see crypto's reliance on skeuomorphic TradFi concepts.

The problem, however, is that crypto is not TradFi. The skeuomorphic representations are, at best, facades. The real thing is quite different.

Take, for example, something as simple as ownership. Owning a traditional asset like a stock or a bond is well understood and clear. The legal frameworks for establishing ownership, exercising control, and perfecting a security interest are well developed and have been pressure tested. Representations of ownership—via bank and brokerage statements, for instance—are fairly standardized and familiar, due in part to a host of disclosure and investor protection rules.⁷ Crypto borrows heavily from this. The language and online experience of owning and trading crypto matches that of traditional assets. The reality, however, is very different. When you buy crypto through an app or a centralized exchange, what exactly do you own? Where is *your*

⁷ [17 CFR § 240.10b-10 - Confirmation of transactions](#) (law.cornell.edu); [FINRA Rules 2200. COMMUNICATIONS AND DISCLOSURES](#) (FINRA.org)

private key?⁸ Is possession of the key the same as ownership?⁹ How does one distinguish between possession and control?¹⁰ These are foundational issues, yet the crypto industry’s skeuomorphic tendencies elide these basic questions, which need to be answered if the industry wants to mature and sustainably scale.

Custody is another example of the industry’s reliance on skeuomorphism. In TradFi, custody is well defined. Customers know what they are getting when they ask a custodian bank to safekeep traditional assets. The scope of those custodians’ responsibilities and the legal frameworks and operational requirements for establishing ownership, demonstrating control, transferring, rehypothecating, and safekeeping assets are well known.

The same cannot be said of certain crypto custodians.¹¹ The manner in which centralized crypto exchanges, trading and payment apps, and others “custody” their customers’ crypto “holdings” is quite different from what banks and brokerages do for their clients in TradFi. Under most centralized crypto platform agreements, user assets are commingled directly with platform assets—a practice that would not be acceptable or deemed to constitute custody in TradFi.¹² While customers could read each crypto platform’s terms of use, those platforms’

⁸ Private keys are used to demonstrate control over a digital wallet and, by extension, prove ownership of crypto-assets. When crypto-assets are stored in a custodial wallet, such as through a crypto exchange, consumers generally access their assets through logging into the exchange’s platform with, for example, a user ID and password. On-platform assets are often held in omnibus wallet(s) associated with the exchange rather than the consumer (i.e., individual customers do not receive private keys). As such, it is uncertain whether customers own discrete units of crypto assets associated with the exchange’s wallet or whether account balances represent a claim against the crypto platform and the pool(s) of crypto-assets associated with wallets for which it manages the private keys. This uncertainty may be confounded by lack of industry standards around practices such as segregation of client assets from corporate-owned assets. [What Is a Private Key in Crypto?](#) (titan.com)

⁹ [Tokenization and the Law: Legal Issues with NFTs](#) (natlawreview.com)

¹⁰ UK Law Commission, [Digital Assets Consultation Paper](#), chapters 16-17 (July 28, 2022)

¹¹ Levitin, Adam J., [Not Your Keys, Not Your Coins: Unpriced Credit Risk in Cryptocurrency](#) (August 26, 2022), *Texas Law Review*, Vol. 101, 2022.

¹² Levitin, [Not Your Keys, Not Your Coins](#), *supra*. See also 12 USC 92a(c) (requiring national banks exercising fiduciary powers to segregate all assets held in a fiduciary capacity from the general assets of the bank);

descriptions of their “custody” arrangements make something novel and complex feel as familiar and safe as TradFi.

Another example of skeuomorphism in crypto are “crypto savings accounts.” Until recently, platforms like Celsius and Voyager Digital encouraged consumers to “unbank” themselves¹³ and promised rewards for crypto-assets “deposited” onto their platforms.¹⁴ Returns were paid in additional units of crypto and sometimes referred to as “yield,” quoted in terms of “APY,” borrowing a banking term with a regulation behind it and the suggestion of a stable, predictable return. In some cases, users were assured that they could reclaim their assets at any time, even if the crypto firm failed.¹⁵

As many are now learning the hard way, the risks of these arrangements are materially different than their representations.

In these examples, skeuomorphism is not a bridge, but a disguise. Using the familiar to introduce something novel can downplay or mask the risks involved and establish false expectations. In time, people get hurt. I encourage everyone to read the letters that Celsius clients sent to the bankruptcy judge¹⁶ in its ongoing case, to get a sense of the real-world impacts when skeuomorphic marketing gives way to harsh reality.

Lens #2: “Integration”: Efficiency or Commingling?

Comptrollers’ Handbook, [“Custody Services”](#) (banks should ensure custody assets are segregated from bank assets). The commingling of assets is more akin to TradFi prime brokerage than it is to TradFi custody.

¹³ “Unbank yourself” was Celsius’s slogan but has been removed from its website since filing bankruptcy.

¹⁴ [Voyager | Earn Program](#) (investvoyager.com), accessed October 6, 2022.

¹⁵ [Joint Letter Regarding Potential Violations of Section 18\(a\)\(4\) of the Federal Deposit Insurance Act](#) (fdic.gov)

¹⁶ See <https://cases.stretto.com/Celsius/court-docket/#search>

In addition to being the Acting Comptroller of the Currency, I am a member of the Financial Stability Oversight Council (FSOC). My views on financial stability issues are highly informed by my experiences as a financial regulator during the 2008 financial crisis.

This past July, FTX, one of the largest centralized crypto exchanges in the U.S., submitted a presentation to the FSOC in response to outreach on the digital assets Executive Order.¹⁷ The arguments in the presentation caught my attention because they presumed that integrating crypto and TradFi would enhance finance stability.

I could not disagree more.

Crypto today is an immature industry based on an immature technology. I am not saying this disparagingly. In a recent interview, Vitalik Buterin, the founder of Ethereum, called crypto today a “nascent baby.”¹⁸ The promises of programmability, composability, and tokenization are intriguing and could, in theory, help solve a range of problems in the financial system while unlocking significant efficiency and economic potential.¹⁹ But that promise cannot mask the lack of clarity on basic things like ownership, the ever-changing landscape of consensus mechanisms and technology, and the unabating volume of scams, hacks, and fraud.

Integrating an immature crypto industry with a mature TradFi system without guardrails and gates would be imprudent.²⁰ Any incremental gains in efficiency and convenience would be heavily outweighed by the increase in cross-contagion and systemic risk.

¹⁷ [FTX Presentation to the U.S. Financial Stability Oversight Council](https://ftxpolicy.com) (ftxpolicy.com)

¹⁸ Klein, E. (Host). (2022, September 30). Ezra Klein Interviews Vitalik Buterin [Audit podcast episode]. In *The Ezra Klein Show*. The New York Times. [Transcript: Ezra Klein Interviews Vitalik Buterin](https://www.nytimes.com/2022/09/30/podcasts/ezra-klein-interviews-vitalik-buterin) (nytimes.com).

¹⁹ BIS, “[Annual Economic Report](#)” Chapter III, The Future Monetary System (June 2022).

²⁰ Acting Comptroller Michael J. Hsu, [Cryptocurrencies, Decentralized Finance, and Key Lessons from the 2008 Financial Crisis](#) (September 21, 2021).

Even integration *within* the crypto industry itself warrants attention from financial stability regulators. The largest crypto players today want to provide an increasingly broad range of services seamlessly under one roof for their customers: digital wallets; buying and selling crypto; crypto custody; staking crypto for yield; crypto margin lending; trading crypto derivatives; holding fiat; borrowing and payments with a credit card; direct deposit of paychecks; facilitating peer to peer payments; issuing stablecoins; and creating, collecting, and connecting to NFTs.²¹

While commingling these activities may offer convenience for consumers and cost savings for crypto firms, conflicts abound and the riskiest activity threatens the whole bundle.²² Consider the recent failures of Three Arrows Capital, Celsius, and Voyager Digital. All three engaged in a range of crypto activities, from crypto custody to borrowing and lending to proprietary trading.²³ Each failed due to imprudently managed concentrations of risk—essentially prop trading bets, which only became fully evident after the bankruptcy filings began. They were only as strong as their weakest link. The more links there are under a single platform, the higher the risk of contagion across them.

For the financial regulators in the room, a skeuomorphic description may help put this in perspective. The risk of contagion within a crypto platform is akin to the probability of default (PD) of a bank. The risk of cross-contagion between crypto and TradFi is akin to the loss given

²¹ Bankman-Fried, S. [SBF_FTX]. (2022, July 30). FTX range of products, including stocks, crypto, credit card deposits, FTX card, direct deposits, P2P payments [Tweet] Retrieved from https://twitter.com/SBF_FTX/status/1553459861408677888

²² Chairman Gary Gensler, [Kennedy and Crypto](#) (September 8, 2022)

²³ [Inside Celsius: How One of Cryptos Biggest Lenders Ground to a Halt](#) (ft.com)

default (LGD). The systemic risk posed by crypto is PD times LGD. To mitigate systemic risk, PD and LGD need to be limited.

In layman's terms, until crypto matures and appropriate guardrails and gates are put in place, it would be wise to limit the scope of activities commingled within a single crypto firm—a limit on the PD—and to limit integration of crypto and TradFi—a limit on the LGD.

Lens #3: Data

Step one of risk management is to identify risk. Looking for skeuomorphism and commingling may generate productive results in this regard. Step two of risk management is to monitor risk.

To date, regulators have relied on supervisory processes to monitor banks' exposures to crypto and to gain visibility into their crypto activities. At the OCC, institutions seeking to engage in any of the crypto-asset activities that we have determined are permissible must first obtain a supervisory non-objection.²⁴ To receive a non-objection, an institution must demonstrate that it can conduct the proposed activity safely, soundly, and fairly. The FDIC and Federal Reserve have adopted a similar approach, helping to maintain a level playing field across the banking system.²⁵

While this approach has been effective in monitoring banks' crypto-related activities, further enhancements may be needed to track the risk of cross-contagion. A structured and recurring gathering of quantitative data focused on the nexus between banks and crypto could

²⁴ [OCC Interpretive Letter 1179](#) (November 18, 2021)

²⁵ [FDIC FIL-16-22 Notification of Engaging in Crypto-Related Activities](#) (April 7, 2022); [Federal Reserve SR 22-6 / CA 22-6 Engagement in Crypto-Asset-Related Activities by Federal Reserve-Supervised Banking Organizations](#) (August 16, 2022)

help ensure that regulators have an accurate and complete view of the risk. The OCC is considering ways to support periodic and ongoing information gathering so that we can continue to understand the prevalence and scope of crypto-asset exposures and interconnectedness at our supervised institutions.

In addition, gathering data from crypto firms and platforms on *their* activities with TradFi institutions (like banks) would give financial stability regulators a fuller picture of what's going on, thus enabling more effective surveillance of financial stability risks. In the U.S., such monitoring could be conducted by the Office of Financial Research (OFR). Given the borderless nature of crypto, international coordination on this front could also be warranted and helpful to consider.²⁶

Conclusion

My job as a bank regulator and member of the FSOC is to identify risks to banking and to the financial system. With crypto, looking for skeuomorphisms, commingling, and data gaps can help in that endeavor.

Until crypto matures, we need to be careful and cautious in how we allow TradFi and crypto to interact. Some have argued that “bringing crypto into the regulatory perimeter” would help tame it. It depends on whose terms it is brought in. Later today, I will be providing remarks to Harvard Law School and the Program on International Financial Systems. There I will explore this topic in more detail and argue for an approach that utilizes guardrails and gates.²⁷

²⁶ [Basel Committee on Banking Supervision Second Consultation on the Prudential Treatment of Cryptoasset Exposures](#) (June 2022); [Basel Committee on Banking Supervision Consultative Document on the Prudential Treatment of Cryptoasset Exposures](#) (June 2021); [FSB Statement on International Regulation and Supervision of Crypto-asset Activities](#) (July 11, 2022)

²⁷ See the OCC [Newsroom | Speeches](#) for these remarks.