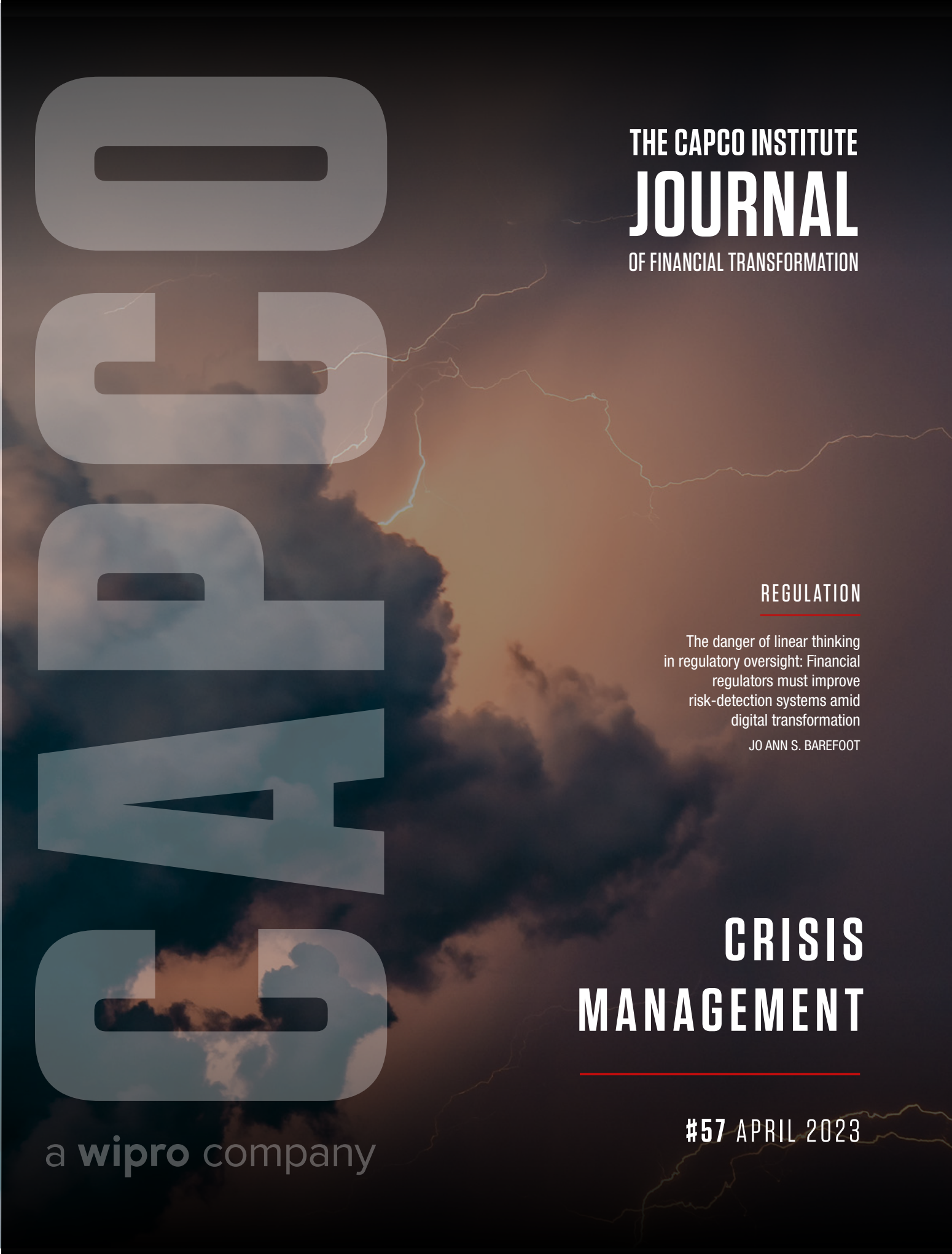

CAPCO

a wipro company

THE CAPCO INSTITUTE

JOURNAL

OF FINANCIAL TRANSFORMATION

REGULATION

The danger of linear thinking in regulatory oversight: Financial regulators must improve risk-detection systems amid digital transformation

JO ANN S. BAREFOOT

CRISIS MANAGEMENT

#57 APRIL 2023

THE CAPCO INSTITUTE

JOURNAL OF FINANCIAL TRANSFORMATION

RECIPIENT OF THE APEX AWARD FOR PUBLICATION EXCELLENCE

CONTENTS

FINANCIAL

REGULATION

ESG

DEAR READER,

Recent events in the U.S. banking sector, and broader concerns around instability and contagion within the global financial services industry, have meant that crisis management is once more front of mind for many institutions.

In addition, the world of business and finance is facing broader geopolitical and socioeconomic challenges, ranging from conflict, climate change, inflationary pressures, and precarious energy resources. Factor in heightened regulatory and competitive pressures, and it becomes clear that financial institutions must prioritize risk management, within their own organizations and with their counterparties.

The papers in this edition of the Journal address the theme of crisis management through various lenses, including regulatory compliance and traditional risk management, as well ESG, the low carbon economy, and sustainable finance. Our authors also explore topics such as the impact of social change on the world of finance, the rise of artificial intelligence and virtual reality technologies, and cybersecurity.

Contributions in this edition come from a range of world-class experts across industry and academia, and showcase some of the very best expertise, independent thinking, and strategic insights within the financial services sector.

As ever, I hope that you find the latest edition of the Capco Journal to be engaging and informative. Thank you to all our contributors, and thank you for reading.

Lance Levy, **Capco CEO**

THE DANGER OF LINEAR THINKING IN REGULATORY OVERSIGHT: FINANCIAL REGULATORS MUST IMPROVE RISK-DETECTION SYSTEMS AMID DIGITAL TRANSFORMATION

JO ANN S. BAREFOOT | CEO, Alliance for Innovative Regulation[1]

ABSTRACT

In a much-covered speech in Washington D.C. in the fall of 2022,[2] Federal Board Vice Chair for Supervision Michael S. Barr drew parallels between the risks that accumulated before the 2008-2010 mortgage meltdown and the more recent explosion in financial innovation. Barr noted that innovation "supported by new technologies can disrupt traditional providers by spurring competition, creating products that better meet customer needs, and extending the reach of financial services and products to those typically underserved." But to achieve those outcomes, he warned, "we need to manage the relevant risks." At the tail end of the financial crisis, Barr was an official in the Obama administration's Treasury Department, and a central figure in the drafting of the post-housing-crisis regulatory restructuring known as the Dodd-Frank Act. That law reshaped much of how U.S. financial institutions are supervised and was mirrored by other nations that enacted their own reforms. The changes aimed to allow regulators to detect colossal risks before it was too late to prevent a future crisis of similar proportions. "We have seen through history that excitement over innovative financial products can lead to a pace of adoption that overwhelms our ability to assess and manage underlying vulnerabilities," Barr said in October 2022. "As we saw in the lead up to the global financial crisis, innovative financial products can mask emerging risks, resulting in significant harms to businesses and households and ultimately undermining financial stability." Unfortunately, the early-defense systems established by the U.S. and other countries were meant for the financial system of 2010. Nearly thirteen years later, financial innovation precipitated by digital technologies such as artificial intelligence and the blockchain is leading to a continual transformation of how we move, manage and exchange money, making this equation starkly different from what regulators encountered in the financial crisis.

1. INTRODUCTION: NEW FINANCIAL TECHNOLOGIES, NEW RISKS

Among regulators, the potential for risks resulting from more recent financial innovation[3] – both to consumers and financial stability – going undetected overshadows the benefits promised by these new technologies. This is because regulators, while making progress to understand and adapt to digital transformation, are still not equipped to manage and oversee exponential change.[4]

[1] Jo Ann Barefoot is CEO and cofounder of the Alliance for Innovative Regulation, host of the global podcast show Barefoot Innovation, and Senior Fellow Emerita at the Harvard University Kennedy School Center for Business & Government. She has been Deputy Comptroller of the Currency, Partner at KPMG, Co-Chairman of Treliant Risk Advisors, and a staff member at the U.S. Senate Banking Committee.

[2] https://bit.ly/3KDQKj7

[3] https://bit.ly/3ElfbrH

[4] https://bit.ly/3SyjFa4

Like other congressional overhauls, Dodd-Frank targeted risks seen as responsible for the preceding crisis,[5] including low capital levels, systemic contagion, and regulatory blind spots. But 13 years after its passage, the financial services and technology landscapes look wildly different.

The landmark law has in many respects become outdated.[6] It made some strides in narrowing the regulatory playing field between banks and certain nonbanks, but the industry is dotted with a whole array of unregulated providers that did not exist when Dodd-Frank was passed. A new generation of nonbank lenders, payment providers, cryptocurrency firms, and other nontraditional financial players now rival traditional banks.

While financial innovation offers hope of greater efficiency, inclusiveness, and fairness, there are also concerns that consumers are not adequately safeguarded against abuse by providers that are either unregulated or subject to lighter supervision than banks. There is also concern that private data is increasingly vulnerable to hacking and other misuse, and that new financial instruments are untested and susceptible to massive losses.

1.1 Racing to catch up to exponential change

Recent high-profile collapses of crypto companies such as FTX have already demonstrated the price to be paid when firms lack adequate risk management and internal controls.[7] Such episodes have only had a limited impact on financial stability to date, but risks will continue to grow as innovators introduce new financial services channels through the metaverse and Web 3.0, crypto sheds its growing pains and seeps more into the mainstream, companies increasingly adopt artificial intelligence and machine learning, and the line blurs between bigtech and the financial services sector. Unlike linear processes, technology innovation advances exponentially.[8] As different as the environment looks today compared to when Dodd-Frank passed, changes will likely take shape even faster tomorrow.

If the past is any guide, policymakers are unlikely to pass new laws to address risks before crises happen. Consequently, it is imperative for the regulators to move aggressively on their own to assess and adapt to the digital landscape. This means incorporating cutting-edge supervisory technology (suptech)[9] powered by customized AI, which will allow them to analyze mountains of data. But the agencies themselves are still powered by technology stacks that are largely analog, making it very difficult for them to keep pace with the digital transformation of the industry that they oversee.[10]

Unless regulatory agencies can close the gap by more aggressively adopting technological tools and embracing a digital-native foundation, it is unlikely that the emerging risks from a new generation of financial products can be contained before a new crisis emerges.

2. THE REGULATORY SYSTEM IS RESPONSIVE, NOT PROACTIVE

Throughout history, public figures from John F. Kennedy to Rahm Emanuel have often labeled difficult crises as potential opportunities to trigger massive reforms. When he was still a senator, in 1960, Kennedy noted in a speech that the Chinese translation of the word "'crisis' is composed of two characters – one representing danger and one representing opportunity."[11] In 2008, with the mortgage system cratering, Emanuel famously said after being named President Obama's chief of staff: "Never allow a good crisis go to waste. It's an opportunity to do the things you once thought were impossible."[12]

Emanuel's words presaged the passage two years later of Dodd-Frank, the most sweeping overhaul of the U.S. financial regulatory system in a generation. The European Union also embarked on its own post-crisis regulatory overhaul,[13] and the Basel Committee on Banking Supervision went back to the drawing board on crafting international capital rules,[14] after the crisis proved that the previous capital accord was insufficient.

[5] https://bit.ly/3ZIOINW
[6] https://bit.ly/3Z4xRKs
[7] https://on.mktw.net/41zbbDK
[8] https://bit.ly/3lZiNbt
[9] https://bit.ly/3KEx2DX
[10] https://bit.ly/3lYEEja
[11] https://bit.ly/3ZoXdCK
[12] https://wapo.st/3mcE2h6
[13] https://bit.ly/3mdvCWR
[14] https://bit.ly/41txgnb

The 2008 crisis was not the first dislocation of the financial markets to spur a ramp-up in policy activity. Indeed, policymakers have proven that they are adept at responding to crises – more perhaps than they are at identifying approaching risks and establishing mechanisms beforehand, during relative calm, to prevent potential crises from occurring in the first place.

Much of the U.S. financial policy framework grew out of the 1930s era of the Great Depression, including the creation of the Federal Deposit Insurance Corporation (FDIC),[15] Fannie Mae,[16] Federal Housing Administration (FHA),[17] and other agencies. Further reforms followed the savings and loan crises of the late eighties and early nineties.[18] In 2002, the U.S. Congress passed the Sarbanes-Oxley Act,[19] overhauling accounting regulations in the wake of the scandals that brought down companies such as Enron and WorldCom.

2.1 Successes of traditional regulation

This responsive approach to combating risks has had some successes. With some exceptions – namely the statutory changes during the thrift crises – post-crisis reforms have been followed by a period of calm. The creation of the FDIC greatly reduced the deposit runs that defined banking crises during the Depression,[20] while Fannie Mae and the FHA provided stability to the U.S. mortgage system.[21] In the two decades since Sarbanes-Oxley, accountants and auditors are better positioned to sound the alarm about inflated assets. Dodd-Frank could be deemed successful by the same metric – that is, no crisis comparable to 2008-2010 has occurred in the years since its passage.

The law is often criticized on the left for not going far enough, and on the right for worsening regulatory burden. Yet, Dodd-Frank's prudential reforms resulted in significantly higher capital levels at the largest U.S. banks, which some commentators argue helped them weather the economic effects of the COVID-19 pandemic.[22]

2.2 How traditional financial institutions are protected from erratic markets

Regulators' success at combating risks is sometimes measured by how well traditional financial institutions are protected by their FDIC safety net from the failures of unregulated firms. The 1930s-era Glass-Steagall Act erected firewalls between commercial banking and other financial activities, which were removed during the deregulation of the 1990s.

Following the financial crisis, Dodd-Frank did not reinstate those firewalls.[23] However, supporters of the law point to certain provisions that they say provide an added layer of protection for traditional financial institutions against uncertainty in more erratic markets, such as that for the shadow banks. For example, the Volcker Rule prohibited banks from using FDIC-backed deposits to engage in proprietary trading and was seen by supporters as a defense against systemic shocks resulting from nonbank losses.[24]

In 2015, then-Securities and Exchange Commission member Kara M. Stein gave a speech saying that "the Volcker Rule has a critical role to play in promoting financial system resilience – or the ability of the financial system to withstand stress."[25] "Specifically, by limiting the ability of banks to take large and risky bets on behalf of their own bank, the Volcker Rule acts to limit the correlation between our largest dealer-banks and the markets they serve," Stein said. "This, in turn, provides a buffer when markets behave in ways even the best models do not predict. This is especially important in U.S. markets, where dealer-banks play a large role in credit intermediation."

2.3 Our fragile stability

Despite the track record of legislators and regulators to be crisis responders, they have performed less well at preparing regulatory systems for new business models and risks that plant the seeds of future crises. In his speech last year, Barr noted that financial innovations can have negative results if not combined with consumer protections and other safeguards: "These products can leave consumers vulnerable if they are not coupled with meaningful disclosures and basic protections

[15] https://bit.ly/3Zoge8f
[16] https://bit.ly/2MKtO1W
[17] https://bit.ly/3Z4Gu83
[18] https://bit.ly/3EJWggm
[19] https://bit.ly/3mdBgYX
[20] https://bit.ly/3Y57Nha
[21] https://bit.ly/2ERX2co
[22] https://bit.ly/3J1CvU9
[23] https://bit.ly/3Z7GUui
[24] It was named after the former Federal Reserve Board Chair Paul Volcker, who first proposed the ban.
[25] https://bit.ly/3Zly5wu

against abusive practices," he said. "Innovation can lead to disruptions of existing markets, which may be beneficial, but may also generate new systemic risks."

The most visible test currently of financial markets' capacity to withstand risks is in how they weather the high-profile failures of several crypto firms, most notably FTX. However, a full-blown crisis is still at bay. The broader financial system's exposure to the recent crypto storm is still relatively limited,[26] given that the crypto industry is still seen as a niche part of the global financial markets.[27] In September 2022, the Basel Committee on Banking Supervision reported that fewer than 20 banks worldwide held crypto assets.[28]

Yet, if Dodd-Frank initiated a period of stability, that stability has become fragile as the financial sector becomes transformed by digital technology. With the emergence of new startups, the financial services ambitions of bigtech firms,[29] and rapid development of AI,[30] the industry looks quite different than it did 13 years ago. The bigger test for the regulators is how they establish mechanisms to deal with the less visible risks borne of the exponential growth of new technologies in the financial services arena.

2.4 Unforeseen risks

In 2020, the academics Robert S. Kaplan, Herman B. Leonard, and Anette Mikes published an article in the Harvard Business Review,[31] in which they said that standard risk management systems cannot account for risks that they cannot foresee. "Risks come in many forms and flavors. Companies can manage the ones they know about and anticipate," they wrote. "But novel risks – those that emerge completely out of the blue – will arise either from complex combinations of seemingly routine events or from unprecedentedly massive events."

As digital innovation reshapes the world of finance, such novel risks will likely start appearing faster than regulators can respond to them. What is required to avert the next financial crisis is a full-fledged effort by the regulatory community to understand and adapt to new technologies.

3. THE DANGER OF LINEAR THINKING

The futurist Ray Kurzweil famously said: "Our intuition about the future is linear. But the reality of information technology is exponential, and that makes a profound difference. If I take 30 steps linearly, I get to 30. If I take 30 steps exponentially, I get to a billion."[32]

The biggest obstacle for regulators to adapt to digital change is that the traditional analog rails that they have used – along with traditional finance – to improve processes over time just do not apply in the digital world. That is because technology evolves exponentially.

Policymakers attempt ambitious reforms of regulatory processes about once every few decades. Following the financial crisis, Dodd-Frank seemed pretty momentous for a legal statute, and it remains the last important structural reform to this day. It is perhaps significant that, before Congress was consumed by writing this law spanning over 2,300 pages, Bitcoin was already born. It was just a year old,[33] in its infancy; not even on the lawmakers' radar. Now compare that with how fast technology changes. For the entire 20th century, copyrighted music was represented by physical copies of vinyl records, cassette tapes, and compact discs. Digital files for music entered the mainstream with Apple's introduction of the iPod in 2001. Just two decades later, iPods seem[34] like a relic and we are all telling Alexa and Siri to play our favorite songs. Apple recently announced it would stop producing the iPod.[35]

3.1 Closing the digital gap with financial technology

In financial technology, this example can be seen in payments tools. In 2014, the U.S. had yet to implement chip-enabled credit cards.[36] Today, just eight years later, carrying a credit card is becoming passé, as smartphones, smartwatches, and even biometrics allow users to purchase goods.[37] Over time, technologies such as the blockchain, Web 3.0, metaverse, AI, and quantum computing will continue to reshape financial services.

[26] https://bit.ly/3Y5GxiC
[27] https://bit.ly/3YYuEMx
[28] https://bit.ly/3mdZGBL
[29] https://bit.ly/2VmrP6b
[30] https://bit.ly/3EJ9Pwn
[31] https://bit.ly/3lWI2Ls
[32] https://bit.ly/3SyCr18
[33] https://bit.ly/3Z4LxW3
[34] https://bit.ly/3SC3f0z
[35] https://nyti.ms/3kDFgRV
[36] https://bit.ly/3me7CTc
[37] https://bit.ly/41vws1f

Regulators have made notable progress in recent years to establish innovation-focused units, hire technology experts, and issue guidance to their regulated institutions about the risks of working with newer types of financial entities such as crypto firms. But the rate at which digital technology is accelerating continues to be many degrees faster.[38]

For agencies to close the digital gap, they will need to replace their tendency to think linearly with newfound strategies to combat the risks arising from exponential change in the technology and the financial services sector. The first step is to modernize the technology – the industry's and their own – to digitize as much information as possible and to make it accessible in full volumes and in real time. Regulators still largely oversee financial firms using analog data that is difficult to manipulate to detect risks.

Much of the data in the system is stranded in isolated, hard-to-access databases. Bank examiners still draw samples of files to search for signs of problems and extrapolate potential risks. Bank regulators still rely on the quarterly Call Report to evaluate risks. This is fundamental information scarcity. It consigns regulators to looking backward rather than forward, and to working with fragments of information that represent an ever-shrinking piece of the total picture of risk in the system.

In a digital environment, where the amount of data often exceeds its utility, analog systems make it difficult to identify safety and soundness threats, potential consumer compliance violations, and financial crimes such as money laundering. By contrast, the industry has moved much faster to digitize, instituting automated lending systems, faster delivery vehicles, robotic processing, and distributed ledgers.

3.2 Digital innovation accelerated during the pandemic era

In 2020, as the COVID-19 pandemic continued to spread, the Alliance for Innovative Regulation (AIR) published its seminal paper "A Regtech Manifesto",[39] providing a blueprint for how the regulatory system can begin to close the digital gap.

The paper included a prediction that digital technology in the financial services sector will continue to advance at exponential speed, and that this will lead to new risks (as well as opportunities) if regulators do not move at similar speed to supplant their analog models with new digital-focused approaches.

Thirty months later, it is not hard to argue that that prediction was 100 percent accurate. In fact, the Manifesto did not even reference some of the biggest innovations of the past two years: non-fungible tokens (NFTs), decentralized autonomous organizations (DAOs), decentralized finance (DeFi), Web3, and the metaverse.[40]

3.3 The gap is widening

The digitalization of finance accelerated at a fever pace in part because of the pandemic. Consumers had at their disposal ample digital financial services options that precluded the need to leave their homes, similar to e-commerce.

During this age of crisis, many financial regulators made substantial progress establishing offsite examination capabilities in response to quarantine measures.[41] They have moved more aggressively than in years past to educate their personnel across the board about digital finance concepts and developments. Most U.S. financial regulatory bodies have created innovation offices, some of which include a focus on supervisory technology, known as suptech.

The Federal Reserve System appointed its first ever Chief Innovation Officer,[42] Sunayna Tuteja, with a mandate to modernize the central bank's own technology. The G-20 held its first ever regulatory TechSprint in 2020, seeking suptech solutions for challenges facing large numbers of financial supervisory agencies.[43] The Bank for International Settlements has established innovation labs throughout the world. In some notable cases involving emerging-markets regulators,[44] government agencies have made enormous strides in adopting digital-native regulatory designs to monitor digital products capable of expanding financial inclusion.

However, the regulatory sector is still moving too cautiously and deliberately to meet this moment. The gap between the industry's digital development[45] and that of key government agencies is still widening. Heightened risk coupled with a continued analog-focused approach by regulators has not yet resulted in a crisis. But regulators need to pick up the pace to forestall such a crisis in the future.

[38] https://bit.ly/3kyGVbv
[39] https://bit.ly/3mcKjcE
[40] https://bit.ly/41vNGvm
[41] https://bit.ly/3xYut8g
[42] https://bit.ly/3lZ9xEh
[43] https://bit.ly/41qhOIF
[44] https://mck.co/3El1r0e
[45] https://bit.ly/3lEG8xX

4. WHAT NEEDS TO CHANGE

Some members of the U.S. Congress have attempted to modernize certain aspects of the federal regulatory regime to keep pace with technological change. This includes an array of legislative proposals to create a formal regulatory framework for crypto,[46] with more clearly established powers for agencies such as the Securities and Exchange Commission (SEC) and Commodity Futures Trading Commission (CFTC), restrictions for stablecoin providers, a study on energy consumption by digital asset companies, and more. In addition, House Financial Services Committee Chair Patrick McHenry, R-N.C., has sponsored a bill to require the formation of a Financial Services Innovation Office (FSIO) at each regulatory agency.[47]

But with a divided Congress, lawmakers are unlikely to come to agreement on major legislation. And, as has been mentioned earlier in this article, the historical precedent does not favor the legislative branch acting to combat risk in the financial services sector before a crisis occurs.

A September 2022 paper by the International Monetary Fund called on regulators "to use all existing tools at their disposal to address rising local risks" associated with crypto assets.[48] The IMF said that: "The growing systemic implications of crypto assets may warrant immediate regulatory actions, particularly in some emerging markets and developing economies. Regulators should use existing regulatory powers, guided by the applicable international standards, and should focus on areas of vulnerability, such as hosted wallets, centralized exchanges, and financial institutions' exposures. Actions can range from user education and industry guidance to targeted restrictions.

Authorities should ensure that any short-term approach is flexible enough to be adjusted in the future, in line with market developments and future international standards."

4.1 A new paradigm for financial regulation

Ultimately, regulators need a new toolbox. Their largely paper-based, analog systems for gathering and analyzing data, assessing financial companies' risk management processes, and combating threats should over time be supplanted by a digital-native design. Greater synergy between financial regulators and technology leaders would lead to the acceleration of digital tools tailored specifically for financial regulators.

The challenge for regulators in detecting and combating the risks that will lead to the next economic crisis is no longer just looking for a needle in the haystack. It is looking for a needle in 10,000 or 100,000 or a million haystacks.

4.2 "Data is the new oil"

In 2006, the British mathematician, Clive Humby, declared that: "Data is the new oil."[49] But without adapting to the pace of digital innovation, regulators may view the explosion of information – powered by technology – about potential money laundering threats, customer onboarding, fair-lending concerns, and more that is available as raw data as too much of a good thing.

They lack the tools to effectively analyze all the data. Former Bank of England Governor, Mark Carney, once noted that the bank gets 65 billion pieces of data annually from companies under its watch. Reviewing it all, he said, would be like "each supervisor reading the complete works of Shakespeare twice a week, every week of the year."[50]

The answer to this conundrum is to fight fire with fire. Just as the industry is using AI to speed up processes for customer onboarding loan applications, regulatory compliance, and more, regulators should explore how AI and machine learning can make their monitoring more precise and effective.

4.3 Innovation blueprint

The following steps should be a priority for regulators and other policymakers to begin to close the gap with the financial services industry's digital transformation:

- **Create the "innovation office 2.0":** most regulatory agencies have established innovation offices that allow companies experimenting with technology to seek advice on compliance with regulatory mandates. Regulators should build on this foundation by establishing a more central role in the agency organizational chart for the teams of technology experts. They should strengthen lines of communication between innovation units and agency heads so that digital technology efforts rise to the level of top-of-the-agenda items. Agencies should consider

[46] https://bit.ly/41zxZU7
[47] https://bit.ly/3Z8Ke8g
[48] https://bit.ly/3IDUFtG
[49] https://bit.ly/3KlnYO7
[50] https://bit.ly/3Z7Ompe

establishing a new position – in addition to CIO/CTO – of Chief Innovation Officer (a step that has been taken, for example, by the Federal Reserve Board).

- **Prioritize suptech and regtech:** most agency innovation initiatives are outward-facing, focused mainly on understanding and interacting with fintech innovation by the industry. These should be expanded or supplemented to address supervisory technology – or suptech – for use by the regulator itself. Regulators should also develop a strong focus on regtech, the compliance and risk management technology used by the industry. The roles of the regulator and the industry compliance functions are intertwined in that both are about assessing and managing risks at regulated firms.
- **Update procurement protocols and purchase best-in-class technology:** many regulatory bodies are using IT systems that are decades old and that, despite updates and patches, are not adequate in today's environment. Agencies should assess their tech systems and plan for conversion to digital-native infrastructure. For most regulators, this process will require revisiting procurement protocols. A common phenomenon at agencies is to engage consulting firms to build bespoke technology systems, because the process for procuring better technology is onerous and legally risky. This pattern can consign agencies to perpetual underperformance in technology.
- **Migrate to cloud computing:** operating a digital organization requires migration from on-premises mainframe systems to cloud environments that enable flexible and efficient use of computing power that can be readily updated as technology evolves. Some agencies are already in full or partial cloud environments (e.g., Financial Industry Regulatory Authority (FINRA), the Municipal Securities Rulemaking Board, and parts of the Consumer Financial Protection Bureau (CFPB)), but most are not.
- **Leverage open-source technology:** modern technology operations rely on widespread use of open-source software, which, if properly managed, offers great advantages in security, efficiency, and interoperability. Some agencies already use open-source tools and contribute software to open-source systems, but most do not. This shift should be accelerated. In particular, agencies should work toward creating common open-source tech layers that will enable high interoperability with other regulators and with regulated firms.
- **Modernize third-party risk rules:** regulators must maintain stringent requirements for banks to manage risks generated by vendors and partners. At the same time, most banks will need to work with third parties in order to keep up with the pace of technology change. Regulators should be sure that third-party risk rules do not inadvertently discourage the industry from adopting new, superior technology.
- **Raise standards for bank technology:** regulators should jointly undertake an initiative to upgrade the industry's technology, including risk management technology, over the next five years or so. They should be agnostic regarding specific vendors and technology types, but they should communicate expectations that outcomes need to improve. Regarding safety and soundness, they may want to begin criticizing technology infrastructure that weakens a banks' capacity to compete. Regulators should assess their own internal processes for encouraging and furthering digital-native financial solutions in the industry that expand financial inclusion, strengthen risk controls, and ensure positive outcomes for low- and moderate-income consumers. The key question at the heart of a digital-native regulatory design: is the result a fair, safer, and more inclusive financial system for everyone?
- **Adopt "digital regulatory reporting" (DRR) and level regulatory burden:** agencies should transition to use of digital regulatory reporting to replace traditional reporting by regulated firms. Putting reporting in digital form will equip agencies with more information, more timely information, and greater ability to analyze information, because it will come in digital form. Today, the industry has very uneven capacity to report information in digital form, so these reforms should be introduced over time. Agencies can consider making DRR voluntary for some period, so that firms can opt for either traditional reporting or the new format. A gradual transition would likely see younger firms with no legacy technology, including fintechs, opting in before traditional banks. This transition period will give regulators experience in building the DRR processes before confronting a full industry conversion. Moving to a DRR format will, over time, help address the disproportionate regulatory burden carried by small institutions, and could lower compliance costs for the whole system while simultaneously strengthening regulatory outcomes. For regulators that oversee both banks and nonbank financial firms, such as financial supervisors at the state level, taking these steps can eventually also level the regulatory costs and burdens between banks and nonbanks.

- **Educate personnel:** most agencies need expanded technology education for their personnel. All employees should be trained in basic technology concepts, and many should have specialized education in new technology-driven financial products and emerging risks.
- **Hire more technologists:** government hiring policies make it difficult for agencies to recruit people from the tech world. Most agencies need more data scientists, as well as software engineers and designers. They would also benefit from people with skills in human-centered design. Agencies should assess options for recruiting outreach to tech experts, the potential for adjusting pay scales, using short-term rotations, and revisiting conflict-of-interest rules relating to employees holding stock.
- **Adopt agile workflow:** agencies should transition key functions away from traditional "waterfall" work patterns to "agile" environments. In the latter, cross-functional teams work together intensively in real time on initiatives, rather than having work flow in a linear manner from one group to the next.
- **Build innovative cultures:** agencies must prioritize opportunities to build innovative cultures. Practical steps include holding TechSprints, building labs to incubate new regulatory tools, and fostering closer engagement with the community of technologists, developers, and programmers.
- **Prioritize AI:** agencies should commit more resources to take better advantage of continually evolving AI, including machine learning (ML) models and natural language processing (NLP), to strengthen their supervision of fair-lending compliance, anti-money laundering (AML) efforts, loan quality, and balance sheets, as well as their analysis of systemic trends. They should also evaluate and address risks that may be arising in AI systems. One priority should be to assess the potential impact of ChatGPT by financial firms.
- **Explore design thinking and behavioral economics:** these fields of knowledge can be potential linchpins for designing regulatory processes aimed at enhancing the fairness and accessibility of financial services for consumers, including underserved and unserved market segments. They can also enhance agencies' effectiveness in monitoring the system.
- **Evaluate fair-lending policies and other compliance processes:** regulators should determine if these processes are resulting in check-the-box exercises or bearing solutions that truly and effectively mitigate redlining and other predatory and discriminatory practices.

5. CONCLUSION

There is no denying that the financial services industry is moving ahead at lightspeed to embrace a fully digitized future. The technologically advanced innovations that have reshaped how consumers manage their money, obtain credit, invest in the economy, and more, are worlds away from how financial services looked just a little over a decade ago, when policymakers were crafting the regulatory response to the financial crisis. It is just as likely that the financial system 13 years from now will look exponentially different than it does today.

This digital transformation has resulted in both benefits and drawbacks for the average financial services consumer and the broader economy. Financial innovators have achieved success in expanding access for consumers who were left out of the traditional banking system. In key areas, digital technology has reduced costs, improved efficiency, encouraged experimentation and competition, and enabled consumers to build wealth.

But the pace of change has left many observers wondering whether this digital transformation is moving too fast. The emergence of new types of financial players, products, algorithms, and whole paradigms has left the financial system awash in new risks that financial regulators are ill-equipped to manage.

The U.S. regulatory framework, last revised to a significant degree by the 2010 Dodd-Frank Act, has helped keep the financial system safe from a full-blown crisis since the 2008-era mortgage debacle and market implosion. But that framework is still meant for an analog regulatory structure; one that operates in a linear fashion and responds to linear change in an industry that is more analog than today's financial services sector.

This misalignment not only makes consumer safety and financial stability vulnerable, but also risks undermining the benefits of financial innovation. Regulators and other public-sector officials need a renewed focus on narrowing this gap before the risks inherent in digital-native financial products propel a full-blown crisis.

ABOUT CAPCO

Capco, a Wipro company, is a global technology and management consultancy focused in the financial services industry. Capco operates at the intersection of business and technology by combining innovative thinking with unrivalled industry knowledge to fast-track digital initiatives for banking and payments, capital markets, wealth and asset management, insurance, and the energy sector. Capco's cutting-edge ingenuity is brought to life through its award-winning Be Yourself At Work culture and diverse talent.

To learn more, visit www.capco.com or follow us on Facebook, YouTube, LinkedIn and Instagram.

WORLDWIDE OFFICES

APAC
Bangalore
Bangkok
Dubai
Gurgaon
Hong Kong
Kuala Lumpur
Mumbai
Pune
Singapore

EUROPE
Berlin
Bratislava
Brussels
Dusseldorf
Edinburgh
Frankfurt
Geneva
London
Munich
Paris
Vienna
Warsaw
Zurich

NORTH AMERICA
Charlotte
Chicago
Dallas
Hartford
Houston
New York
Orlando
Toronto
Washington, DC

SOUTH AMERICA
São Paulo

WWW.CAPCO.COM

CAPCO
a wipro company