



# SIFMA Insights

Ops Virtual Forum Debrief

*Perspectives & Key Themes from Executives & Market Participants*

**November 2020**

Recently, SIFMA virtually hosted its Ops Virtual Forum. With two days of presentations and events and hundreds of virtual participants, we gained insights into top-of-mind topics for market participants. Inside this note, we recap just some of what was seen and heard, including:

- Executive View – 2020 market resiliency and what to expect in a post COVID-19 world
- Emerging Technologies – what did/didn't work during the market turmoil, identifying areas to modernize
- Cybersecurity – Already top of board priorities, focus increases in today's environment
- Post-Trade Modernization – ecosystem not seamless (paper, human intervention), seeking the path forward
- Digital Assets – nascent market with few examples, will take time to build but investing in infrastructure now

To see details from topics SIFMA has covered throughout the year, please see SIFMA Insights at (list of Insights reports in the Appendix of this note): [www.sifma.org/insights](http://www.sifma.org/insights)



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SIFMA Insights can be found at: <https://www.sifma.org/insights>

SIFMA is the leading trade association for broker-dealers, investment banks and asset managers operating in the U.S. and global capital markets. On behalf of our industry’s nearly 1 million employees, we advocate on legislation, regulation and business policy, affecting retail and institutional investors, equity and fixed income markets and related products and services. We serve as an industry coordinating body to promote fair and orderly markets, informed regulatory compliance, and efficient market operations and resiliency. We also provide a forum for industry policy and professional development. SIFMA, with offices in New York and Washington, D.C., is the U.S. regional member of the Global Financial Markets Association (GFMA). For more information, visit <http://www.sifma.org>.

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## The Executive View

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As COVID-19 swept across the globe, the financial services industry went to a roughly 90%-95% work-from-home status almost overnight. As a result of extensive planning, despite unprecedented volumes and volatility, markets remained open and systems operated efficiently. This resiliency in turn maintained investor confidence in markets.

All the technology investments, capacity stress testing and business continuity planning (BCP) over the past decades paid off. As BCP speaks to extreme but plausible scenarios, firms had prepped a pandemic scenario (along with many others). They just did not think this would be the one of all the hypothetical exercises that would go live this year. It also happened so quickly that they were working on a shortened time frame versus the BCP scenario. Yet their planning got the industry through the market turmoil. Just as firms took lessons from past crises and global events (global financial crisis, Superstorm Sandy, SARS/MERS, etc.), they will build the experiences of 2020 into BCP plans going forward.

Now the industry begins to look forward to what the future holds. Below we recap key themes from fireside chats and panels with industry executives as we look ahead to a post COVID-19 world.

### The Post COVID-19 World

Speakers indicated they do not expect financial services to go back to the pre COVID-19 operating model. The work-from-anywhere (WFA) world we are in now is expected to continue into the future for a proportion of employees. One panelist indicated firms will move from the 96%+ WFA employee status currently to a model involving to be determined portions of employees: full time in the office; full time remote; and a hybrid, mobile model (few days in/few days out of the office). Each of these models brings different sets of challenges for managers.

It is too early to determine these staffing proportions, and the new work environment will continue to evolve over time. The new work model will also bring strategic considerations around real estate footprints, looking at urban offices versus suburban campuses. All these decisions will have to be thought through based on employee roles. Groups that require in-person collaboration may need to be in the office more often than not, while other roles may allow a more flexible arrangement.

These changes can also bring potential new risks to monitor, one of which is a BCP concern. Protocols for weather-related outages must be extended to the homes of WFA personnel, not just office locations. Firms must establish new ways to supervise a remote workforce. Another challenge in a WFA environment is establishing and maintaining the firm's culture. Financial services is a relationship based industry. As such, firms will need to find new ways to onboard staff and keep them connected. Firms will also need to evolve training programs, which historically were based on learning by example and shadowing more experienced employees, in-person tactics.

Some of these may be able to be solved with new collaboration tools, technologies to improve capabilities to connect employees and clients differently than in the past. Digital enablement, getting the right tools for WFA and questioning the proper tech setup, will remain in focus as firms adapt to the post COVID world.

## Emerging Technologies

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As Winston Churchill said, “Never let a good crisis go to waste”. The capital markets industry is not. Market participants are assessing what worked and did not work during the COVID-19 related market turmoil earlier in the spring to identify areas in need of modernization. Some examples include:

- Some mainframe systems are over four decades old and, while they still work, could be replaced with more modern systems
- The number of fails increased during the height of the turmoil (not due to infrastructure failures)
- The industry is still reliant on paper or physical certificates, with large record keeping systems in place

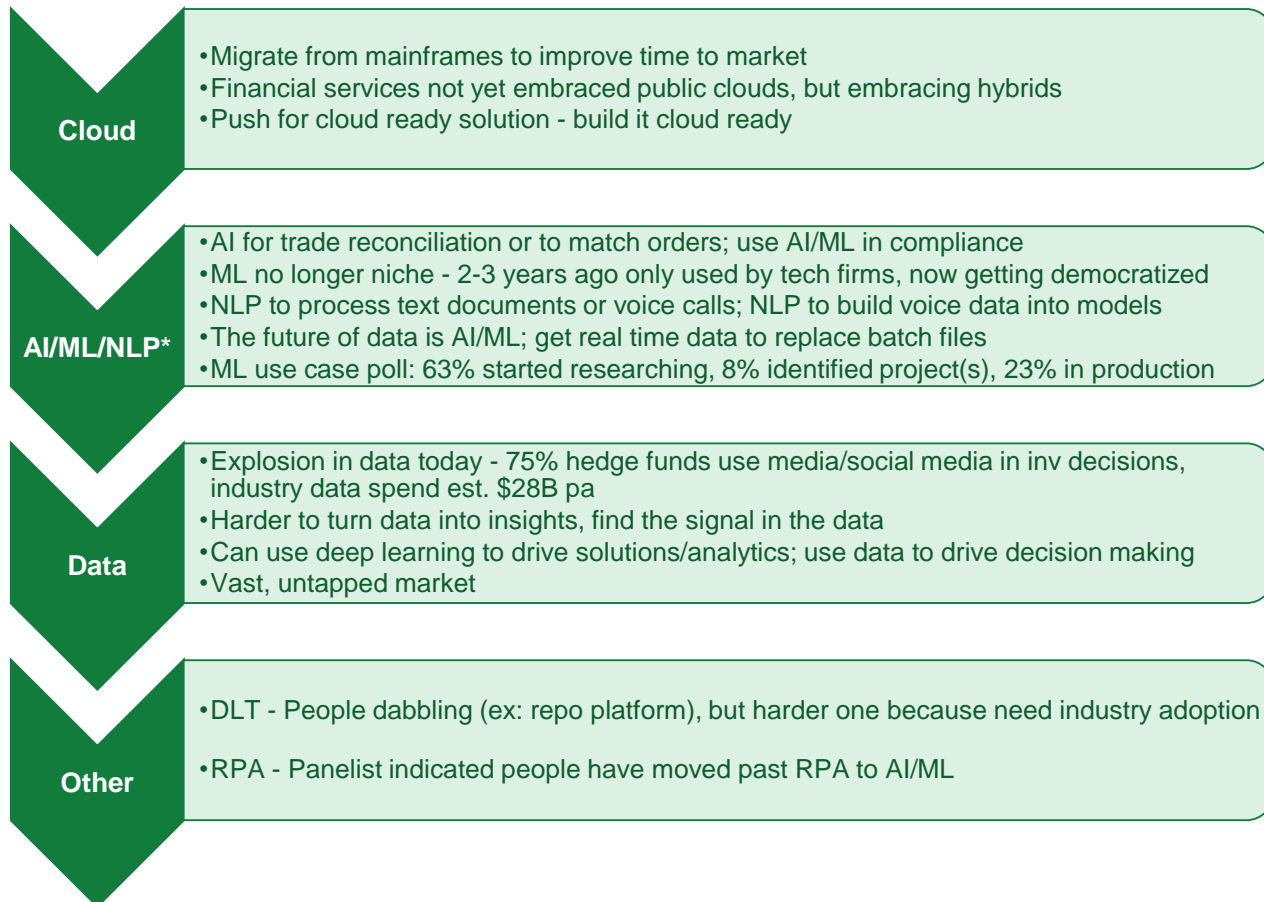
Market participants have identified work streams that could, or should, be automated or digitized. The objectives are to enhance how they interface with clients, create efficiencies and cut costs for all market participants.

There are several emerging technologies that provide solutions for these needs. The industry can dematerialize physical certificates to reduce risk and create more efficiencies. The industry can move from paper to a digital scan of a form to a full digital model, improving the delivery process. The industry can embrace digital interface and consumption models to improve client experiences. The industry can invest in data and data science to identify where breakages in data cause a breakage in the trade workflow, improving data storage and speed of accessibility as well as improving accuracy.

Many opportunities exist, and several speakers indicated COVID has accelerated the pace of digitization, with one panelist indicating we are at the peak of acceleration.

Conversations around emerging technologies began as budget discussions. These have evolved into business opportunities, as firms look at where and how to invest to improve processes, decrease costs and enhance client interactions. Additionally, the investment in emerging technologies began at the edges but has moved to how to improve core functions (ex: trade confirmation, reference data cleanup, regulatory reporting, customer onboarding, AML/KYC, etc.).

When making investments in emerging technologies, several focus areas were mentioned:



\*AI = artificial intelligence; ML = machine learning = an application of AI (deep learning is a part of ML which is applied to larger data-sets; NLP = natural language processing = a part of AI, sometimes overlapping with ML.  
 DLT = distributed ledger technology; RPA = robotic process automation  
 Please see SIFMA [Insights: The Evolution of the Fintech Narrative](#)

Capital markets exist in an ecosystem with many interconnected participants, meaning firms cannot work alone in silos on large scale projects. As such, to drive large scale innovation, the landscape is evolving toward partnerships among capital markets firms, technology providers, vendor/software providers and regulators. The goal is to utilize technologies to enhance processes, while maintaining the safety and soundness of the ecosystem.

## Cybersecurity (Cyber)

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Cyber risk has grown by multiples during the pandemic, particularly in financial services. While there has been a 40% increase globally in attempted cyberattacks since March across all sectors, that figure is +240% for the financial services industry. One speaker called it a cyber pandemic.

This is due in part to the shift in bad actors' motivations. 5 to 10 years ago, the majority of malicious cyberattacks were undertaken by nation states for the purpose of espionage. Now, 70% of these attacks are financial in nature. Some nation states now view malicious cyberattacks as revenue generations for their country. This is coupled with the opportunity the COVID-19 pandemic has provided hackers. There has been fraud around charity donations, the federal stimulus money and so-called investment opportunities. Hackers look to take advantage of sense of urgency for information and solutions experienced across financial services, and they are hoping the unique environment we are in will distract participants from tricks they would normally know better to avoid. This means firms must continue to be vigilant in cybersecurity.

One speaker shared with us some ground rules for setting a post COVID strategic plan for cybersecurity, which starts with a defense in depth strategy. Do not apply just one layer of control, such as external penetration protection, but have multiple layers of controls throughout systems, with security at every layer of the technology stack. This includes extending cybersecurity risk analysis and protocols to customers. One example is ensuring clients back up their data. Then, if they become a victim of a cyberattack, they have a reference file. Additionally, firms need strong authentication technologies/functionality. The world of passwords and knowledge based questions (which are too easy to decipher given the volumes on information available on social media sites) is behind us. Firms must move beyond traditional protocols.<sup>1</sup>

As discussed above regarding the importance of planning, market participants must think about what has never happened – i.e. what new ways firms could be hacked that were not possible before – and plan accordingly. It is planning and preparing that kept operations functioning throughout the spring market turmoil. And the investment and planning never ends. Just as the industry continues to improve, the criminals up their game as well. In 2019, we saw another year where the amount of cyber losses were greater than the prior year. Despite a global cybersecurity spend of over \$60 billion per annum, the good guys have not yet won the war.

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<sup>1</sup> We note that these were suggestions by a speaker for all firms across financial services globally. Many firms have already (and continue to) advanced their cybersecurity protocols.

## Post-Trade Modernization

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The COVID-19 related market turmoil in the spring 2020 showed the industry that the post-trade ecosystem is not entirely seamless, particularly under periods of heightened turmoil. As the industry moved to remote work, there were still many paper processes needing human intervention. The Depository Trust & Clearing Corporation (DTCC) still has 850,000 physical securities in its vault valued around \$1 trillion. While this represents a small piece of the business (U.S. equity market cap \$36 trillion, as of June 30), it is not an insignificant value. Dematerialization of physical securities is one area identified for post-trade improvements.

Speakers indicated the need to seek out paths forward to modernize the industry, and firms across the ecosystem are already undertaking this task. The goal is also to bring down costs and elevate the customer experience by making it easier to interface with the client. For example, the use of APIs enables clients to access data how and when they want it. Rationalizing client portals is another aspect of the modernization transformation.

Modernization involves taking an enterprise-wide approach, away from legacy siloed structures. Systems should be set up to service multiple product classes, not bespoke systems and processes for individual businesses. They must be nimble but also capable of gaining economies of scale to reduce costs and enhance the client experience. Modernization also involves building and maintaining a culture of technology and operations teams working together to find solutions. It also involves the whole industry – sell side, buy side, technology providers, vendors, regulators – working together, as the global ecosystem is highly interconnected. The objective is to enable fungibility across resources and operations activities to simplify processes by removing redundancies.

Breaking down siloes does not just involve staff, but data sets as well. Silos create data fragmentation, which is a negative for market participants. Put simplistically, the operations function brings together two sets of data with teams assessing whether they agree with the person on the other side. As modernization moves forward, data should be transformed to a thinking model. If systems speak multiple languages, do not try to transform them all to speaking French, rather program the systems to understand their native language and translate this into French. One panelist indicated their experience has shown they can take data in legacy systems and transform it to a new data language in <1 month.

The strategic challenge of modernization is the size and complexity of transforming post-trade systems. For example, one speaker indicated his group has a strategic plan to retire 130 systems down to ~ 30. Some changes do not just impact a single firm, but rather the whole industry. Many of the transformation projects underway or under consideration by market infrastructures will require adoption by all industry participants, from small to large firms and firms of all types and resource capabilities (firms will need their own investment spend to connect/adapt to the new systems). As such, some projects will take several years to phase in once the development and testing phases are complete, in order to deliver the changes to clients in digestible components.

Finally, resiliency is key. Modern systems need to encompass a wide range of business continuity standards, from the physical systems to a series of complex cyber threats. With the new technologies comes the need to plan for failure across each level, with testing frameworks embedded in modernization efforts. Parallel to modernizing systems, firms should be adopting next generation resiliency. These themes are not mutually exclusive.

## Digital Asset Securities

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Panelists indicated digital assets are not creating a new asset class or changing the way companies form. They are a way to increase transparency and make assets easier to trade. Currently, this market is nascent, small in scale and still in the exploratory phase. Most digital assets have been in private markets, with volumes <10 million a month “on a good month”. Panelists expect private and public markets will eventually go digital. This will take time, just as we saw with:

- **Netflix:** When it was created in the late 1990s, people did not believe it would be as disruptive as it is today; many thought the disruption was over after it drove Blockbuster out of the market. Yet, it benefited from decades of technology advancements (such as the digitization of film), enabling it to become the disruptive force it is today.
- **ETFs:** When ETFs were created in the 1990s, many people asked when the liquidity would come. Liquidity and acceptance of new products takes time, as seen with ETFs which are now extremely popular and represent around 20% of equities markets.

ETFs, while created for various reasons, enabled retail investors to take actions they could not do before, such as diversify their portfolio to minimize risk. And, in general, retail investors are becoming more and more like institutional investors, performing transactions like shorting, hedging, etc. Panelists note that security tokens could provide similar opportunities as ETFs for retail investors over the long run.

But digital assets will not reach critical mass overnight. Firms need to invest in building the appropriate infrastructure and research the right products to develop. Panelists view any securities that settle over 5 days (loans, real estate) as good candidates, with any assets settling over two days or any Reg D<sup>2</sup> assets “fair game”. The trick in finding eligible assets is that (a) investors must demand the asset and (b) the digital asset must then be scalable (you do not build the infrastructure for one-off transactions, ex: sell one hotel). One panelist indicated they will be bringing new products to market in the next 12-18 months.

Additionally, regulatory hurdles remain. As the SEC rules for broker-dealers were written over 40 years, the agency is looking at how to apply or tweak the rules to digital securities. The agency is looking at custody rules – how to incorporate protections for lost passwords/account details (you hear stories of a person losing their private key, losing access to the digital asset forever)? The agency is looking at the suitability for investors given unique risks versus traditional securities – how do you deliver required information when an anonymous wallet is holding the digital asset? And more questions remain.

To sum up, stay tuned as there is more to come in this space...

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<sup>2</sup> Regulation D allows private companies (typically smaller firms) to raise capital by selling equity or debt without registering the securities with the SEC



## Appendix: Terms to Know

Fintech	Financial Technology
Regtech	Regulatory Technology
Cyber	Cybersecurity
ABCDs	AI, Blockchain, Cloud & Data*
ABCDS	AI, Blockchain, Cloud, Data & Security
AI	Artificial Intelligence
API	Application Programming Interface
AR	Augmented Reality
Bot	Computer programs that speak like humans
Chatbot	Software engaging in natural language dialogues
CIA	Confidentiality, Integrity & Accessibility
Cloud	Internet-based computing
DLT	Distributed Ledger Technology**
IoT	Internet of Things
IT	Information Technology
ML	Machine Learning
MRR	Machine Readable Rulebook
NLG	Natural Language Generation
NLP	Natural Language Processing
OCR	Optical Character Recognition
Robotics	Robots substitute/replicate human actions
RPA	Robotic Process Automation
SAS	Statistical Analysis System
VR	Virtual Reality

\*ABCDs are trademarked by Broadridge

\*\* Blockchain is one type of DLT

CFTC	Commodity Futures Trading Commission
Fed	Federal Reserve System
FINRA	Financial Industry Regulatory Authority
SEC	Securities and Exchange Commission
CAT	Consolidated Audit Trail
PII	Personally Identifiable Information
BCP	Business Continuity Planning
WFH	Work from Home
WFA	Work from Anywhere
PT	Post Trade
AML	Anti-Money Laundering
KYC	Know Your Customer

## Appendix: SIFMA Insights Research Reports

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SIFMA Insights Market Structure Primers: [www.sifma.org/primers](http://www.sifma.org/primers)

- Global Capital Markets & Financial Institutions
- Electronic Trading
- US Capital Formation & Listings Exchanges
- US Equity
- US Multi-Listed Options
- US ETF
- US Fixed Income
- SOFR: The Transition from LIBOR
- The Evolution of the Fintech Narrative

SIFMA Insights: [www.sifma.org/insights](http://www.sifma.org/insights)

- Market Performance Around US Presidential Elections
- Market Volatility Around US Presidential Elections
- Market Structure Download
- A Deeper Look at US Listed Options Volumes
- The Cboe Trading Floor Reopened – Revisiting Volume Data
- NYSE Goes All Electronic – What Does It Mean?
- The NYSE Trading Floor Reopened – Revisiting Market Share Data
- COVID-19 Related Market Turmoil Recap: Part I (Equities, ETFs, Listed Options & Capital Formation)
- 2020, the Year of the SPAC
- The 2020 Market Madness
- The VIX's Wild Ride
- The 10th Anniversary of the Flash Crash
- DTCC's Important Role in US Capital Markets

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