OLIVER WYMAN

FINANCIAL MARKET RESILIENCE

Three waves of actions for market infrastructure firms in the aftermath of COVID-19

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INTRODUCTION

Coronavirus (COVID-19) has had a major impact on the global economy. Financial markets have seen unprecedented activity, such as the MSCI World dropping by nearly 30 percent during a five-week period, with both the supply and demand-side fundamentally upended across the globe.

Financial market infrastructures (exchanges, clearinghouses, central securities depositories and custodians, financial data, and technology providers) have been robust, providing the community with stable platforms and operations, as well as timely information to transact throughout the turmoil. Operations of most firms have coped well with the crisis to date, as business continuity plans (BCP) have been deployed, and the workforce has adapted accordingly. Also risk management systems provided the required buffers so far. Access to capital, liquidity and information has been maintained, and on even the most volatile days markets have functioned as expected.

The medium-term is likely to become even more challenging for the economy and financial markets, especially given the potential for significant credit issues. The corporate sector will be hit by supply disruptions and weak demand. Banks, in turn, while still well capitalized, will be hit by a combination of lower revenues from muted corporate client activity, lower interest rates, and potentially significant credit losses. The sell-side may be hit by substantial losses as a result (please see our joint report with Morgan Stanley, *Steering Through The Next Cycle*, for the outlook for wholesale banking this year). In parallel the buy-side has seen both outflows and dramatic portfolio rebalancing during the crisis.

In this context, market infrastructure firms will play an even more crucial role in the financial market ecosystem, maintaining functioning secondary markets as well as helping the real economy recapitalize in primary markets, and supporting the community more broadly longer-term. In the short-term, the increase in trading volumes will help exchanges and clearinghouses generate higher fee income, but volumes after the initial turmoil and the dearth of new public market issuances will slow growth in the medium-term. Data consumption and other services may be scrutinized and fall victim to further cost-cutting exercises amongst clients.

The global financial crisis triggered a decade long evolution for financial market infrastructure, resulting in an expanded role across trading, clearing and data. COVID-19 will play a crucial role in defining how financial market infrastructure evolves over the next decade, as the capital markets seek greater levels of resilience. To fully enable remote working across the ecosystem will likely require a broader role for infrastructure.

In this point of view we explore three waves of management actions to help navigate the challenges ahead.

Wave 1: Ensuring stability in volatile markets explores how market infrastructure firms are continuing to provide stability and continuity for their clients in turbulent times.

Wave 2: Maintaining resilience in a down-turn focuses on how to navigate the pandemic and credit cycle over the next 12-18+ months, re-opening and managing constrained workplaces, ensuring that financial risk management practices remain robust, and adapting business continuity and resilience plans.

Wave 3: Support the re-build and recovery looks ahead to the transformation activities which will be required as we will eventually re-emerge from the crisis, with the fundamentals of the industry (and its clients) having changed, and how to position for recovery and rebound.

WAVE 1:
ENSURING STABILITY IN VOLATILE MARKETS

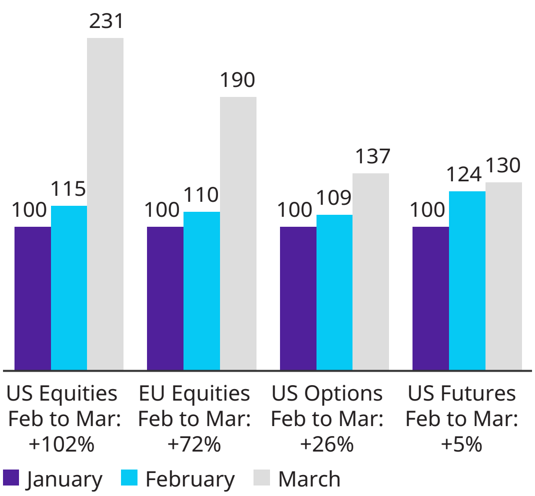
Despite the dramatic events of the past months, market infrastructure (MI) firms have held up well. Financial markets have remained open and functioning, and even though there have been some isolated incidents and challenges to work through, there have been no systemic issues. MI firms now have a chance to step back and re-calibrate their approach, and position pro-actively for changes in the broader market triggered by this crisis. In this section we review the headwinds and subsequent responses which have protected the integrity of financial markets, and importantly what the learnings are for both MI firms and market participants going forward.

NAVIGATING THE IMMEDIATE TURMOIL

The onset of the COVID-19 pandemic has resulted in an unprecedented shock and stress-test to resilience and business continuity plans of MI providers. Tasked with providing robust and reliable infrastructure for financial markets, providers have been hit by a two-fold blow of spiking price volatility and transaction volumes, as well as operational challenges. The increasing load on systems and people came at a time when teams needed to re-arrange into split and remote set-ups due to lockdown requirements across jurisdictions.

Exhibit 1. Increased volatility and transaction volumes featured across all major asset classes across the globe

Monthly count of trades by instrument
Q1 2020, indexed to January



Daily VIX and VDAX, Q1 2020

Source: Eikon from Refinitiv, CBOE data, Oliver Wyman analysis

Equity trading volumes, for example, roughly doubled in March and volatility indices peaked at 90pp. Such extreme volume spikes coupled with large volatility has led to several specific challenges along the MI value chain:

Value chain area	Key challenges
Trading execution and data	• Maintaining market access and trading stability when bandwidth is stretched • Ensuring continuity in data feeds and market making
Market operations and surveillance	• Mitigating the risk of market manipulation in times of extreme volatility • Limiting market distortions from rapid shifts caused by e.g. monetary policy moves • Monitoring listed firms' compliance with regulations
Post-trade	• Processing substantially increased transaction volumes • Re-calibrating margin models to increased volatilities and collecting collateral across market participants • Re-structuring collateral haircuts, eligibility; pricing less liquid collateral

In addition to value chain-specific challenges, cyber risks posed an increasing threat across MI providers and the sell- and buy-side, as the remote set-up for staff increased vulnerability points.

The response to COVID-19 required institutions to move staff away from physical sites into working from home (WFH) on a global scale within days. While initial business continuity management (BCM) responses focused on traditional split-team approaches alternating between offices, WFH and disaster recovery sites, institutions needed to rapidly transition into a large-scale WFH environment for all non-critical staff. According to a recent Oliver Wyman global capital markets survey on the industry's response to the pandemic, around 80-99% of IT staff and >50% of trading staff were working from home within two weeks of major jurisdictions enforcing lockdowns.

These unexpected requirements led to operational challenges around virtual private network and internet service provider bandwidth capacity, availability of remote infrastructure (laptops, SIM cards), and reduced productivity stemming from remote communication barriers and childcare obligations of staff. Business-as-usual activities have become harder to execute and critical projects might need to be put on hold during these circumstances, with increasing risks to operational resilience. These challenges differ between geographies, depending on local particularities and requirements (such as limited bandwidth capacity and laptop availability for staff in Indian offshoring centers).

There are also “softer” challenges with this new working setup, including organization of teams in multiple remote locations and facilitation of larger meetings. Firms have had to rapidly draw up new policies and procedures to ensure colleagues can remain productive. For many this has also meant ensuring staff can take breaks, find time for family and exercise, and mix up means of communication to limit the time spent in front of a webcam.

PROVIDING NEAR-TERM CONTINUITY

The MI industry deserves credit for having provided much-needed stability and resilience in the core data, trade and post-trade infrastructure, without any major business continuity issues thus far — a sentiment echoed by the sell-side CIOs we have interviewed. MI providers reacted swiftly to the changing environment and have utilised a broad range of tools and short-term actions to achieve this, such as:

Value chain area	Short-term continuity actions
Trading execution	• Shutdown of physical trading floors (NYSE) • Suspension of physical processes (for example, stock certificates) • Operational changes to deal with higher volumes (increased latency)
Market operations and surveillance	• Successful use of circuit-breakers to curb panic selling (Nasdaq), however some re-calibration has been required to account for the unprecedented scenario (in Asia) • Thresholds for disclosure of short-selling positions have been made stricter (ESMA) and short-selling has been temporarily banned in some jurisdictions (Italy, Spain and France) • Selected stocks have also been suspended from trading over COVID-19 fears (SEC)
Post-trade	• Initial margin levels have been ratcheted up as volatility increased (as part of ongoing calibration of models, automatically or with selected interventions) • Collateral eligibility and haircuts have been reviewed with some of the haircuts increased substantially

Although systemic impacts have been avoided, some isolated incidents related to COVID-19 have been observed. These include isolated defaults at central counterparty clearing houses (CCP) and data quality issues stemming from the unusual and unexpectedly high volatility. Several business process outsourcing (BPO) providers in India also saw a lack of personal equipment for staff, which meant they struggled to put together WFH solutions at short notice during lockdown.

MI firms now have an opportunity to take a step back and recalibrate and adjust their approach. All market participants will have learned from this crisis and will make changes to their way of working. MI firms need to reposition proactively for this, and we see three areas where they can.

First, service quality has been an issue for the buy-side in certain areas, in particular over-the-counter trading and less electronic markets. This provides an opportunity for MI firms to continue the push of products onto venues, electronic platforms, clearinghouses, and post-trade infrastructures.

Second, management will have been looking closely at which roles and services really matter, with a particular emphasis on data, analytics, and liquidity. MI firms need to be ready for the ensuing reprioritization of where to spend, and adjust their offering accordingly.

Finally, supply chain and operational risk management will need to be re-assessed across the industry.

This will have operational and financial risk management implications, as well as differing impacts on MI firms' business lines, which need to be carefully considered in the medium to long-term.

WAVE 2:
MAINTAINING RESILIENCE IN A DOWN-TURN

The pandemic means we are in unchartered territory for health, economy, and life. One can be optimistic that containment efforts underway across major geographies globally will be successful over the coming weeks and months, after strong signs of a slowing spread in many countries. However, the proportions of populations infected and recovered by the summer are well below what would be required for 'herd immunity', and a widespread vaccine may only become available in 2021. This will lead to a 12-18-month phase of iterative and potentially controlled cycles of outbreaks and containments. The economy continues to be exposed to constraints, supply disruptions and weaker demand, hurting the corporate sector, financial markets, the buy- and sell-side, leading to a potential substantial pro-longed down-turn and slow recovery.

We see a number of priorities for MI firms, as we go through a next phase of changing restrictions and economic uncertainty, starting from the partial re-opening of the workplace and remote work at scale, to preparing risk management for the changing credit environment as well as to adapting BCM and operational resilience capabilities to the new realities.

RE-OPENING THE WORKPLACE AND REMOTE WORK AT SCALE

An immediate challenge for MI firms, and the economy more broadly, is how to gradually re-open workplaces and continue to operate remote work at scale, as restrictions are partially lifted yet the pandemic persists.

To prepare for the return to the office, a carefully crafted reopening workplan is required to balance pace and risk as well as create a positive momentum. Executives should think holistically and plan across multiple dimensions:

Engage your workforce to understand if they are ready	When, who and how to return	Management of colleagues with particular requirements
Reach out to employees to connect and understand how they are feeling /fear factors Understand their willingness andability to come back to the workplace Reconnect emotionally (let themknow this is a family)	Phasing of working returning to the office Formal separation of A-teams andB-teams to ensure backup availability 'Flex pool' or 'pool of pools'to plug live gaps Reallocation of workforce across sites to mitigate undue risk in one location Management of visitors/ employee travel	Formal identification of higher risk employees (demographics, health status, rare skills) Alternative work rotations and extended WFH for populations at higher health risk Enhanced HR admin capacity for special employee circumstances (e.g., sick days, PTO, furlough, alternative work arrangements)
Physical workspace safety	**Commuting and employee support**	**Functional/workflow redesigns**
Floor layout redesigns and foot traffic guidance to reduce congestion and maintain 6 ft. distance Temperature checks upon entry and exit Mid-day spot cleaning break for all employees Bans on in-person meetings with 10+ people PPE utilization, what and where it is needed	Transportation burden assistance(e.g., to avoid public transport use) Mental wellbeing coaching accessible resources Productivity training for remote collaboration Technology provision forextended work-from-home Child care assistance for remote workers	Workflow redesign to reduce hand-offs, complexity, and intensity of rare skills Automation of critical processes and processes with higher personnel risks Infrastructure and IT configured for enablement of full program portfolio

Our quants, industry and healthcare experts developed a COVID-19 model that reveals where containment and suppression efforts are working, including first peaks and post-first-peak trajectories on a regional basis. The COVID-19 Pandemic Navigator forecasts the number of new and cumulative cases across nearly 40 countries, incorporating the effectiveness of containment and suppression measures. It also provides insights into how to manage after the peak, as well as the ability to study potential future containment scenarios until a vaccine or a scale treatment solution is in place.

PREPARING FINANCIAL RISK MANAGEMENT FOR THE CHANGING CREDIT ENVIRONMENT

The current crisis has also been a stress-test of the risk management frameworks of CCPs and central securities depositories (CSDs), which the industry has mastered well so far. Coverage of exposures has been maintained and continuously adapted, and any fall-out of default situations triggered by the near-term stress has been contained.

But the real test may yet be to come. As the economy continues deteriorating, corporates and sovereigns are facing increased credit challenges, and banks will start running into capital constraints and potentially even distress. This has implications both on the credit worthiness of clearing and CSD members, as well as the quality of collateral — and all at a time when market volatility can quickly resurge, especially in credit distress situations. An increase in bankruptcies will also require further capacity along the value chain to support additional volumes, such as for corporate actions processing in cases where processes have not been fully automated yet.

Whilst the 2008 financial crisis and ensuing regulation led to increased requirements and investments into clearing and post-trade risk management frameworks, markets have remained relatively calm prior to the pandemic. As a result, margin levels have been receding and collateral eligibility widened to some extent, depending on the institution, as risk appetite, calibration and stress-testing practices vary across the industry. In a recent survey of risk management practices at CCPs that we conducted, many institutions highlighted the need to invest more into credit risk and member monitoring frameworks, as well as stress-testing, both essential tools in a credit crisis.

As we are heading into the economic downturn, the extent of which is still unknown, we see the following priorities for CCPs and CSDs:

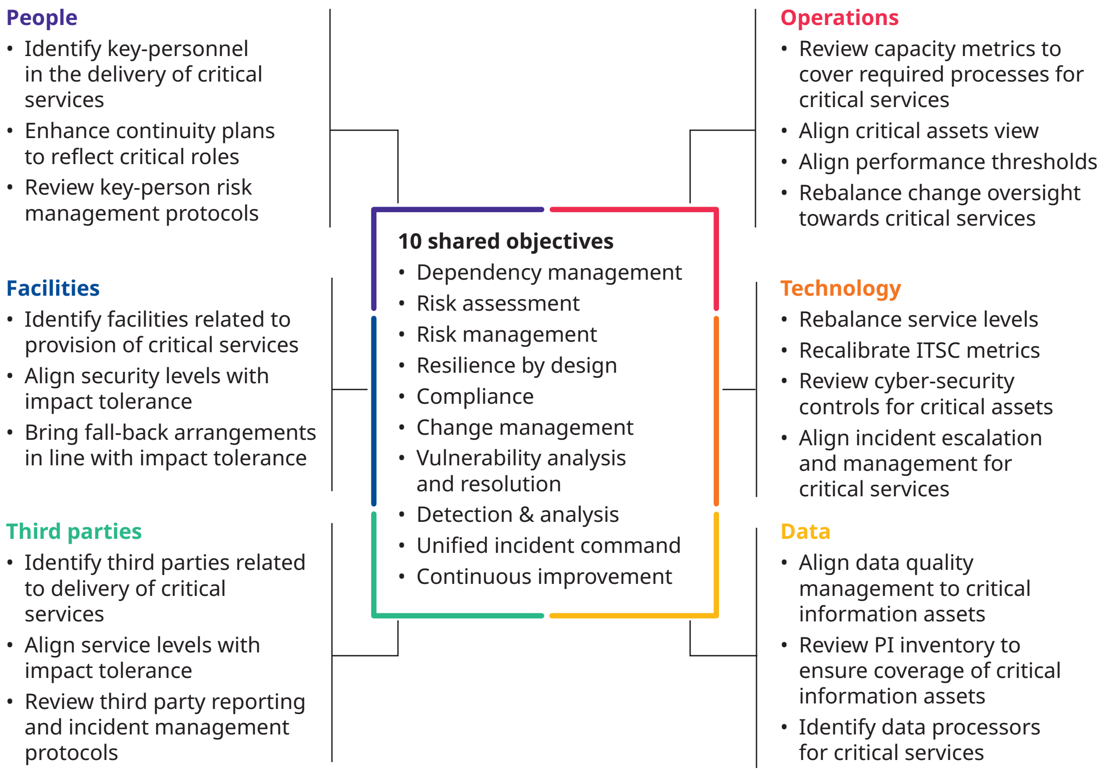
Waterfall element	**Areas to prepare for the downturn**
Member framework	• Intensify monitoring activities of members and adherence to membership rules and guidelines, limits and requirements, engage pro-actively with members beyond usual checks, maintaining ongoing dialog, increasing frequency of financial data collection • Accelerate upgrade of credit rating tools and analytics, identify stressed segments and members, model potential impact of deteriorating credit environment on member base
Margin and collateral models	• Review and potentially adapt calibration of margin and collateral haircut models to recent volatilities • Ensure reflection of stressed bid-ask spreads and appropriate concentration add-ons and buffers • Review collateral eligibility and haircuts taking into account stressed sectors, sovereigns and issuers, run scenario analysis around wrong-way risks and adapt the overall schedule pro-actively
Stress-tests, default fund, skin in the game and CCP equity	• Incorporate recent events into stress-testing framework and pro-actively model potential scenarios over the next months as the economy heads into a potentially severe downturn • Review and potentially adapt overall size of default fund and distribution across members as well as the CCP's own skin in the game and equity

ADAPTING BCP AND OPERATIONAL RESILIENCE CAPABILITIES TO THE NEW REALITY

Recent events have put a spotlight on operational resilience. Whilst capital markets had not typically planned for an event impacting so many regions and asset classes at the same time, the industry managed to maintain functioning markets.

Nevertheless, firms have become aware of two sets of important vulnerabilities: the increased third party risk and challenges relating to offshored services; and the secondary impacts of working from home, including increased cyber, privacy and compliance risks.

Exhibit 2. Alignment of capabilities across the core resilience domains



Going forward, we expect firms to increase the focus on their critical processes, identifying vulnerabilities and critical assets and aligning the management of those assets towards a common resilience objective. Exhibit 2 below shows all relevant domains and how they will need to be aligned to support a common resilience objective.

Specifically, on working from home, individual MI providers should seek to provide their employees with the capabilities to do so for short and long periods of time. This requires a mass roll-out of laptops, secure access, workflow tooling and related capabilities. Where work is required on-site, MI providers should consider further opportunities for automation — which has now moved from a mainly cost-motivated to an operational resilience lever.

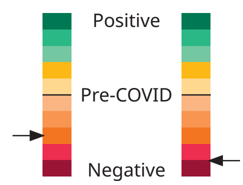
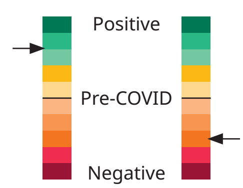
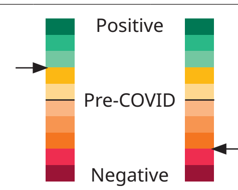
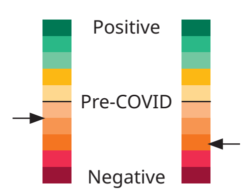
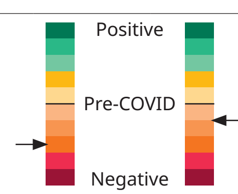
The wider industry, including policymakers, will also need to test operational resilience across the value chain — not only for core market infrastructure, but also including banks and potentially BPO providers active in capital markets. Links between operational and financial risks will need to be considered, for instance a margin payment delay putting banks in technical default and increasing market distress.

Procedures and lines of communication in such scenarios need to be set and tested thoroughly. This may require competition authorities, governments and regulators to come together and revisit standards across regions, between lit and dark venues, and public and private markets. This will help the industry maintain and operate under a level playing field even in times of distress, as well as reduce the risk of contagion effects from lower standards in any part of a globally connected ecosystem.

WAVE 3: SUPPORTING THE RE-BUILD AND RECOVERY

Whilst the short-term earnings impact of the crisis for MI firms is likely to be positive due to increased trading execution and post-trade activity, the mid- to long-term outlook remains more ambiguous. Stress phases of high volatility and high trading activity are often followed by reduced client activity, which poses a challenge to MI earnings across the value chain.

Overall, we expect a differentiated picture for MI firms in the mid- to long-term, depending on their current business mix. Overall, a downturn in client activity (across corporates, buy- and sell-side) will likely negatively impact most revenue lines:

		Revenue outlook vs. pre-COVID	
Business line	**Implications from the crisis**	2020 H1	2020 H2/2021
Listings	• Reduced Equity listing appetite as compressed multiples and lower earnings outlook provide less attractive exit opportunities for investors • Constrained macro outlook across jurisdictions will likely impact activity for several years — continuing pre-COVID-19 trend of weaker macro indicators • Opportunities for credit-focused MIs as corporates, governments and supranationals issue bonds to finance support		
Execution	• In the short-term, investors respond to volatility by adjusting their portfolio allocations (OTC and all securities) and drive execution earnings • U-shaped recovery will likely dampen client activity and reduce volumes — especially if cost actions on the sell-side yield sharper business participation choices • Potential long-term benefits from further electronification		
Post-trade	• Higher volatility and trading volumes are benefitting settlement and clearing revenues in the short term • In the mid-term, the drop in AuC will lower safekeeping revenues • Lower rates across regions (e.g. US, EU, Switzerland) will decrease collateral management opportunities		
Data	• Index businesses tied to AuM see lower revenues immediately • As clients reprioritise spend, new business and overall data consumption may be scrutinised further as part of cost-cutting exercises • Pressuring BAU price increases for real-time and historic data • Shifting spend further towards value-added solutions (e.g. ESG, analytics)		
Technology	• CIOs across the industry are reprioritising budgets — with likely delay in major non-regulatory change programmes, and impact on spend in the coming years • Bright spot likely to be automation and digitisation — both will probably remain high on the priority list a cost and operational resilience enabler		

A range of swing factors will impact the outlook and require swift reaction from MI firms as they think about positioning for recovery across core business lines:

- Further central bank and government responses to deal with the crisis over the coming months may increase volatility — putting pressure on operations, but also creating opportunities for earnings uplift in execution and post-trade
- As the industry plans for recovery, regulators and investors may reassess requirements between private and public markets from a resiliency and transparency perspective: equating the playing field may provide an uplift to the listings outlook

At the same time, there might be opportunities outside the core business lines listed above as banks and asset managers reconsider their operating model set-up in the face of further cost pressure. Whilst a trend towards sourcing and partnerships may primarily benefit established BPO providers, MI firms with close client interlinkages in costly parts of the value chain (such as post trade) and willingness to expand could see opportunities to establish new revenue streams with their core client base.

Shareholder feedback and guidance, and resulting implications for business mix and strategy, will also need to be reassessed as MI firms plan for recovery. MI share prices have proven to be more resilient than their respective market indices and those of banks and asset managers. This is likely to be due to short-term volatility driving higher earnings at no additional cost.

Finally, the changed market environment may reinforce some merger and acquisition trends seen over 2019 and generate further investment opportunities. Reduced valuations and lower competition from bank investors, coupled with relative valuation stability for MI firms, may provide options for inorganic expansion along various deal types:

Bank carve-outs: Increased likelihood of further structural reform for banks if recessionary environment persists — with potential for shedding non-core assets (e.g. post-trade processing) and resulting opportunities for MI providers.

Technology and data-focused deals: Dent in valuations and lower interest from challenged banks and asset managers to look at fintechs may increase opportunities for MI providers to acquire assets benefitting from structural growth (potentially even more so as the industry digitizes further).

BigTech expansion into market infrastructure: Big technology companies and digitalization specialists have seen an explosion in demand for their services — increasing the likelihood that non-financial technology providers will expand beyond current core offerings into data management and back office/ ancillary services, potentially jointly with specialist capital markets partners.

SUMMARY: PRIORITIES FOR MANAGEMENT

We see three waves of management actions for market infrastructure firms – as the crisis goes on, focus will shift away from immediate BCM concerns towards managing the changed market environment and then looking to refocus the business.

WAVE 1 Ensuring stability in volatile markets	**WAVE 2** Maintaining resilience in a down-turn	**WAVE 3** Supporting the re-build and recovery
Navigating the immediate turmoil	**Re-opening & adapting to the new reality**	**Reprioritizing transformation actions**
Operations re-alignment to remote (internally, externally)	Re-opening and remote work at scale plans incl. a pandemic navigator	Digital acceleration
Enhancing internal communications	Engaging clients to identify additional support needed	Assessing M&A opportunities
Senior management support with reporting and metrics	Assessing path to normalcy for operations, compliance and conduct	Reshape sustainability agenda in post-Covid-19 world
Providing near-term continuity	**FRM in a changing credit environment**	**Positioning for recovery and rebound**
Increased operational risk mitigation (cyber, conduct)	Stress-testing, particularly for CCPs; re-calibration of margin	Re-assess IPO pipeline
Pro-active market controls (short-selling, conduct, etc.)	Strengthening credit risk & member frameworks	Stakeholder strategy (equity story, earnings, growth)
Engaging with regulators and policy makers	Close monitoring and increased fire-drilling	Integrated resilience upgrades (ops, cyber, AML, conduct, NFR)

Wave 1, actions to deal with human connectivity and business continuity issues, has been the immediate area of focus for all firms and is now largely complete. The key now is to draw on the lessons from this period, recalibrate the operating model and engage with clients as they adjust theirs.

Wave 2, actions to manage the pandemic cycle and the economic downturn, is the emerging area of focus over the next few months at most firms while they are taking various actions to manage risks and the near-term future.

Wave 3, actions to stabilize and reshape the business, comprises emerging strategic actions that should be considered at senior management level. Transformation actions need to be reprioritized in light of the pandemic and the business needs to be well positioned for the expected recovery and rebound. Many client trends from the pre-COVID phase (such as cost cutting and the continued rise of passive) are expected to accelerate, providing MI firms with a solid foundation to support the wider market.

Over the coming months, MI providers will need to carefully balance navigating the pandemic cycle and the imperative of stringent risk management with the opportunities for growth — especially as clients, regulators and governments see them as key actors to support the economy. MI firms who can start to think through the post-pandemic world sooner and more strategically, potentially helping their clients to adapt, can further reinforce their value delivery to the ecosystem, enabled by the current unprecendented market environment.

Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation.

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