ADAPTING TO COVID-19:
A Behavioural Lens on Financial Institution Resilience

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In the case of COVID-19, people and organizations have varying risk perceptions and appetites, mental models of disease, dispositions to cooperate, stereotypes of out groups, and trust in government and science.

-Varun Gauri[1]

INTRODUCTION AND OVERVIEW

With Canada now in its second year of living with COVID-19, the pandemic continues to pose ongoing and new challenges for financial institutions (FIs) in building resilience. Beyond unprecedented health, financial and economic risks, FIs face future challenges managing staff, operations and client relationships during the broader vaccine rollout.

We contend that applying a behavioural approach will help FIs rebound more quickly and effectively from severe disruptions such as COVID-19. To meet their evolving needs, and the requirements of their clients, it is crucial for FIs to address adaptability, undertake adaptive strategies and implement new tactics. A behavioural lens offers a better understanding of mindsets and risk perceptions when shocks occur. It also provides effective ways to enhance FI strategy and processes with staff and clients during these disruptions.

This paper explores how a behavioural approach can promote more effective staff and client behaviours to deal with COVID-19. It sets out how, using our behavioural framework and processes, FIs can boost organizational resilience during the pandemic through better management of disruption risks, as well as increased understanding of

opportunities to both build employees' trust and help broaden and deepen customer brands. Our approach offers strategy and tactics to effectively (i) enhance adapting (short-term) and adopting (long-term) behaviours and (ii) identify mindsets through better knowledge of how risks (negative and positive) are perceived. It encourages desirable behaviours to adapt and adopt by utilizing framing, incentives and trust, and is designed to improve staff and client choice as well as information architecture. To illustrate the practical applications of our behavioural framework and processes, we explore the challenges of staff returning to corporate offices in 2021 through a case study that discovers and segments employee risk mindsets.

We conclude by highlighting the merits of applying a behavioural lens for staff and for client actions and motivations beyond the pandemic. Our approach will help identify and realize future business opportunities through an enhanced understanding of staff and client behaviours.

1. ACHIEVING A MORE RESILIENT FI ORGANIZATION DURING COVID-19

Business Continuity Management (BCM)[2] traditionally focuses on disaster recovery with an emphasis on technology, cyber risks, third parties and other business disruptions. Typical BCM approaches were also designed for severe single events (e.g., cyber-attacks, environmental disasters) and other short-lived major structural disruptions. Yet an organization's employee actions, their lack of action and/or mistaken actions are (i) part of technology, third party and cyber risks, and (ii) constitute a distinct type of risk on their own. A behavioural lens will significantly help FIs identify and manage these risks.[3]

Using a behavioural framework and processes will also further develop organizational resilience.[4] Organizational resilience encompasses a range of goals, capabilities and strengths, including organizational adaptive capacity in response to adverse circumstances, especially shocks, to minimize operational risks and to take better advantage of new opportunities.[5] While there is no clear consensus yet on the precise definition of organizational resilience, the capability to adapt is consistent in most of the literature.

Achieving and sustaining FI organizational resilience during COVID-19 includes addressing the challenges of managing staff when most employees are working from home. A deeper understanding, better strategy and more effective implementation tactics are important to address the resilience needs of a distributed workforce during the pandemic. To meet these needs, FIs will be required to identify and understand adaptive and adoptive behaviours, and their respective sources and motivations more effectively. Then, FIs must act on approaches and interventions that facilitate and sustain desired adaptation and adoption.

To start, FIs need to ask key questions. What are mindsets and how are they shaped? Do mindsets change, and how should FIs incorporate mindsets into staff and client interactions? What behavioural factors shape employee and client activities and perceptions during COVID-19? How can FIs enhance their organizational resilience by better addressing these pandemic-driven behavioural issues affecting employees and clients?

2. A BEHAVIOURAL FRAMEWORK AND BEHAVIOURALLY INFORMED PROCESSES

Foundational Behavioural Science Concepts and Their Applicability

Our framework's core concepts are based in behavioural science and reflect its direct applicability to FIs' organizational resilience. Behavioural science provides essential insights regarding how people think, make decisions and act. Its strengths include many decades of academic research and its longstanding use of empirical

investigation to verify its concepts based upon hypothesis testing and data-driven results.

Behavioural economics has long been used by a range of industries, especially global technology firms and, over the past decade, by FIs. Our approach employs the broader capabilities and wider array of disciplines that constitute behavioural science and its application to markets. While our framework and processes include the concepts, findings and insights of behavioural economics and finance,[6] they go well beyond these to include neuroscience, psycho-analytics, neurolinguistics, semiotics, and other disciplines to investigate the deep-rooted beliefs, motivations, barriers and behaviours of individuals' decision-making processes. They are applicable to discover and uncover staff and client mindsets, risk perceptions and other crucial behavioural aspects specific to the context of COVID-19, and to ongoing areas beyond the pandemic including personal debt levels, financial planning, and retirement. It bears emphasis that our approach has practical applications well beyond the return to corporate office issues explored through the illustrative case study which follows. The broader behavioural science approach also applies to an array of client challenges during the pandemic and to future staff and client behavioural issues and opportunities after COVID-19.

Behavioural science's research findings and insights are especially useful in understanding behaviour during a pandemic. As people experience new circumstances, particularly in times of great anxiety and stress, such as with COVID-19, individuals adapt in the short term by taking on new behaviours. Many factors then influence whether these adaptations will evolve into behaviours that are adopted and continued for the longer term. To better understand and facilitate the adoption of desired behaviours, our core concepts are **adaptation and adoption; mindsets; and risk perceptions.**

Understanding and Achieving Adaptability and Adoption

Numerous behavioural research studies[7] show that the likelihood of adoption depends on how much an individual's adaptive behaviour differs from status quo behaviours. For most mindsets, as this difference increases, the perceived risk of change grows. Adoption is further shaped by whether the change is moving away from or towards an individual's specific needs and wants. Unless forced, individuals require an increased sense of advantage and utility, both conscious and unconscious, to adopt adaptive behaviours long term.

The larger the perceived benefits associated with the new adaptive behaviours, the more likely that the behaviours will be adopted for longer periods of time and become the "new normal." Otherwise, prospective adoptive behaviours will meet with resistance, compensating behaviours and a search for new ways to assuage the risks and heighten the rewards.

Mental Models and Mindsets

Mental models and mindsets are the building blocks of people's interactions with the world. Mental models are internal representations of how people perceive and assume the external world works. They help us process our information selection, interpretation, and cognition. Mental models are drawn directly and indirectly from the communities we belong to, and help determine our use of concepts, narratives, and worldviews.[8] They shape whom we listen to and follow, and whom we view as credible and trustworthy as "messengers," often at an unconscious level. An example of a mental model construct is the democratic system.

Mindsets are beliefs, attitudes and behaviours toward a specific mental model that is further influenced by experience, education, upbringing, and/or culture. For example, there are variant beliefs, attitudes and behaviours that give rise to different mindsets about democracy. Examples include mindsets regarding the legitimacy of government actions to restrict activities to prevent the spread of COVID-19 versus the primacy of individual liberty. Mental models and mindsets provide a foundation to understand many of the issues related to rational assessments and actions, especially given the information overload[9] about COVID-19 and decision fatigue from the much increased and more difficult choices required during the pandemic.

Towards a Clearer Understanding of Risk

Deconstructing how individuals talk about risk, and their associated feelings and beliefs, significantly advances the understanding of perceived risk. This analysis helps uncover prevailing mindsets toward risk and the motivations for the behaviours that are adopted. Risk behaviours can be broadly identified as dependent on whether an individual sees the risk as negative (with destructive outcomes) or positive (with constructive outcomes). In both situations, it is important to understand the reality of a person's state of risk acceptance. The goal is to better understand the risk-adaptive behaviours that are likely to be adopted.

With negative risk, fear is the primary motivator that determines a response. Seeking security and exercising the survival instinct will result when the potential for, and consequences of, negative outcomes are perceived as too high physically and emotionally. The accompanying stress response can lead to decision fatigue behaviours such as choice paralysis, decision avoidance and anxiety-driven behaviours. These stress impacts of COVID-19 are often accompanied by what appear as illogical behaviours and vulnerabilities such as not wearing masks, refusing or avoiding taking a COVID-19 vaccine.

In contrast, with positive risk (with constructive outcomes), associated behaviours show a capability to overcome risk and seek opportunities. Often this mindset results in building capabilities to manage risk that are holistically beneficial for the individual and their group/community.

3. APPLYING A BEHAVIOURAL FRAMEWORK AND BEHAVIOURALLY INFORMED PROCESSES TO FI RESILIENCE

A Framework to Encourage Desired Adapt and Adopt Behaviours

Our adapt-adopt framework encompasses a focus on mindsets and risk. Its processes have an implied feedback loop that requires FIs to embrace agility through an understanding of the motivations for adaptive behaviours. As COVID-19 events and stimuli result in constant variation in staff actions and experiences, adaptive behaviours are assessed. Under this scrutiny, some actions will be adopted while others are discarded. As new stimuli occur, new adaptive behaviours evolve, and the loop continues. Purposeful interventions should be introduced during an employee's assessment stage to influence adoption of the new desired behaviours. Over time this loop needs

to incorporate measurements, and, crucially, innovations and predictions that take cycles and time into account in their design thinking. This approach can help predict which of these adapted behaviours are specific to the pandemic and which will be adopted more universally as the behavioural norm.

The process of adaptation and adoption (Figure 1) shows the cyclical nature of first adapting behaviours, comparing their perceived value, and then adopting the behaviours that will best further the goal. The cycle begins again with new adaptive behaviours arising in response to changing circumstances. What strategies would an organization consider in guiding its people towards the desired behaviours?

Figure 1: Understanding Behaviour and Identifying Effective Interventions
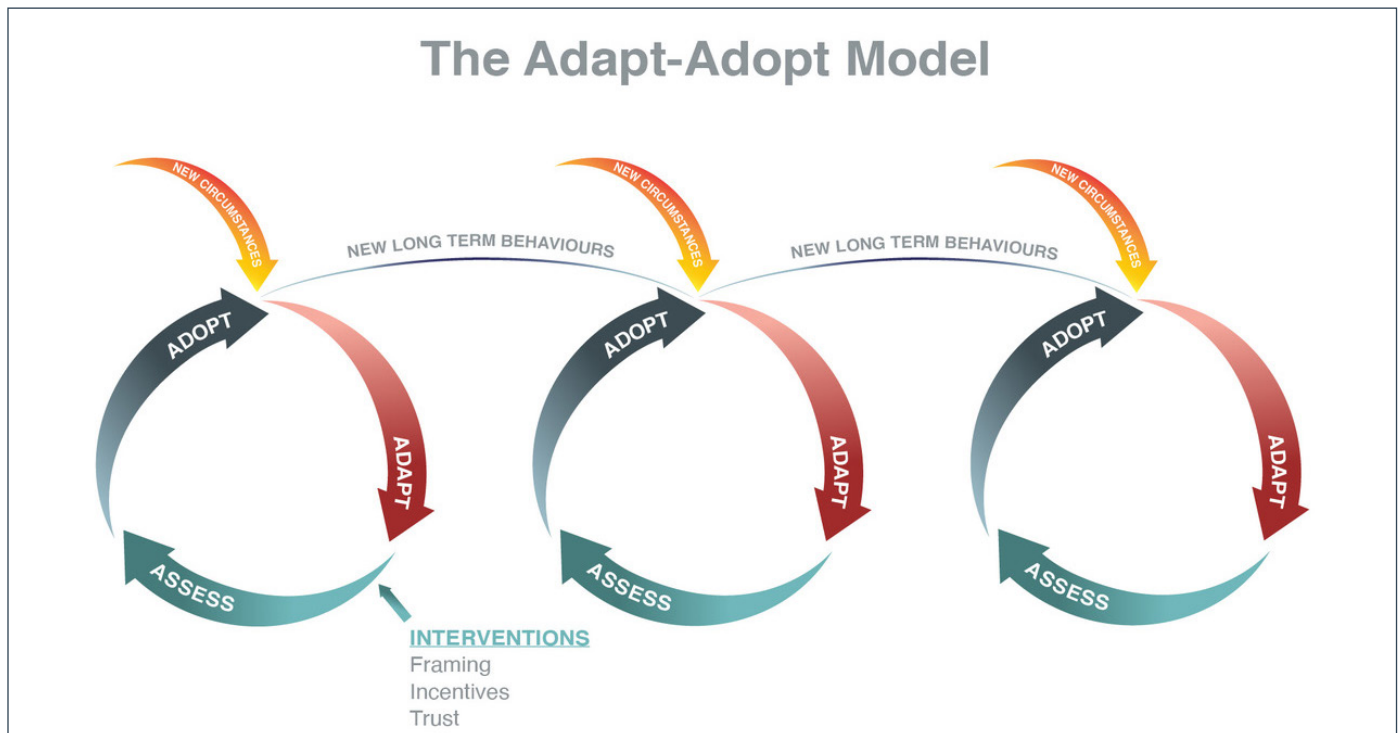
Source: Q:Quest Inc.

Core elements of our framework include better framing, improved incentives and building trust.

1. Better **framing** involves improving the information and choices within the risk trade-off paradigms that people use to assess the risk and reward of adhering to and complying with public health policies at the office and at home. Improved framing encompasses (i) better presentation of information and choices to benefit people's attention to and understanding of gains and losses, plus (ii) an understanding of other barriers, motivators, and sensory cues to comply. Determining how risk is framed beyond gains and losses and investigating the language used by an individual in understanding risk and their associated actions is important. Improved framing will increase engagement and a sense of individual agency. Enhanced framing, both online and in person including through tailored information and choice architecture as noted below, will help management, employees and staff understand next steps. Simulation and modeling can also play a role in guiding adaptation and adoption by viewing alternative courses of action that are specific to the situation(s).

2. Improved **incentives** encourage employees to adopt behaviours that comply in the office, at home and with clients. This means offering incentives that go beyond traditional financial rewards of bonus, salary, and other increases in cash compensation. Non-monetary rewards are crucial. For example, a resilient FI organization will offer a distributed decision-making approach that allows individuals to take on more responsibility and accountability, in turn moving toward greater self-actualization and increased productivity. It should offer incentives to employees to increase their own individual human capital and that of the FI.

3. Building **trust** requires moving beyond imparting traditional and hierarchical authority. Too often, the "command" approach to dictate/require action rather than a collaborative effort is problematic, especially in a pandemic. It is based on fear and is not healthy for staff's mental wellbeing as it can create both dissonance and stress. The alternative is to build trust through action and empathy. This includes demonstrating a commitment to help clients and employees adopt beneficial individual actions during COVID-19 that will strengthen their health and wellbeing and that of the FI. Stakeholders will trust those leaders who consistently and compassionately demonstrate and communicate a plan of action that is rooted in evidence and pragmatic tactics that they feel are safe to follow. These leaders will also create a work environment conducive to sharing ideas and feelings. With a business-specific playbook and empathy for their concerns, FIs can guide management, other employees, and clients, helping them to adapt on the journey through the pandemic experience.

Improving Information and Choice Architecture

Addressing the difficult combination of COVID-19's behavioural challenges also requires that FIs improve the information architecture and choice architecture for employees, management and clients. Information architecture involves selecting and structuring information to help people find the key facts and other details that aid their understanding, decisions, and actions. Choice architecture involves organizing and carefully designing the context in which choices are presented and decisions are made.

Implementing better information and choice architecture starts with discovering and exploring the specific mindsets of FI organizations and their clients. The process continues by revealing specific perceptions and understanding of risks, taking actionable steps that reflect the goals of the organization, and seeking adjustments through an adapt-adopt cycle of assessment and improvement. With COVID-19, we need to respect that these different mindsets are best assessed through the lenses of individuals' internal and external realities.

Accordingly, a resilient FI will need to do the research necessary to better understand the mindsets of employees (including management) and clients to understand the influence of fear. This research should assess individuals' internal realities: the mindset as to how they deal with risk, beliefs, motivations, and behaviours. Equally important,

research should seek to understand individuals' external realities: their environments, situations, and their interactions with the world. Through this understanding, an FI can build relevant and compelling strategies and tactics, including improved information and choice architecture. This behavioural approach will help lead to individual risk acceptance and compliance that improves the results for clients, employees and the FI. The goal is to develop an adaptive model that leads to desired outcomes and behaviours that will benefit the FI's employees, management, and clients.

4. APPLYING A BEHAVIOURAL LENS TO SPECIFIC COVID-19 CHALLENGES FOR FIs: A CASE STUDY

Behavioural challenges stemming from the pandemic are significant obstacles to management efforts to have staff return to corporate offices, especially when employees have widely varying views of safety and are experiencing different levels of stress because of COVID-19. Implicit or explicit tensions, and the potential for increasing distrust of management are initial risks. Over time, there will be a rising potential for higher staff turnover, with clear financial and productivity consequences. If management applies a more behaviourally informed approach, FIs can help avoid these problems and ensure a more motivated and productive workforce.

Engaging employees appropriately in returning to corporate office(s) should yield desired outcomes which include: (i) a workforce that feels safer, (ii) management that is more trusted and credible, which leads to (iii) a more engaged and effective workforce. The means to achieve these outcomes include clear protocols such as effective communication, technology (e.g., testing, touchless entry), support programs and thresholds (e.g., negative test results, proof of vaccination). Research using a behavioural framework and processes should help generate guidelines for engagement strategies and tactics that include better communication and support programs in person and online.

To engage with staff, behavioural strategy and tactics will involve answering the questions that are related to risk and risk-associated behaviours:

1. What will make staff feel safe? What will make staff feel unsafe?

2. How will current adaptive behaviours evolve into adopted behaviours?

3. What are the critical catalysts that lead to long-term adoption of adaptive behaviours?

4. How has the work environment changed? (Do staff members feel that they are doing more work now than previously? Do they feel they are more/less productive? Do they believe management has provided the needed support and necessary technology?)

5. What **mental models** have staff currently adapted and which will they adopt longer term? (How can management anticipate these shifts?)

Effective employee engagement begins with understanding and profiling the FI's workforce according to their beliefs and risk-benefit trade-offs. This leads to understanding which behaviours have been adapted in the short term versus those that have been adopted for the longer term. Only then can the most appropriate actions be taken to enhance organizational resilience.

As explored in section 3, it is essential to undertake focused and practical research to understand FI staff's mindsets and risk-benefit trade-offs. The goal is to generate an effective classification of staff risk-related mindsets. Building upon earlier research on risk for leading Canadian FIs[10] the proposed research is intended to achieve potential identification and segmentation that spans a continuum of mindsets including: (i) fearful (never go back to corporate office(s) until it is completely safe), (ii) reluctant/sceptical (prove to me it is safe), (iii) balancer-pragmatic (I will do what is right for me, my family and my team), and (iv) confident consenter (confident management will do what is right for me). The insights gained will yield a deeper understanding of how to shape these contingent behaviours based on risk-related mindsets.

Given the different needs, expectations, and behaviours associated with these mindsets, better productivity and more engaged, growth-oriented staff and management will be achieved if this research is considered and management tailors their communications and incentives to target the individual mindsets. To discover these mindsets our process proposes an approach that employs linguistic analysis of unconscious "cues"[11] or triggers that tend to put people into specific mindsets related to the risk they are willing or able to accept.

In brief, our framework and processes segment people depending on the differences in their beliefs and associated behaviours related to a specific context such as COVID-19 and workplace adaptation. This discovery stage uses psycho-analytical and neuro-linguistic interviewing methodologies. Next, hypotheses are formulated around the types of mindsets that may emerge, and then refined and validated using small and big data statistical and machine-learning analysis and simulation modelling.

Case Study Example

Previous research, collaborated on by two of the co-authors for a major Canadian FI, began with developing a questionnaire to uncover mindsets. The questions were designed to explore both the practical and emotional responses to risk and were categorized into circumstances and preferences. Circumstances highlighted the individual needs and the state of affairs related to risk while preferences highlighted desires and preferred outcomes.

The answers to each question were weighted based on three categories: (i) capacity for risk; (ii) need for performance; and (iii) desire to outperform. Responses helped place the subjects on a continuum of their relationship to risk and provided context to develop communication and employee engagement strategies. Above all, the findings helped shape discussions with each person about their relationship to risk and facilitated compliance with actions that were consistent with their mindsets and desired outcomes.

The researcher interviewed subjects, with the primary goal being to listen to understand why they act by "decoding" the grammar of their unconscious motivations. The objective was to motivate compliance to beneficial behaviours through the understanding of their risk mindsets.

This research revealed that risk took on the classifications of: (i) survival (fearful), (ii) security (sceptical), (iii) enhancement seeking (pragmatic), (iv) adventure seeking (confident) and (v) high-risk seekers (gamblers). These behaviours were found to exist in a non-hierarchical, dynamic model. Mindsets were influential to differing degrees depending on the person, their circumstances and their preferences. The model is depicted in Figure 2 below.

Figure 2: A Dynamic Model of Risk Mindsets
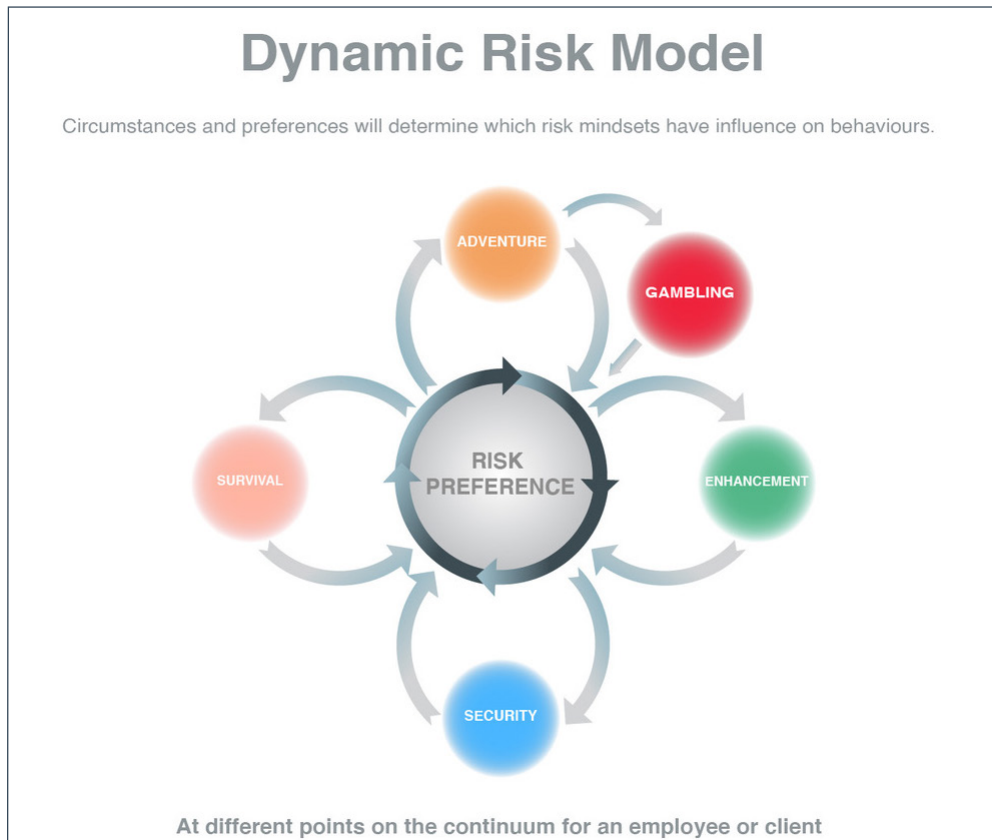
Source: Q:Quest Inc.

There are multiple lessons from this research case study and their application to FIs' organizational resilience. The baseline of each mindset was safety, but multiple risk mindsets were uncovered that showed a range of individual likelihoods to comply and conform. The results were translated into strategic direction and tactics. Communications strategies were developed to address the different places individuals might occupy on the risk mindset continuum, including significantly restructuring the language, presentation of data and the type of visuals used to improve the information architecture.

Different incentives, framing and rewards were developed to correspond to the types of risk mindsets. This included a blend of monetary and non-monetary rewards that were aligned with the established levels of acceptable risk tolerance. To improve the choice architecture, rewards were framed in the language that dealt with the expected outcomes and the capacity for risk. New monetary incentives were tailored to performance and new non-monetary rewards were designed to increase agency and engagement.

Managers in these scenarios were asked to become more sensitive to a subject's mindset while management tools and training were provided to guide managers through this discovery process. In this way, the process to identify and understand risk mindsets helped the FI to move to an active process to guide the adoption of beneficial behaviours.

Improving FI Staff's Resilience with a Behavioural Approach after the Pandemic

Looking ahead, the dynamic merits of a behavioural approach, as set out, have widespread application to the post-pandemic work environment. For example, our behavioural framework and processes can help employees achieve a better work/life balance, boost their productivity, work engagement and trust in management. Given the likelihood of varying types of hybrid corporate office(s)-work from home models after COVID-19, using behaviourally informed research to understand staff's mindsets as well as their positive and negative risk views can help to significantly improve communications and staff incentives. Focused research on staff mindsets regarding their issues about work boundaries can help shape better information for communications and improved choice architecture for employees, including non-monetary rewards to help make the hybrid model work better.

Using a Behavioural Framework and Processes with Retail Clients

It warrants highlighting that using behavioural frameworks and processes has numerous, decisive advantages for FIs with their clients. Understanding the mindsets of retail clients is particularly important, both during and after COVID-19, as illustrated by significant developments over the past year, two of which we outline below.

One is the sharp jump in many individuals' savings rates into double digits from low single digits just prior to the pandemic. Much of this savings surge was unexpected and unintended as it was driven significantly by the sheer scale and speed of government income transfers and by reduced expenditures from the restrictions on travel, dining at restaurants *etc*. Yet, another key reason for substantial declines in overall spending arose from precautions and individuals' desire to build financial buffers given COVID-19's health and economic risks. FIs have a clear opportunity to engage more effectively with these retail clients to achieve much improved financial planning and behaviour, especially for retirement and debt management.

Another major development has been the high-profile mobilization of retail investors during the pandemic.

The soaring numbers of people in the 20-35-year-old demographic investing via online platforms and focusing on selected equities has generated wild swings in selected stock prices. This has resulted in both large gains and losses among these new investors. With the combination of minimal upfront transaction costs, broad social media focus and massive recent stock volatility in some actively traded stocks, it is crucial to understand the risk mindsets of these younger clients to help them achieve better and more sustainable investing behaviour. Too often, their investment activity involves speculation and excessive trading from "attention-induced" turnover and biases that lead to return seeking rather than non-speculative reasons (saving for retirement, meeting liquidity needs or rebalancing their portfolio).[12]

For both types of individuals, FIs need better knowledge of the multi-faceted nature of these clients' risk mindsets and other behaviours. FIs can use our framework and processes to build their understanding of clients' mindsets including individual perception of risk, tolerance of potential losses, and risk composure during periods of market stress and volatility. Our approach includes in-depth research that reflects both generational and situational contexts. Combining this research with the mindset model enables tailored communication strategies for staff to improve the language, presentation of data and type of visual aids used with clients to improve their information and choice architecture.

CONCLUSION

This paper has explored how using a behavioural framework and processes can significantly improve FIs' organizational resilience in managing COVID-19's risks and uncertainties. The ongoing stresses and uncertainty with the pandemic's path until widespread vaccine uptake occurs create needs and opportunities that go beyond standard FI risk management approaches.

A resilient FI will look deeper to understand the complex motivations for adapting (short-term) and adopting (long-term) behaviours. Its approach should embrace an improved understanding of the different mindsets of its employees, management and clients through research that examines their perceived risks associated with COVID-19.

To understand the influence of fear, an FI's research should assess individuals' internal realities: the mindset of how they deal with risk, beliefs, motivations, and behaviours. Equally important, research should seek to understand individuals' external realities: their environment, situation, and interaction with the world.

A behavioural approach uses this enhanced understanding of mindsets and risk to design and implement more effective measures to build trust, improve framing, and implement incentives. It will facilitate adaptive behaviour by crafting and applying specific monetary and non-monetary incentives. The larger the perceived benefits associated with the new adaptive behaviours, the more likely that the behaviours will be adopted for longer periods of time and become the "new normal". By including incisive framing and structuring of these incentives, a resilient FI will build and sustain trust. Otherwise, prospective, and desired new adaptive, behaviours will meet with resistance and other undesired behaviours will emerge, leading to a search for new ways to assuage the risks and heighten the rewards.

In summary, an incisive behavioural framework and processes can significantly enhance FIs' resilience in dealing with COVID-19's challenges in 2021. Looking beyond the pandemic, a behavioural approach offers a dynamic and widely applicable strategy to further boost and sustain FIs' resilience with their staff and clients.

ENDNOTES

1   April 2020. Varun Gauri is the founder and former co-head of the World Bank's behavioural science unit. Excerpt from Varun Gauri, "Behavioral Public Policy Faces a Crisis", *Behavioral Scientist*, April 30, 2020 https://behavioralscientist.org/behavioral-public-policy-faces-a-crisis/

2   Business Continuity Management (BCM) has been described by PwC "as a process of identifying and responding to fast-approaching, high-impact interruption risks that can overwhelm inherent operational resiliency. BCM's mission is to enhance enterprise resiliency and help an organization respond and recover from both unanticipated and anticipated business interruptions. BCM has the added value of helping the organization identify operational resiliency improvements that can greatly enhance their ability to weather interruptions that would otherwise significantly challenge competitors." See pwc.com/us/risk assurance, "Enterprise risk management and business continuity management: Together at last" (New York: PwC, 2020), p. 3. https://www.pwc.com/us/en/risk-assurance-services/publications/assets/pwc-erm-and-bcm-together-at-last.pdf

3   The approach in this article expands on this standard definition of BCM. In that context, operational resilience serves the goals of BCM in its focus on returning operations to stability. Organizational resilience serves the broader goals of the persistence of the organization.

4   According to Stephanie Duchek, "In highly volatile and uncertain times, organizations need to develop a resilience capacity which enables them to cope effectively with unexpected events, bounce back from crises, and even foster future success. Although academic interest in organizational resilience has steadily grown in recent years, there is little consensus about what resilience actually means and how it is composed." Duchek's literature survey underscores resilience's difference from related concepts such as flexibility, agility and robustness, citing that "resilience is an important success factor in dealing with unexpected threats and crises" and "includes an adaptation aspect". See Stephanie Duchek, "Organizational Resilience: a capability-based conceptualization", *Business Research* (2020) vol. 13, pp. 215-216. In his summary of 181 academic studies and five case studies, David Denyer defined organizational resilience as "the ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper". See David Denyer, "Organizational Resilience: A summary of academic evidence, business insights and new thinking", (BSI and Cransfield University, 2017), p. 3.

5   Jozef Klucka & Katerina Haviernikova, "The Selected Issues of the Concept of Resilience and the Way of its Application in Crisis Management of the Company", *Conference Proceedings: 2nd International Scientific Conference*, ITEMA 2018.

6   For a comprehensive overview of behavioural concepts and their foundational research, see Alain Samson, (ed.), (with an Introduction by Colin Camerer), *The Behavioral Economics Guide* 2020, Behavioral Science Solutions Ltd., pp. 143-194. Retrieved from https://www.behavioraleconomics.com. For the core concepts and insights used in behavioural finance, see Ontario Securities Commission (primary author James K. Stewart), *Behavioural Insights: Key Concepts, Applications and Regulatory Considerations* (Toronto: OSC, 2017), Chapters 1 and 2.

7   Examples of studies related to adaptive behaviour and adoption of behaviours include Sajal Kohli, Björn Timelin, Victor Fabius & Sofia Moulvad Veranen, "How COVID-19 is changing consumer behavior–now and forever", *McKinsey & Co.,* (2020); Jadish Sheth, "Impact of Covid-19 on consumer behavior: Will the old habits return or die?", *Journal of Business Research,* Volume 117, September 2020, Pages 280-283; and David Zilberman, Jinhua Zhao, & Amir Heiman, "Adoption Versus Adaptation, with Emphasis on Climate Change", *Annual Review of Resource Economics*, (2012).

8   World Bank, *Mind, Society and Behaviour*, 2015 Development Report, pp. 11 and 62-63.

9   The staggering volume of articles, commentaries and views on COVID-19 from domestic and international traditional and social media on COVID-19 challenges even the monitoring and analytical capacities of experts. One analysis of two leading global newspapers – *The Economist* and *The New York Times* – combed through every article that each published since the mid-19th century. It found that only the two world wars compared to COVID-19 for frequency of appearance. In 2020, nearly 50% of the articles in both publications included "COVID-19" or "coronavirus". See *The Economist*, "Only the

two world wars have rivalled COVID-19 for news coverage", December 16, 2020. Looking at just the volume of scientific analyses of COVID-19, the information overload is also clear. See John Gapper, "We need a remedy for the vaccine data epidemic", *Financial Times*, February 12, 2021, https://www.ft.com/content/d85c1c7f-6077-408b-8952-6bf1e54866ae? The changing and often confusing policy announcements and guidelines of governments have exacerbated this information overload from the enormous volume of media coverage. On the weaknesses in government communication, see Hugh O'Reilly, Matthew Bourkas & James K. Stewart, "Managing COVID-19 beyond lockdowns and vaccine research", (Ottawa: Macdonald-Laurier Institute, November 2020), pp. 1-13.

10   This risk preference research work was conducted in various capacities by Joanna Castellano and William R. Horton since the 1990s. Joanna continues to apply risk preference and other behavioural science in her work with a range of FIs while William extensively used these concepts and insights in his FI C-suite roles.

11   Cues and frames of mind referred to here go beyond the concept of framing used in behavioural economics. It is not specifically about choosing an option based on positive or negative connotations, like loss or gain. Rather, the proprietary methodology of ACTIVInsights Model is used to discover frames of mind that reveal the language of influence and choice. This leads to an understanding of the complex structure of problems and issues and how they are resolved or compensated for. In this case, the issue is risk and how it is dealt with. More specifically, determining how risk is framed, beyond just win or loss, and then delving deep to the root level of the language used in understanding risk and associated actions.

12   For an informative discussion of these behaviours, see Brad M. Barber, Xing Huang, Terrance Odean & Chris Schwartz, "Attention-Induced Trading and Returns: Evidence from Robinhood Users", February 11, 2021, pp. 1-3. SSRN: https://ssrn.com/abstract=3715077 or http://dx.doi.org/10.2139/ssrn.3715077