Shifting Risk Horizon: Regulatory Expectations[1]

First off, let me attempt to unpack the topic. As risk practitioners, we are all familiar with the concepts of risk horizon, horizon risk and even, risk shifting. But shifting risk horizon? I would consider this term too axiomatic to need deliberation. Horizons look almost the same from different places and will always be beyond you, no matter how fast or how far you run. That leaves us with expectations - the topic of regulatory expectations. Philosophically, regulatory expectations could always have traits of a horizon in terms of your runs for meeting them - just to find that those have shifted further when you thought you have are near. The fault lies neither in you nor in regulator but in the inherent character of your stock-in-trade - risk, which is amorphous and restless. Turning from philosophy to statistics, we all know that Expectation or Expected Value of a random variable is the average outcome over many repetitions or trials measuring the central tendency of that random variable. Any variable (say, regulation) which is a function of a random variable (say, risk) has to be a random variable rather than a constant. That partly explains the challenges in framing dimensions to regulatory expectations. This is compounded by a fundamental question if risk management *per se,* as distinct from its governance artefacts, can be entirely regulated. Nonetheless, it will be reasonable to begin with the premise that CROs' role is more about exhaustive risk management where meeting regulatory expectations becomes a natural subspace. Regulation, broadly being a lagging phenomenon, may have the advantages of hind sight to weave in to its expectations. But that holds an answer to the CROs' role rather than rationalise any misses - it is the inherent nature of effective risk management to be forward looking, proactive and to anticipate potential future events and their impacts and not just reacting to past issues.

Deconstructing Regulatory Expectations

2. When the gathering is of CROs, it is safe to begin with the word 'risk'. A risk management approach treats banks as a bundle of risks that need to be effectively managed to achieve certain strategic goals. A simpler way to shape out risk is to treat it as 'potential for loss' in different business scenarios. Degree of realisation of this adverse potential is called actual loss. Financial loss that exceeds expected loss - what

[1] Address by Jayant Kumar Dash, Executive Director (Retd.), Reserve Bank of India, in CAFRAL's Conference of CROs: Evolving Risk Landscape on August 21, 2025 in Mumbai

a bank or NBFC anticipated in worst case scenario, is unexpected loss. Minimising unexpected loss is the core of risk management, within its broader scope. Prudential regulation, in essence, sets the base case capital standards to address the unexpected loss at system level. To contextualise, regulatory expectations broadly encompass compliance with laws, regulations and virtuous practices. Compliance operates broadly at two levels viz. (a) external rules or standards including regulations, statutes, SRO norms / industry set standards / protocols etc. and (b) internal systems of controls laid down to comply with above externally imposed rules. As for assurance of the prudential parts of regulations, the risk management function predominantly caters to the latter with compliance and audit functions providing complementarities. In a sense, if regulatory expectations are 'what', risk function deals with 'how' parts and compliance / audit with the 'doing' parts.

3. A key attribute of regulation is it's secular application to a defined / stratified cohort, without distinguishing the idiosyncrasies of individual institutions. In India, the banking regulations have been emerging well out of its rule-based scaffolding but still not entirely into goal or principle based regime, for good reasons. That adds certain shades and tones to regulatory expectations when the practical face of regulation i.e supervision, comes into scene. Trend of any observed discrepancies in reckoning of either expected or unexpected loss or both, during supervisory review can be a good indicator of regulatory expectation gap. Such expectation gaps can have direct quantitative connotation by way of a lower assessed capital adequacy for expected loss or indirect capital implications with higher risk assessment scores for unexpected loss, though additional supervisory capital burden has not yet been applied in India.

4. Presuming regulators' awareness of the risk of frequent or unpredictable changes in regulatory expectations, it would be relatively easy for risk function to figure out the central tendency of regulatory expectations in steady states. However, factors such as technology / digital advancements, legal repositioning or new laws, government initiatives, changing consumer awareness, globalisation, newer emerging risks, undesirable industry practices, that might infuse some degree of flakiness to regulatory expectations at times. Hence, some hedges around the central tendency of regulatory expectations would hold the CROs in a better balance in meting regulatory expectations. Given the evolving and stated regulation making process of RBI, both in terms of design and implementation, usually the banks/NBFCs have reasonable time to influence as well as meet the regulatory expectations even beyond the central tendency.

Johari Windows for Regulatory Expectations

5. For a methodical view to meeting regulatory expectations, CROs can adapt a Johari Window model for fostering better understanding and transparency. The quadrants can be based on the state of risk identification by the CROs and the Regulators, presuming that the regulatory identifications encompass all the factors mentioned earlier. Institutions can assess their current level of meeting regulatory expectations and identify gaps and close them by using the well known 'open', 'blind', 'hidden' and 'unknown' quadrants. At the risk of superfluity before the learned practitioners, let me amplify the concept a bit by synthesising it with uncertainty matrix, aka Rumsfeld Matrix, for scenario planning in risk management.

(a) Open Expectations (known knowns): Those enduring risk matters which are on the table, from channels such as regulatory or audit findings without being satisfactorily closed or not sustained after initial closure. These are generally those current and near-term threats that risk functions deal with on a day-to-day basis. These can be best handled by compliance and audit functions, unless elements of risk management are called for.

(b) Hidden Expectations (known unknowns): This represents specific risk in the institution which is known to or identified by the risk function but not disclosed to regulators or auditors, in the absence of a desirable communication policy. These are generally the strategic risks, mostly unreasonable/unethical, voluntarily accepted by the banks/NBFCs to generate alpha. Knowledge (or otherwise) of the board can tilt the characteristic of this quadrant in terms of consequences.

(c) Expectation Blind Spots (unknown knowns): The developing or developed risks that are known to the regulator, or market, but not fully recognised by the risk function/board. Such areas would essentially represent lack of a proactive risk management or oversight with siloed or blinkered approach of the risk function.

(d) Unknown Expectations (unknowns unknowns): These are areas which are not yet in the radar of the risk function or the regulators, and generally relate to the emerging regulations for radical uncertainties, newer interpretations or previously uncovered risks. These are uncontrollable and unexpected shocks or surprises that do not happen too often, hence overlooked, unrecognised or inadequately analysed.

6. An ideal and a mature risk function moves risk up and right in the Rumsfeld Matrix to operate only in unknown expectations ('unknown-unknown') quadrant. This needs the ability of the risk function to covert known-unknowns and unknown-knowns to known-known quadrant where it will be easiest to manage in an autopilot mode.

Now after a little bit of theoretical mooring, let us turn to brass tacks.

Select Regulatory Expectation Themes

7. Risk Governance / Management

7.1 Three Lines Model : Broad adherence to Three Lines Model as a risk management framework has been a practice across financial institutions, even in the absence of any explicit regulatory mandate. This is an enhanced version over the earlier Three Lines of Defence model which shifted emphasis from 'lines' to principles of risk management and from 'defence' (reactive) to value addition (proactive / strategic) by risk function. In the place of unidirectional communication in the old model, it brought in structured lateral communication and collaboration among lines. To what degree your framework is aligned and up to date? The new model does not explicitly place compliance and legal function with risk management as the second line, unlike the older model. Still, the Second Line covers risk function with a supervisory role over the First Line among others - more like a risk auditing role aligning with the Third Line. Risk function better needs to play a central, proactive and unalloyed role in risk management rather than play a backup role to First Line. Different banks in India follow different practice of reporting line of risk functionaries in business. Hence, behavioural responses from First Line, who have the dual, often conflicting, role have not always been what a truly independent risk function would have expected. It needs open reflection, if compliance and audit function with similarities and synergies in their operations can be better realigned with Third Line.

7.2 Board Oversight: The role of board vis a vis risk management function is very critical in regulator's expectations. Risk management is not merely a business or operational responsibility of risk function but a major governance issue lying squarely within the oversight responsibility of the board. Demarcation between risk management and risk oversight needs to be clearly understood. While the risk function is responsible for design and implementation of the bank/NBFC's risk management framework, it is

board's responsibility to sign off the usability and effectiveness of the framework for which it is ultimately responsible. AI-era has added more demands on effective board leadership as banks/NBFCs adopt AI-driven risk management strategies, enhance operating models and join ecosystems for which regulatory expectations are in the grey. Slacks in change management and workforce alignment in the transformative equation using AI could generate more risks than mitigation.

7.3 Strategic Role of Risk Function: In simple words, strategy is nothing more and nothing less than a bet on a risky future[2] - a bet about banking, bank customers, bank capabilities and bank competitors (NBFCs too). Hence involvement of Risk Function in strategy is a natural corollary. It is clear that risk management is fundamental in strategic management - not a separate consideration. Renewed regulatory focus on robust risk management in financial services industry and more prominent role in strategy and other matters for risk function deserves to be internalised faster. Expansion of risk engagements and efforts for more purposive and explicit evaluation and demonstration of linkages across strategic planning, capital planning, and risk management could help regulators validate their expectations. Integrating insights across the bank to anticipate future threats and strengthen resilience assumes importance for the risk function as part of strategy. To be effective, a CRO should not just be a the board / CEO informant but a vital member of the executive team and a trusted adviser to the board. This integration too demands the CRO to have a strategic mindset grasping a broad set of risk disciplines - both financial and non-financial, beyond the risks themselves including clear knowledge of the businesses.

7.4 Proactive Risk Management: Risk management can not be otherwise than a forward-looking approach to identify and address emerging risks before potential become actual. It involves analysing a scenario carefully or assessing processes to determine the potential risks, identifying their drivers, assessing probability and impact to prioritise risks and preparing a contingency plan. It should be practised as a continuous process and a discipline forming an integral part of the overall business strategy as well as risk culture. Ensuring proper communication between all stakeholders across functions and harnessing the benefits of technology are crucial elements to create greater business value. Knowledge about the strength of innovation potential of the bank / NBFC would help risk function and leveraging such information to

[2] Roger Martin, Risk Management and Strategy (@Medium), 2025

effectively to mitigate risks. CROs need to be more alert to the speed of risk as part of their proactivity. The fast-moving, massive outflow of deposits in SVB episode brought home to bankers just how quickly risks can form in an environment of real time transactions at the speed of spreading information and misinformation. Investing in early warning indicators program is no more an option for CROs, but a necessity.

7.5 Integrated Risk View / ERM: Managing risks have no doubt gotten harder as the list of risks and thus, the list of priorities keeps growing for CROs. Regulatory requirements have obligated risk function to collect, organise, and model vast quantities of data to evaluate a bank's exposures to risk and its capacity to weather adverse scenarios. CROs' spending significant part of their resources in meeting regulatory demands mean less time for the core tasks of risk management. A combination of advanced quantification methods (e.g analytic modelling and stress testing, also using alternate data sources) and the systematic integration of qualitative factors, including business-management judgment are essential for Identification, quantification, and prioritisation of key risks as well as related returns. Forward thinking in risk measurement and management reporting, complementing statistically validated approaches, demand readjusting of the risk management strategies to create a universal risk view. The missing out of risk interaction has always been a hotly debated academic topic without any definite answer. Unlike many other disciplines, risk management took shape from a set of audit (e.g., COSO and internal controls), regulatory and other principles rather than from any fundamental theory of risk. Consequently, risk function is organised around risk silos, missing hidden risks from the dynamic interactions among risk types. Recently, an "Unified Theory of Risk"[3] has been proposed as a novel theory of comparative risk which encompasses unified diagnosis rather than treating risk as an univariate function. Banks with sophisticated risk management appetite would do well to evaluate new models of integrated risk measurement and management.

8. Non-Financial Risks (NFR):

In current opinions, NFR remains elevated and top three risks are said to be cyber security, frauds, technology. Regulatory interest on third party risk, model risk, governance and control related to AI are also expansive and the following aspects may help seize the expectations.

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[3] Unified Theory of Risk, Jaako Harvey and another , University of Helsienki, The Philosophical Quarterly, October 2024

8.1 Strategic Risk and Business Disruption: Core macroeconomic functions of a stable financial system include efficient allocation of financial resources, risk-sharing mechanisms, and efficient / secure financial infrastructure. Traditionally, banks played a fulcrum's role for long with their capacity to create credit and balance sheet structure. However, while lagging the pace of growth of market based finance (MBF)[4] entities, banks' share in the financial system is contracting. Typically, credit market is of different importance for financial stability than equity markets due to stronger 'financial accelerator effects'. Adverse shocks, vulnerabilities in the MBF sector may lead to amplification of systemic risk and hence bank CROs need to be aware of their direct and indirect linkages to such entities through exposures. Lagging deposit growth in banking is one symptom of this trend as MBF entities gaining increasing control over the customers deposit in bank accounts with creeping financialisation. Combined with stunted credit creation by banks arising from demand shifts, this may affect CROs in the broader banking system. As for business disruption, agile management approach has been seen to be a choice in a few banks in their zeal to compete with much smaller FinTechs. Agile management techniques, borrowed from project management / software developments, focuses on the technical aspects of the delivery as opposed to traditional lifecycle / systems engineering approach that banks adopted earlier which duly factored in both technical and non-technical aspects of products and services. Such adoptions may often fall below the regulatory expectations bar.

8.2 Business Model and Concentration Risk[5]: Business Models, increasingly referred to in regulatory talks, are used by banks / NBFCs as a tool for augmented business performance. Without a clear definition, it is incumbent upon the risk function to impute characteristics to identify risks embedded in the manner the bank/NBFC carries out its business - to be aligned with regulatory thinking and expected outcomes at the endeared . Among varied expositions, a business model is said to be a composite of elements such as (i) offering to customers (e.g value proposition), (ii) customer management (e.g segmentation, channels, relationship), resource utilisation (e.g funding, cost and revenue structures) and (iii) resilience information (e.g key resources, key activities, key partners). Good old concentration risk has special linkages to business model at more levels than commonly practised. The traditional approach to

[4] Finance by NBFIs, including important financial sector assets by sub-sectors, through equity and debt based market instruments or structured finance.

[5] Balancing the Business Model and Concentration Risk, Clifford Rossi, GARP - Risk Intelligence, 2024

identify and measure concentration risk has been undergoing paradigm changes with newer episodes of failures. Cases have been made to identify concentration risk across the entire risk taxonomy and consider interaction of key concentrations on bank's risk profile. Regulators generally use peer data on such risks to identify outliers. Analysis of severity of bank's interactive concentration risk across multiple risk types is a better indicator than concentration risk on a specific risk type. Best practices generate a distribution of such concentration from publicly available data of peers to pit against their own at different percentile levels to draw a 'fear frontier' as concentration limit across its risk types. Even when concentration risks are hard to avoid because of the business model, or strategy with dependancy on a specific sector, asset type or geography, it is even more important to feature concentration risk prominently in the risk identification, measurement and management processes. Any specialisation brings, along with certain financial edges, potential camouflaging of unintended concentrations going undetected till it's late. Globally, CROs are generating new varieties of concentration heat maps to understand this; not only the risk inside the business, but also outside it.

8.3 AI/ML Risk Management: Used for many years by banks / NBFCs in varying degree, the exponential growth in and accessibility of AI technology / tools is accelerating its use by them. However, the approach is rather cautious about gen-AI, with most still in testing phase. Transformative benefits from wider use of AI has also the potential to exacerbate existing risks. A recent U.S. Treasury Department study[6] documented how gen-AI capabilities are amplifying cyber and fraud risk at financial institutions. AI is being used, for example, to generate new malware code, or "data poisoning," that is intended to compromise decisioning software at banks. AI-driven deepfake technology is being deployed to steal banks' customer data in an effort to sell or access their accounts. These are no longer theoretical "what-if" scenarios, but, rather, very real threats that banks/NBFCs must confront as part of their operational risk readiness. The industry's operational risk capabilities at this stage appear to be insufficient for this coming onslaught in cyber and AI-fueled threats, as per some USA regulatory reports. Machine Learning is yet to prove its unimpeachable analytical integrity and it will be blunder to be under shiny object syndrome while banking on it. Such a syndrome warrants a culture of responsible risk analytics. To address such risks, international and national authorities are introducing sectoral AI-specific guidance. The report by RBI's FREE-AI Committee

[6] Artificial Intelligence in Financial Services, U.S. Department of the Treasury, December 2024

submitted earlier this month could give some heads-up on shape of regulatory approach and regulatory expectations. As AI use by financial institutions will present some unique challenges and hence regulatory or supervisory guidance will be relevant in specific areas. These areas cover governance framework, availability of AI expertise and skills, heightened model risk management, data governance and management, new/ non-traditional players and new business models / arrangements, regulatory perimeter for third party service provider transmitting concentration risk[7]. Non-model risks for CROs such as reputation, regulatory, legal and compliance, third party, technology, cyber security etc. can be specifically calibrated into the existing risk management framework. A less discussed aspect of any core digital transformation projects by banks relate to the interconnected and mutually reinforcing relationship between technology risk and project risk which CROs should not lose sight of.

8.4 Model Risk Management (MRM): Linked to above, with growing use of gen-AI and LLMs / SLMs by large banks and NBFCs, regulators can not but expect increased risks. As such the risk posture of advanced analytics using gen-AI for activities could be a high focus area in regulatory expectations. This warrants some serious enhancements / substitution of existing MRM frameworks to include additional testing and controls. Unlike traditional AI systems, gen-AI create new data, from heterogenous sources through a series of complex, multistep processes prone to misuse and error. Gen AI model risks include data & privacy, explainability, performance and hallucinations, fairness & toxicity, usage. The lifecycle approach to MRM for gen-AI models could cover (i) initial risk assessment; (ii) model development & validation standards covering conceptual soundness and outcome (in-samples / out-samples, benchmark) analysis; (iii) implementation tests and use with model level controls such as for user, usage, human-in-the-loop, terms of use alert, inputs and outputs; and most importantly (iv) ongoing monitoring[8]. Traditional AI-risk-governance systems aren't designed to oversee these additional layers of complexity. Financial institutions will need to update their AI governance frameworks to account for this increased complexity and the greater points of exposure. This will mean incorporating model risk management (MRM) and new technology, data, and legal risks into their enterprise risk model. They will need to

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[7] FSI Insights No.63 - Regulating AI in the Financial Sector Recent Developments and main Challenges, December 2024 by Juan Carlos and others

[8] Model Risk Management for Generative AI in Financial Institutions by Answesha Bhatacharrya & others, Wells Fargo, 2025

review their oversight of AI and then assess how best to manage gen-AI-specific models going forward, as regulatory guidelines kick in.

8.5 Geo-Economic Risks: CROs have traditionally applied themselves to their internal risks. Given the frequency and breadth of geo-economic events arising from geo-political postures, this needs to be added to the risk taxonomy of every bank/NBFC. How systemic radical uncertainties could transition to idiosyncratic risks within their institution warrant attention, no matter how remote it looks at first blush. The speed of its traverse through various value chains to bank's risk profile may vary but could be surprising as well. Improvement of the geo-political awareness of the risk function should be the first step, followed by the associated implications of its geo-economic scenario to their risk exposures. Typically, such risks need to be anatomised to its workable elements for measurement and mitigation for which relevant data need to be provisioned *ex ante*.

9. Financial Risks / Financial Stability Risks

For this audience, there is no need to overemphasise the regulatory expectations on traditional financial risks under the consultative approach to framing regulations on this.

9.1 The Financial System Stability Assessment Report of IMF-WB of February 2025, after conducting their latest FSAP of India, flagged cyber security, climate change and system-wide contagion as areas warranting attention as emerging risks. Financial stability risks from climate change, though appears manageable, warrant careful monitoring through enhanced data coverage with better granularity for mapping climate-related financial risks. The evolution of the NBFI sector in India has become more diverse but also more interconnected. As for credit risk, the report underlined the need to strengthen credit risk management by adopting IFRS 9 and enhancing supervision of individual loans, collateral valuation, and connected borrower groups.

9.2 Climate related Financial Risks: Having observed the nature's tough plays last few days in Mumbai and in Himalayan regions, nobody in the room can say that word climate risk has not crossed his/ her mind. However, the apparent trot in the pace of approach to address climate related financial risks, essentially a result of geopolitics, should not bring CROs any complacency. The preparedness to address the risk, as a

part of core financial risk management, is expected to remain in tempo. While we may argue about what , when and how etc., it is famously said that nature does not argue.

Select Paths to Meeting Regulatory Expectations

10. Stemming from the attributes labeled under the Johari window model earlier, a strategic approach to meet the regulatory expectations as a part of a potent ERM framework could be in following lines:

(a) Increased self awareness about themes of the current regulatory interest from direct or indirect regulatory interactions, discussions of the global regulatory standard setting bodies / regulators, and peer / professional sources is indispensable. CROs are expected to acquire perspectives on both internal banking operation and market as well as broader economic trends. This will afford an independent view on cross-cutting issues with their overtone for risk as well as resilience; longer-horizon vision, resilience against future events; resource allocation strategy mitigating the risks threatening banks/NBFCs.

(b) Risk identification is facilitated by fostering improved and open communication among different roles in the bank/NBFC. Purpose-fitting the updated Three Lines Model to the existing structure will give some smoother communication flows for the independent risk function.

(c) Enhancing transparency within and outside, particularly with regulators, is the next path to help meet regulatory expectations. To be open and honest about the risk management efforts, both good and bad, depends on CRO's ability to establish successful working relationships with regulators / supervisors. Treating supervisors as partners in a collaborative mindsets, successful CROs interact with supervisors and have frank discussion about happenings, avoiding surprises just as they do with top management teams and CEO. Value of setting cadence for engagement cannot be over emphasised. Incorporating forward looking priorities from supervisory inputs can help reprioritise on-going efforts of risk function. Listening to regulators helps even when they are not explicit in asking what to do.

(d) Peter Drucker’s famous saying that culture eats strategy for breakfast should resonate with the CROs. Promoting a risk culture would mean alignment of the mindsets and behaviour of both individuals and groups, within and outside the risk

function, to the ERM strategy. Creation of core elements of risk culture within a bank/ NBFC has to be integrated with analytical approach. This helps measure and profile, benchmark and identify appropriate levers for actively influencing risk management strategy. Going back to Three Lines, a strong risk culture also implies that responsibilities of the First Line is clearly defined, without risk function's having to compensate for the former's shortcomings. It has been proved in many episodes that curing a culture that stresses the revenue powers of the works over the quality is daunting for a CRO.

11. Creating effective risk organisation and systems:

(a) Risk organisation and governance need to be re-designed for rationalised risk policies and agile decision making. An effectual performance management system needs to be in place with metrics for risk efficiency and effectiveness monitored over time and business verticals / portfolios. Introducing emerging risk reporting and bank's preparedness to handle such risks would help such risks evolve from being 'dark matters'.

(b) Gen-AI Model Risk Oversight[9] - End to end strategy for model development and validation is necessary. In most current arrangements, a single group (such as an MRM Committee) oversees all gen AI applications. This approach typically isn't a good fit for gen-AI systems, because they often comprise a blend of different models and software-like components, each of which may need specialised oversight. For example, a gen-AI-powered chatbot that provides financial advice to customers may expose banks to a range of technological, legal, and data-related risks. Accordingly, financial institutions need to decide which gen-AI components only require model risk scrutiny and which require a joint review with other risk cells. Close coordination across risk committees can ensure thorough oversight. Reviewing the current MRM with NIST AI RMF 1.0 and mapping high risk AI-driven applications to EU AI Act, could be instructive.

(c) For CROs, strengthening board relations and creating common agendas is best way to go. Listening and learning help establish effective reporting and communication channels with tailored communications to board. This will boost both effectiveness and efficiency. While regulation requires independent risk reporting to board, it requires a

[9] How Financial Institutions can improve their governance of gen AI, Amit Garg and others, McKinsey, 2025

CRO's soft skills not to get caught between the CEO and the board that derails the focus.

(d) An agile risk function is often cumbered by siloed business groups and sub-par cooperations, undermining any scope to map interaction among risk factors for optimising the risk-reward balance. Building a solution for single consistent view across different risk factors, allowing for sophisticated scenario analyses, and performing stress tests under both internal and regulatory parameters must be the goals of risk function. A matching agile and scalable analytical reporting system on a dedicated data management platform could also be a key enabler. Risk function needs to build capability for continuous monitoring to predict and swiftly act on evolving trends in the economic and regulatory environment. Doing so requires scenario-based foresight, monitoring of early upheaval indicators and crisis-response capabilities. Such measures can help banks become anti-fragile and capable of absorbing the shocks, while pivoting and navigating new market realities[10].

(e) The sufficiency of operational risk management may need to move out of complacency or false security provided by standard monitoring and reporting process. Learning and leveraging operational risk practices from other industry and understanding the interconnectedness of operational risk with other financial and non-financial risks would give a better perspective to risk function. Use of AI based operational risk analysis tools and prioritising / expanding the use of AI tools to manage it would also help. Deployment of agent-based models or network models to perform micro simulations of systems and processes would help to meet regulatory expectations.

12. Creating Risk Efficiency:

(a) Identifying and addressing potential risks at formation or acquisition stage through design approach, before they escalate into major risks, must be attempted. Risk reporting that is automated and managed across business verticals / portfolios using demand management and modern data architecture. Regular risk users can be supported by self service risk reporting that is relevant, automated and based on timely and trusted data. For advanced risk users, flexible query capabilities and what-if forecasting capabilities are necessary. Advanced financial crime management

[10] White Paper on A Better Approach to Risk Management by Jeroen Van Doorsselaere, Wolters Kluwer, 2023

processes with streamlined tools that use dynamic parameters (e.g ML) may reduce the Type 1 errors.

(b) Trends of regulatory preference for automation of operational tasks with seamless integration with core systems as a step to reduce risks is clear and CROs need to be sensitive to this aspect as technologies advance. Effective embracement of advanced technology to optimise risk operations in areas such as financial crime monitoring, credit decision making and identifying possible cyber attacks would be within regulatory expectations.

(c) Data lineage for better traceability is a key tool for risk analytics and hence business decision-making has to be aided by digitised and automated controls. Improving risk-function efficiency, leveraging on the connection between consistent data and accurate risk calculations can help achieve this. Potential data issues rank ahead of inaccurate models, model misuse, or privacy and security concerns as part of model risks. In the end show, poor data can overturn the effectiveness of advanced analytical models by generating fallacious results. All-encompassing and fully integrated solutions across all functions / portfolios, backed by a common data repository accessible by all users are imperative.

13. Dealing with radical uncertainties: There are several approaches to operationalising radical uncertainties referred to by acronyms such as VUCA (Volatile-Uncertain-Complex-Ambiguous), TUNA (Turbulent-Uncertain-Novel-Ambiguous), BANI (Brittle-Anxious-Nonlinear-Incomprehensible), RUPT (Rapid-Unpredictable-Paradoxical-Tangled) etc. from management education. For CROs, the intuitive first step to get a tiny handle is to workshop the problem by expert development of a narrative with details around the idiosyncratic risks for your bank/NBFC. Another such approach is by developing a root-cause analysis of the radical uncertainty causing one or more idiosyncratic risks. Existing controls for each risk could be evaluated to determine if further treatments for mitigation, transfer or acceptance of the risk are warranted. On *ex post* basis, an After Action Review (AAR) is another way to constantly upgrade the system for preventing risk-recurrence.

Conclusion

14. Over the years, common ingredients for bank failures have been fast, under-checked growth, increased operational and product complexity, and heightened risk taking. Such factors, combined with management and board complacency regarding investment in risk management infrastructure, cook up an unpalatable recipe for disaster. Hence, the burden of the old refrain to build risk management ahead of growth lies squarely on the head of the CRO and its board. A bank's governance and risk management capabilities must mature commensurately with its growth, complexity and risk taking as well as the world around business. Bank failure is akin to 'metal fatigue' with risks emerging in unexpected ways and to an unanticipated degree proving to be the cracking point of stress. Economists like John Maynard Keynes and Frank Knight, believed that there are radical uncertainties that simply cannot be modelled with objective probabilities and treated as mere risks.

15. The role of a CRO often turns into that of an expectation manager with each risk episodes. The risk of being in the risk management function in a highly regulated industry, even at best times, is better understood by the audience. Of many factors that can aggravate such a risk, falling behind regulatory expectations could probably rank on the top and comes with a spiral-down spin. The demands on risk managers are ever-increasing both in terms of regulatory compliance and knowledge level. I hope and wish that this two-days conference would help you appreciate these demands to a good extent.

Thank you.

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