

CCAR/DFAST:

Incorporating stress testing into everyday banking operations and strategic planning processes

Banks are integrating elements of regulatory stress testing into their everyday business processes and strategic planning exercises, and optimizing enterprise risk management in the process.

Background: Stress testing for regulatory compliance

One of the primary motivations for regulatory stress testing is to ensure that financial institutions do not pose a threat to the stability of the banking system, specifically with respect to solvency conditions and capital adequacy. This regulatory mandate centers around a complex analysis that aims to estimate the impact of hypothetical macroeconomic scenarios on bank financial statements to project required capital.

In the U.S., the supervisory agencies — the Federal Reserve Board of Directors, the FDIC and the Office of the Comptroller of the Currency — oversee the two major stress-testing exercises commonly called the Dodd-Frank Act Stress Testing (DFAST) and the Comprehensive Capital Adequacy Review (CCAR)¹, which are required for mid-sized institutions with between \$10 billion and \$50 billion in total consolidated assets and those with over \$50 billion in total consolidated assets respectively. Both exercises follow an annual submission schedule with intra-year submissions. The level of transparency that is required in supporting

documentation is unprecedented. End-to-end processes from data sourcing, model development, assumptions, validation, governance and capital actions need to be fully explained. Organizations entering their second and third cycles of submission are now exploring synergistic ways to optimize fixed regulatory costs by incorporating stress-testing applications into day-to-day business processes. In fact, most of the business processes touched by stress testing are essential to financial and business strategic planning.

Stress testing drives cross-function integration

Regulatory stress-testing exercises require inputs from most bank functions. These include finance, risk, treasury and, to a lesser extent, marketing and other corporate functions. Accountability for execution typically rests with executive committees represented by line of business (LOB) heads, Chief Risk Officers (CROs), Chief Financial Officers (CFOs), Chief Compliance Officers (CCOs) and the Board of Directors (BODs).

With appropriate governance, data management, IT,

¹ Comprehensive Capital Analysis and Review 2015 Summary Instructions and Guidance, Board of Governors of the Federal Reserve System, October 2014.

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organizational governance and reporting functions are central to the execution of a stress-testing program. Further, these functions are required to produce stress-testing results, compelling them to collaborate closely and, in a practical way, transcend operational silos. This represents a true change management challenge not easy to overcome. Initial cycles of stress testing expose how disintegrated these functions really are within typical institutions. The need to collaborate across functions provides organizations with an opportunity to look into their processes and identify ways to improve end-to-end performance, including automated solutions that may be part of a business as usual (BAU) approach.

There is a natural evolution for stress testing that begins with an organization's first implementation project, typically leading to a future state operating model of risk-optimized strategic planning processes. One of the fundamental aspects of stress testing is the dynamic evaluation of risk across portfolios and business models, which often requires the use of consistent segmentation² of customers and/or products and services. This consistent segmentation creates a link between the risk function, typically credit assessment, and the finance function, which concerns itself with the revenue side of projections.

While deploying statistical models to determine minimum capital ratios, why couldn't the models consider alternative scenarios that test hypothetical credit, pricing, costing and promotional strategies? In fact, the scenario approach facilitates business optimization analyses, and coherently links marketing, risk and financial planning functions. For example, credit card issuers perform some of the most sophisticated financial planning processes driven by multiple decision inputs, such as fee arrangements with channel partners, transaction fee income, credit line usage and revolve rates of cardholders, credit loss projections, and operational and marketing costs. The stress-testing exercise is a good opportunity to enhance the financial planning processes.

The CCAR³ scenario design requirement, in particular, introduces another way to leverage risk management

during strategic planning. In a shock environment, not all customers, products, segments or credits are expected to respond and behave equally. Less creditworthy segments may, in fact, not degrade as much as stronger ones. The utility of certain products to customers, as well as their price elasticity, may change. Random analyses of some future scenario could unveil the opportunity to define offensive rather than defensive strategies that could help position an organization to act in a timely manner.

As stress testing is an enterprise-wide effort, the opportunity to implement and/or strengthen the institution's ERM as an integrating framework makes sense. Stress testing requires standard policies, procedures, controls and governance structures to effectively execute ERM; there is also an opportunity to address multiple regulatory internal controls requirements defined by guidance provided by SOX, risk control self-assessment (RCSA), Basel Committee on Banking Supervision 239, etc.

The design of technology platforms that integrate and centralize data and models, specifically, become points of challenge and opportunity for foreign banking organizations (FBOs) and organizations that have grown through acquisitions. Finally, from an organizational perspective, there is an additional opportunity to consider integrating disparate analytics functions (typically organized by LOB or major initiative) aiming at attaining superior efficiency and consistency. Stress testing is indeed a center of gravity now, moving organizations' functions to collaborate more effectively toward a common goal. This opportunity should not be wasted.

² Makowski, P., Ageenko, I., "CCAR and stress-testing segmentation insights: Account-level risk segmentation and correlations to macroeconomic factors", Grant Thornton Publication, November 16, 2015.

³ 2015 Supervisory Scenarios for Annual Stress Tests Required under the Dodd-Frank Act Stress Testing Rules and the Capital Plan Rule, Board of Governors of the Federal Reserve System, October 23, 2014.

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Implementing stress-testing elements into BAU processes

Data management

High standards for data quality, precision, accuracy and transparency are required for stress testing. A high-integrity data management function is essential to stress testing, including:

- Data sourcing
- Data quality
- Data aggregation
- Data governance and stewardship
- Data reporting

Data workflows must follow prescribed processes that lead to model development and the aggregation of results into reports. With nominal modifications, these processes could be tuned to dually support standard processes that could include, for example, the development of operational risk event databases and the computation of Advanced Measurement Approach Basel II operational risk capital.

The marketing function may wish to assess performance of a certain portfolio of originations based on originations criteria or historical data — once again, the data aggregation process could be leveraged to serve this purpose. Also, the aforementioned need for segmentation could be a standard data management requirement that could be used to analyze segments that are relevant to different functions.

The risk function is often concerned with a segmentation⁴ that usually centers on risk scores or gradations, while marketing and finance functions would most likely be interested in socio-demographic segmentations that are more descriptive of consumption behavior, product alignment and demographics. A standard data management function could accommodate both requirements effectively and efficiently, and produce internally consistent results.

Financial planning

Financial planning is really the process of planning out the execution of a business operation a year in advance with intra-year adjustments. Whether the product is a residential mortgage, a credit card or an auto loan, this is usually a difficult undertaking, burdened with many unknowns, assumptions and business stakeholder inputs.

In stress-testing exercises, financial planning components are represented in the pre-provision net revenue estimates. For example, income projections for a credit card operation include accounting for many cost and revenue components that might include advertising and promotions, new accounts generation — direct mail, partner profit-sharing, transaction expenses, credit losses, interest income and variability, funding costs, and other items. The financial planning processes are indeed far more complex and detailed than what is required by stress testing.

If one introduced a stress-testing component to financial planning, one could potentially derive insights into optimal or suboptimal portfolio compositions, product features, customer segments or a multitude of other attributes based on worst-case scenarios. There may even be opportunistic insights not otherwise afforded by standard financial planning.

It is not really a question of whether integration of financial planning and stress testing will occur, and in which direction or both. From the stress-testing side, organizations are implementing more details and increasingly sophisticated analytical and statistical models to make the transparent assumptions and business decisions that are a part of financial planning today.

⁴ Makowski, P., Ageenko, I., "CCAR and stress-testing segmentation insights: Account-level risk segmentation and correlations to macroeconomic factors", Grant Thornton Publication, November 16, 2015.

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Risk activities common to ERM and stress testing

Risk activities Common to ERM and stress testing	Functional requirements, data management and reporting
Data management & reporting	All portfolio, account level, high integrity and granularity
Modeling and analytics	Structured, repeatable modeling processes
Internal controls framework	Effective controls leaning toward "preventive"
Model risk management	Accountability for model performance (technical and fit for purpose)
Governance	Alignment to business strategy and 3 "lines of defense"
Scenario design & analysis	Scenarios should be reflective of business and industry
Risk identification	Comprehensive framework based on common language and taxonomies
Risk appetite	Link to strategic intent and properly granular to be actionable

ERM

One could reasonably conclude that stress testing is really one of the most significant reasons why institutions are finally embracing some form of effective and practical ERM. Stress testing is, after all, an exercise that touches core banking and risk functions most of all. In the current environment, organizations are beginning to develop new target operating models that comprehensively embrace and integrate risk across the commonly known three lines of defense (operational management, internal monitoring and oversight, and internal audit)⁵.

Stress-testing mandates require holistic implementations of a number of ERM tools, such as:

- Comprehensive risk identification
- Model risk management⁶
- Risk governance
- Risk appetite
- Use of scenarios to assess risk
- Risk reporting
- Internal controls
- Data management.

Even today, most ERM implementations incorporate one or a few of these components; they're usually not comprehensive or focused on a common objective, such as capital or risk-optimized revenue generation. Stress testing is also providing organizations, particularly FBOs, the opportunity to right-size and normalize their risk organizations. Pure credit card issuers, midsized banks and others will need to determine which risk functions need to be implemented if not already in existence, and whether these functions should be operated in a centralized fashion. Policy and procedure business models could be rationalized given an ERM view of an organization. Controls frameworks should be integrated and coherent to accomplish an adequate level of efficient cost-effectiveness (e.g., SOX, RCSA and stress testing). Finally, the scenario design processes should be expanded to incorporate dynamic and idiosyncratic scenario elements beyond regulatory parameters. Technology evolution, particularly in all things digital, could be a game changer, as disruptive alternatives will increasingly shape the digital dimension of ERM.

⁵ Anderson, Douglas J; Eubanks, Gina, "Leveraging COSO Across the Three Lines of Defense", The Institute of Internal Auditors, Committee of Sponsoring Organizations of the Treadway Commission, July 2015.

⁶Ageenko, I., Smith, N., "Making model risk management a core business function", Grant Thornton Publication, September 24, 2015.

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Organizational commitments required for better change

The successful institutionalization of stress testing into everyday operations and planning (BAU) will depend on a number of motivational factors that are common to transformational efforts. At the top of the list is executive and board sponsorship, and support of such a transformation. As with the regulatory aspect of stress testing, board sponsorship will mean active participation in the planning, design and implementation of such endeavors. This support translates to making difficult decisions when it comes to priorities, resources and timing. The stress-testing topic will need to be included on many executive agendas. After all, capital and shareholder dividend decisions belong to these forums.

As with any enterprise transformational endeavor, an intentional change management program will need to be implemented to provide education and foresight at all levels in an organization of how stress-testing processes will shape future operations. Change agents will need to help build bridges between functions that cannot operate in silos any longer. New divisions in charge of stress-testing programs will need to strike a balance in terms of fully standardizing and centralizing processes versus allowing for local LOB or entity customization.

Finally, organizations committed to this transformation will need to manage the reality that a net increase in resources will be required. The ramp-up in staffing will need to be in sync with overall talent implementation plans, mid- to long-term funding commitments and having a pool of resources available with proven stress-testing skills.

Summary and conclusions

Stress testing is here to stay. It has become an element of BAU operations and strategic planning in a variety of forms across many institutions. The general outlook is positive, and the multidimensional benefits that this movement will deliver can only benefit the operations and capital planning at financial institutions. Stress testing requires the perfecting of ERM frameworks and the implementation of framework components into the appropriate processes in each of the three lines of defense. The end results should be an ERM framework that is seamlessly integrated into daily business decision-making.

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Type of bank	Stress test regime	Institutionalization journey
FBO	DFAST and CCAR	<ul style="list-style-type: none"> Initially engaged consulting firms to develop models; created analytics function to develop models for stress testing Independent holding company infrastructure implementation Leveraging common data sourcing and stress-testing processes for both DFAST and CCAR compliance Implementing ERM framework aligned to global organization Implementing workflow and model execution automation for first CCAR cycle Implemented centralized, independent stress-testing organization with similar functions at each LOB
Large banks (> \$50B)	DFAST and CCAR	<ul style="list-style-type: none"> Model development organization evolved from internal function by LOB to centralized across all LOBs High initial use of external consultants and vendors to ensure submission and then reduced by cycle 3 of CCAR Data management for stress testing about to or have adopted BCBS 239 as well as pre-existing enterprise credit data warehouse initiative Best-of-breed technical capabilities adopted in the course of centralizing investment and retail bank analytical teams
Mid-size bank	DFAST	<ul style="list-style-type: none"> Successful but inefficient DFAST submission and model development for cycle 1 Evolving to standardized approach for model development with rationalized model inventory for cycle 2 Efficiency decision to consider outsourcing model development, validation, and audit to external vendors Automation of DFAST response processes

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