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Special Edition

Building effective risk appetite frameworks

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Introduction

The term “risk appetite” started popping up frequently in my conversations with overseas bankers shortly after the global financial crisis. Realizing that overseas financial institutions’ management mindset was changing, I began periodically surveying overseas financial institutions on their risk appetite frameworks (RAFs).

Numerous overseas financial institutions have fully adopted RAFs, are utilizing them in earnest and benefiting from improved earnings performance as a result. Some of the earliest adopters already have nearly a decade of RAF implementation experience. Overseas financial institutions have persisted for such a long time in the iterative process of implementing and upgrading their RAFs because they recognize RAFs’ value as a management control framework.

In Japan, banks began developing RAFs after the Financial Services Agency added RAF implementation to its inspection checklist for major banks in conjunction with a September 2013 update of its financial inspection guidelines. RAFs subsequently gained recognition in Japan for their utility in improving corporate governance. Currently, interest in RAFs is growing throughout Japan’s financial sector, not only at major banks but also at regional banks, securities firms and insurers.

This trend is driven largely by Japanese financial institutions’ growing interest in building sustainable business models in a negative-rate environment. Although Japanese financial institutions weathered the global financial crisis largely unscathed, I believe their current commitment to reform mirrors that of their European and US peers that have been continuously pursuing operational improvement since the financial crisis. Their aim is long-term valuation growth.

This report focuses mainly on overseas financial institutions’ early-stage RAF implementation initiatives from the standpoint of how to develop an effective RAF, based on periodic surveys of overseas financial institutions conducted since 2010. I hope that overseas financial institutions' trial-and-error experience helps Japanese financial institutions to develop and implement effective RAFs.

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Chapter 1

Special interview: High hopes for financial institutions' RAF initiatives

Yu Ozaki, *Director, Planning and Evaluation Division, Head of G-SIFI Monitoring, Financial Services Agency*

Interviewer: **Hitomi Kawahashi**, *Senior Researcher, Financial IT Marketing Department*

FSA's view of RAFs

Kawahashi: In addition to being Director of the FSA's Planning and Evaluation Division, you are also Head of G-SIFI Monitoring, a position in which you oversee financial institutions' risk appetite frameworks (RAFs). Today I want to talk to you in your capacity as Head of G-SIFI Monitoring.

The term "risk appetite," originally translated into Japanese as the equivalent of English term "risk tolerance," is a concept long familiar to Japanese financial regulators. When the FSA revised its financial inspection guidelines in September 2013, it defined risk appetite and RAF for the first time and added the RAF to its inspection checklist for major banks. In its 2015-16 Strategic Directions and Priorities, the FSA updated its definition of RAF with certain expressions that connote a forward-thinking attitude, such as "profit maximization" and "management control framework." What led to these changes?

Ozaki: I think it was more of an evolutionary process that grew out of various discussions than a sudden change since 2015.

Amid Japan's ongoing population decline and changes in the global interest rate environment in recent years, financial institutions are at a crossroads in terms of business strategy. Japanese megabanks have been expanding their overseas lending in pursuit of earnings growth, partly in response to Western banks' downsizing of balance-sheet-intensive businesses since the global financial crisis. Over the past few years, however, they have been having a harder time

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maintaining and increasing profitability, partly because of persistently high dollar funding costs.

For regulators monitoring financial institutions' soundness in such an environment, the key issue is no longer just whether financial institutions are carrying adequate capital on their balance sheets at a given point in time but whether they can sustainably generate earnings into the future. In other words, we believe regulators must scrutinize the balance between financial institutions' risk exposures and not only capital but also earnings. We expect risk governance to play an increasingly important role in realizing a healthy balance between risk and earnings.

From such a perspective, we believe it is important to engage in dialogue with financial institutions about their RAFs as a management control framework focused on risk and return, not a risk management framework divorced from earnings discipline.

To the extent that risk management involves only measuring risk and limiting it within predefined parameters, business strategy tends to be formulated separately from risk management. Such risk management might enable a financial institution to avoid incurring sudden losses big enough to impair its capital base, but we believe it is not necessarily conducive to maintaining financial soundness by generating stable earnings, including during times of stress.

Kawahashi: Although RAF implementation has been on your inspection checklist for major banks since FY2013, the FSA has not yet released any RAF guidelines for banks. In the US, for example, the Office of the Comptroller of the Currency has released detailed guidelines from a governance standpoint. What is your opinion of such guidelines?

Ozaki: The optimal RAF differs depending on a financial institution's business model. I do not think creating a comprehensive checklist is advisable. Additionally, an RAF should be developed as a management control framework, not merely a risk management framework. I therefore feel RAF development involves many issues that should be approached from the standpoint of best practices instead minimum standards.

When we issue guidelines, financial institutions tend to focus on form over substance in complying with them, perhaps in response to our previous inspection and supervision methods. Guidelines would lead to financial institutions adopting RAFs that do not fit their respective business models. Such RAFs would end up not being used for actual decision-making, in which case actual strategy would be disconnected from risk management and management control frameworks. Regulators may of course come up with better ways to utilize guidelines going forward. But for now we intend to place priority on allowing financial institutions to optimize their RAFs to their own operations.

Kawahashi: I heard that when overseas regulators started promoting RAFs, they likewise wanted financial institutions to customize their RAFs to their respective business models, so they granted them free reign to design and develop their own RAFs down to the smallest detail. Japan is in step with other countries in this regard.

Ozaki: At the FSA, we explain our basic views on RAFs to outsiders through such means as our Strategic Directions and Priorities, annual reports and FSA executive staff speeches, though we may not necessarily use the term “RAF” in doing so. As financial institutions continue to implement and refine their RAFs, it may be advisable at some point to communicate the FSA’s views in more detail, depending on financial institutions’ progress. When that time comes, the FSA will presumably express its views on RAFs more formally.

Japanese financial institutions’ RAF initiatives

Kawahashi: Now that the RAF has been on the FSA’s inspection checklist for large banks for over three years, what is your overall impression of major Japanese banks’ progress in developing RAFs?

Ozaki: I think the major banks are now building their RAFs’ basic frameworks, having already formulated risk appetite statements. To upgrade their RAFs, they will need to formulate business strategies through forward-looking assessments of both risks and returns. I believe it is also important for financial institutions to realize a framework that enables them to nimbly adjust their strategies in response to future changes in the economic or market environment. I expect such adaptability to become a key topic between the FSA and major financial institutions in the course of the FSA's monitoring.

Kawahashi: Overseas, flexible adaptability to changes in financial institutions' internal or external environment is said to be a major difference between RAFs and traditional management control frameworks. Are you aware of any recent events that highlight the importance of such flexibility?

Ozaki: One recent example is commodity prices' decline from around 2014. It resulted in considerable losses for G-SIFIs (global systemically important financial institutions) both in Japan and overseas. Once commodity prices turned downward, it was crucial for financial institutions to ascertain their own susceptibility to contagion effects and swiftly take appropriate action in response.

But such timely responsiveness is easier said than done. Financial institutions normally conduct stress tests against hypothetical commodity price decline scenarios. Such stress testing might reveal that if the price of crude oil, for example, were to fall to X dollars per barrel, a certain bank would incur a loss of, say, ¥50 billion. Unless the bank deems the stress-tested loss to be severe enough to place it in financial peril, it would tend to decide against changing its strategy. In other words, even though the bank is aware of how large of a loss it is hypothetically at risk of incurring on a given portfolio, that information alone is unlikely to prompt the bank to rethink its strategy.

If, however, the bank were able to adopt a relative perspective by, for example, determining that a certain business has a worse risk-return profile than other businesses, I believe it would be more likely to decide to reallocate assets to another business that could deliver better risk-adjusted returns.

Kawahashi: Many overseas financial institutions with mature RAFs utilize their RAFs to reconfigure their business portfolios. For example, if returns from one business portfolio are in decline, such a financial institution would identify another business portfolio capable of offsetting the reduction in the first portfolio's returns and reallocate management resources accordingly. To be able to make such agile decisions, what do Japanese financial institutions need to factor into their risk-return calculus?

Ozaki: With markets and economies constantly changing, I believe agile decision-making requires forward-looking risk-return analysis. Such a future-oriented approach obviously entails subjective judgment. With an RAF, however, management decision inputs are by no means limited to objective data. What is important is how you combine objectively measurable data with subjective judgment, expert judgment. Equally important in my opinion is how you make decisions based on such data and judgments.

Kawahashi: During the commodity price decline, some overseas financial institutions presumably minimized their losses by making swift decisions and progressively reducing their exposure at an early stage. I suspect that RAFs facilitated such forward-looking decision-making. How do financial institutions make forward-looking risk-return assessments?

Ozaki: Overseas G-SIFIs gauge their businesses' risk-return profiles under a baseline scenario and multiple stress scenarios. They use these stress-test results to formulate and revise strategies. They apparently use a risk-return model where a business's return is defined as its profit under the baseline scenario and its risk is defined as its profit's downside deviation from baseline under the stress scenarios.

Kawahashi: Looking at overseas financial institutions' RAF practices, I expect decision-making to likewise change substantially at Japanese financial institutions as they embed their RAFs throughout their organizations.

From what you said, I get the impression that the FSA has adopted a long-term perspective toward financial institutions' RAF development initiatives. How have financial institutions reacted to such a change in the FSA's approach?

Ozaki: I feel financial institutions themselves recognize that they must adopt a forward-looking mindset and rethink their strategies based on forward-looking risk-return assessments. However, such change encompasses the entirety of their operations. It involves management information system challenges also. We do not expect financial institutions to change overnight.

Kawahashi: Many overseas bankers with whom I have spoken concur that RAF development and implementation are a long-term project. What types of issues do Japanese financial institutions face when developing RAFs?

Ozaki: One key challenge encountered in developing RAFs is how to measure hard-to-quantify risks such as conduct risk. Just because a risk is not easily quantifiable does not mean it can be disregarded. On the contrary, recent examples involving G-SIFIs demonstrate that inadequate attention to conduct risk can lead to severe losses.

Another such risk, perhaps a bit different from conduct risk, is emerging risk–risks not yet fully appreciated by the markets. I expect the issue of how to deal with emerging risks to become more important. An example of a risk overlooked by the markets is wrong-way risk before the financial crisis. I doubt wrong-way risk was quantified, given how underappreciated it was by market participants. RAF inputs need not be objective. How well RAFs deal with such nebulous risks may well be the test of their true value. RAFs' ability to accommodate such risks is precisely what sets them apart from conventional risk management or management control frameworks. I expect this capability to become more sophisticated, leading to greater dispersion in banks' risk management outcomes.

Kawahashi: Overseas financial institutions also focused mainly on quantifiable risks when first adopting RAFs. They later augmented their RAFs' qualitative dimensions, ultimately learning to balance risk appetite between the quantitative and qualitative realms and develop their RAFs accordingly. Qualitative sophistication is strongly linked with fostering a sound risk culture within an organization. This process takes a long time and has proven challenging even to overseas financial institutions. I feel that when common values not dependent on quantification are embedded throughout an organization, those values form a solid foundation for every employee.

Ozaki: To upgrade an RAF, a financial institution must ensure that all of its employees are conscious of risk and return in both a quantitative and qualitative sense. I believe it is important for employees to swiftly make decisions through a process of quantifying risks that are quantifiable, explicitly identifying unquantifiable risks and managing risk within the scope of their respective job duties.

I say this because top management obviously cannot make every single decision themselves. Management policies are virtually impossible to realize unless employees individually understand management's mindset and autonomously make decisions in their own jobs. Designing appropriate incentives, including employee performance evaluations, is of course important to ensure that employees manage risk autonomously. Employee training also is essential.

Kawahashi: That is why overseas financial institutions continue to try to make sure that every one of their employees is aware of their risk appetite. Additionally, RAFs need to be continually updated from a forward-looking standpoint in response to both endogenous and exogenous changes. I think RAF development and implementation needs to be an ever-ongoing process.

Ozaki: I believe financial institutions themselves recognize that RAFs require long-term efforts.

Kawahashi: When I talk with bankers, I explain the Institute of International Finance's (IIF) five stages of developing an RAF and tell them that as they progress through the stages, they must pursue depth at every stage to enhance their RAFs' effectiveness. In many cases, they initially reply that they intend to complete all five stages within a year or so. Once they try to actually do so, however, they realize the process takes time.

Ozaki: At first blush, the five stages do indeed look like they can be completed in parallel. When I first saw a diagram of the IIF's five stages, I too thought they could be completed quickly, but I learned through subsequent involvement in various RAF issues that one year is a totally unrealistic timeline.

What FSA expects from financial institutions' RAFs

Kawahashi: What types of changes do you expect to see as a result of financial institutions adopting RAFs?

Ozaki: Broadly speaking, we have three expectations.

First, we expect banks to be able to nimbly respond to changes in the environment as I mentioned earlier. When signs of change in economic conditions or the market environment emerge, even if small at first, we expect management to be able to gauge


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the change's eventual impact on their bank, assuming the change ends up being economy-wide or market-wide in scope, and swiftly take action in response. With Japan's population shrinking and the global interest rate environment changing as I mentioned at the outset, global economic uncertainty has increased. Banks face strong profitability headwinds and the risk of losses due to adverse economic or market developments. I believe responding swiftly and appropriately to changes in the economic or market environment is becoming increasingly important. In sum, our first expectation is more about retrospective responsiveness: how to respond to some change or signal that has already occurred.

Our second expectation is more about preemptive responsiveness. We want financial institutions to generate stable earnings throughout the business cycle or credit cycle by conducting comprehensive forward-looking assessments of risks and/or costs and then formulating or adjusting strategy in light of the assessment's risk-return prognosis.

A bank that disregards nonobvious risks or costs may earn profits while economic conditions are favorable, but its risk of major losses would increase when the business cycle turns downward. A bank with a portfolio of businesses incapable of generating returns commensurate with their risks or costs is liable to deplete its cushion against economic deterioration. If a profit decline prompts a bank to pursue even slightly higher returns within prevailing constraints, I believe such yield seeking, particularly in a low interest rate environment, increases the likelihood of the bank assuming hidden risks or risks that may not be adequately detected by internal controls, such as industry concentration risk or long-term credit risk.

Third, I personally do not think that formulating business strategies predicated on risk-return assessments that concur with market valuations is alone sufficient to generate stable profits in the extremely adverse environment in which financial institutions currently find themselves. In some cases, financial institutions could become embroiled in price competition and end up settling for subpar returns. Conversely, contrarianism may give rise to business opportunities. If, for example, by virtue of having an informational advantage in a given business, a bank is able to recognize that the market has overpriced a certain risk, the bank may be able to capture excess returns by gaining exposure to that risk. Of course, it must be careful not to underestimate risk as a result of overlooking some aspect of the risk priced into the market.

Looking ahead five or ten years, I believe asset allocation decisions based on risk-return assessments that do not rely solely on market valuations will play a more important role in building business models.

Kawahashi: Once a financial institution reaches the stage where its RAF is contributing to stable long-term profits, top-down decision-making and bottom-up escalation synergize with each other. For example, front-line personnel become a more prolific source of ideas regarding new businesses, cost-cutting and risk reduction. Their ideas, after being vetted by management, can lead to strategic decisions. Financial institutions have hitherto been in a quandary over whether decision-making should ideally be top-down or bottom-up, but if top and bottom get into sync with each other, I think financial institutions have the potential to better develop their strengths.

Risk governance initiatives

Kawahashi: Overseas, risk appetite and RAFs are being utilized as tools to strengthen risk governance. What do you see happening at major Japanese financial institutions from a risk governance standpoint.

Ozaki: I believe RAFs should be a common language for risk communication.

Historically, I think Japanese financial institutions had a sort of tacit internal consensus on how much of what types of risk to assume and how much they would earn from doing so. Perhaps they had relatively little need to go to the trouble of formally quantifying and documenting this consensus. Additionally, when the economy was growing rapidly, financial institutions may have prioritized ambitious expansion over quantifying everything to avoid missing out on minor profit opportunities.

However, with Japanese financial institutions now diversifying their operations through repeated domestic mergers coupled with rapid growth in their overseas operations' revenue share, I believe they can no longer afford to rely on such a tacit consensus. I think it is important for Japanese financial institutions to quantitatively increase and qualitatively improve their risk communication on a global, group-wide basis through an explicit, common language.

Even the most perfect framework is meaningless if not used. I accordingly hope that instead of delegating RAF development and implementation entirely to risk management staff, financial institutions treat risk and return as two sides of the same coin by upgrading their strategy formulation from a risk-return perspective.

Kawahashi: We have surveyed overseas financial institutions about their RAFs and learned some interesting things.

Like the old Japanese saying, "We eat from the same bowl," Japanese companies, including financial institutions, have long placed priority on cultivating a communal mindset throughout their entire organizations. I think such interpersonal solidarity is a distinctively Japanese trait. Japan has often been criticized by foreigners as "inscrutable." Today, however, I feel that even overseas financial institutions have come to place importance on "eating from the same bowl" or getting their entire workforce into a shared mindset through RAF implementation. I think the big difference between overseas and Japanese financial institutions is that the former are endeavoring to render visible even such mental intangibles and constantly monitor whether they are being preserved. From such a standpoint, I think RAFs are culturally compatible with Japanese financial institutions. Regrettably, however, Japanese financial institutions do not seem to recognize the value of their wonderful cultures.

Regional banks' RAF initiatives

Kawahashi: Over the past year or two, regional banks also are becoming interested in and looking into adopting RAFs. What are some key considerations for regional banks when they implement an RAF?

Ozaki: I personally have no supervisory authority over regional banks, so I will answer your question in general terms.

One of RAFs' underlying principles is that every financial institution has a business model unique to itself. This is how RAF is defined in the FSA's Strategic Directions and Priorities. So if a bank were to copy another bank's RAF without any modifications, it would be implementing an RAF in form only and the RAF would not be useful for actual management control or risk management. I consider an RAF to be a best-practice management blueprint. Instead of delegating RAF formulation to risk management staff, I think it is important for top management to spearhead thorough discussions with organizational units involved in RAF development, mainly corporate planning, finance and risk management but also front-office units.

Additionally, our Strategic Directions and Priorities define risk appetite as a "common language" that encompasses risk-taking policies in their entirety. Being a communication tool, an RAF absolutely must be understood and put into practice on an enterprise-wide basis. Communication cannot take place if front-office staff feel the RAF is some sort of foreign language. I hope regional banks take plenty of time to develop useful RAFs.

Kawahashi: My sentiments exactly. Based on my contacts with regional bankers, I feel that although regional banks are often lumped together in a single group, they are diverse in terms of their management mindsets and business models. I believe RAFs can be optimized for each and every regional bank also. Thank you for taking the time to speak with me today.

Chapter 2

Why risk appetite is necessary

Risk appetite defined

The term "risk appetite" itself is by no means new to Japanese financial institutions. The concept has long been used in Japanese financial regulation, often translated as the Japanese equivalent of risk tolerance. For example, in an FSA financial inspection manual issued in February 2014, a checklist for inspection of banks' capital management includes verification of whether the bank has policies regarding risk tolerance expressed as a percentage of regulatory capital and whether those policies are common knowledge throughout the organization. In the Basel Committee on Banking Supervision's English documents from which the checklist was derived, the term that corresponds to the Japanese equivalent of "risk tolerance" is risk appetite.

As risk appetite's importance in financial institutions' management has gained broad recognition within the financial sector overseas since the global financial crisis, its meaning has evolved. Previously, every financial institution had its own definition of risk appetite until 2013, when an international consensus on a standard definition was reached. In November 2013, the Financial Stability Board (FSB) published Principles for an Effective Risk Appetite Framework. The FSB defined risk appetite as "the aggregate level and types of risk a financial institution is willing to assume within its risk capacity to achieve its strategic objectives and business plan." In Japan, the FSA formally added RAF development to its inspection checklist for major banks when updating its financial inspection guidelines in September 2013. Meanwhile, the FSA defined risk appetite and RAF for the first time. In its FY2013 Financial Monitoring Policy, the FSA defined risk appetite as "the level of risk that a financial institution's management is willing to assume based on its group business strategy" (Exhibit 1). In the FSA's 2015-16 Strategic Directions and Priorities, this initial definition was revised to "the types and aggregate amount of risk that a financial institution is willing to assume, in light of its own business model, to achieve its business plan."

Exhibit 1: Domestic and international definitions of risk appetite

	Definition
Financial Stability Board	The aggregate level and types of risk a financial institution is willing to assume within its risk capacity to achieve its strategic objectives and business plan
Japan's Financial Services Agency	
FY13 Financial Monitoring Policy	The level of risk that a financial institution's management is willing to assume based on its group business strategy
2015-16 Strategic Directions and Priorities	The types and aggregate amount of risk that a financial institution is willing to assume, in light of its own business model, to achieve its business plan

Source: NRI, based on FSB's Principles for an Effective Risk Appetite Framework, FSA's FY13 Financial Monitoring Policy and 2015-16 Strategic Directions and Priorities

Notably, the Japanese and international definitions both say that risk appetite should take into account a financial institution's business model and/or strategy. In other words, they clearly indicate that risk does not exist in a vacuum but is inherent to running a business. In short, risk-taking that is at odds with a financial institution's strategy or business model–i.e., risk-taking that oversteps risk appetite–is frowned upon in an RAF. Awareness of this fundamental point is of crucial importance in developing and implementing an RAF as a management control framework centered around risk appetite.

While financial institutions use a variety of metrics and terminology to set their risk appetites, risk appetite generally comprises quantitative and qualitative elements. The quantitative elements mainly pertain to risk, earnings, capital and liquidity. The qualitative elements, by contrast, are related to corporate culture, management philosophy and policies, management objectives and business practices (Exhibit 2). As an RAF progressively takes root within a financial institution's organization, the linkage between risk appetite and the financial institution's corporate values and

Exhibit 2: Examples of risk appetite's constituent elements

Quantitative elements	Qualitative elements
• Earnings • Stress-scenario losses • Capital (e.g., regulatory capital, economic capital, shareholders' equity) • Liquidity • Target credit rating • Risk exposures (e.g., credit, market, operational, concentration risk) • Leverage ratio • Balance sheet composition	• Hard-to-quantify risks (e.g., reputational risk) • Desired business mix • Risk-taking policies • Corporate values/culture • Reputational/conduct risk • Legal compliance • Business practices • Code of conduct • Human resources • Sustainability

Source: NRI, based on overseas interview survey findings business strategy typically strengthens. In response, financial institutions tend to add more qualitative elements to their RAFs. Additionally, as financial institutions iteratively implement their RAFs, their risk appetite increasingly embodies their corporate values and business strategies.

RAF defined

Like risk appetite, RAF was internationally defined and standardized in 2013. The FSB's Principles for an Effective Risk Appetite Framework define RAF as "the overall approach…through which risk appetite is established, communicated and monitored." In Japan, RAF was first officially defined in the FSA's FY2013 Financial Monitoring Policy (Exhibit 3). The FSA took its initial definition a step further in its 2015-16 Strategic Directions and Priorities, which define RAF as a "management control framework that uses risk appetite as a common intra-enterprise language regarding risk-taking in its entirety, including capital allocation and profit maximization." I consider the FSA's definition of RAF as not merely a risk management framework but a core management control framework for financial institutions to be highly significant in terms of promoting RAFs within Japan's financial sector.

The FSB's Principles for an Effective Risk Appetite Framework sets forth principles that RAFs' four main elements should comply with (Exhibit 4). These elements are (1) an effective RAF, (2) an effective risk appetite statement (RAS), (3) risk limits and (4) the board of directors and senior management's roles and responsibilities.

For example, an effective RAF should establish a process for internally

Exhibit 3: RAF definitions

	Definition
Financial Stability Board	Overall approach through which risk appetite is established, communicated and monitored
Japan's Financial Services Agency	
FY13 Financial Monitoring Policy	Group-wide framework for discussing, understanding and assessing risk appetite
2015-16 Strategic Directions and Priorities	Management control framework that uses risk appetite as a common intra-enterprise language regarding risk-taking in its entirety, including capital allocation and profit maximization

Source: NRI, based on FSB's Principles for an Effective Risk Appetite Framework, FSA's FY13 Financial Monitoring Policy and 2015-16 Strategic Directions and Priorities

Exhibit 4: RAFs' main elements and principles

Main elements	Principles
1. Effective risk appetite framework (RAF)	**An effective RAF should:** a) establish a process for communicating the RAF within the institution; b) be embedded and understood across the institution through top-down board leadership and bottom-up involvement of all levels of management; c) facilitate embedding risk appetite into the institution's risk culture; d) evaluate opportunities for appropriate risk-taking and act as a defense against excessive risk-taking; e) allow the RAS to be used to promote robust discussions on risk and as a basis for the board and risk management and internal audit staff to challenge management decisions; f) be adaptable to changes in business and market conditions; g) cover subsidiaries, outsourced service providers and other third parties' activities, operations and systems beyond the institution's direct control; and h) be consistent with the FSB's Principles.
2. Effective risk appetite statement (RAS)	**An effective RAS should:** a) include information and assumptions factored into strategic and business plans at the time of their approval; b) be linked to short- and long-term strategic, capital and financial plans and compensation arrangements; c) establish the amount of risk the institution is prepared to accept to achieve its strategic/business plans; d) determine the maximum operationally acceptable risk level for each material risk; e) include quantitative measures translatable into risk limits for the group, business lines and legal entities; f) include qualitative statements about hard-to-quantify risks; g) ensure that each business line/legal entity's strategy and risk limits are aligned with group-wide risk appetite; and h) be forward-looking and subjected to scenario/stress testing to ensure the institution understands what events might push it outside its risk appetite.
3. Risk limits	**Risk limits should:** a) be set at levels that constrain risk-taking within risk appetite; b) be set for business lines/legal entities and expressed relative to earnings, capital, liquidity or other relevant measures; c) include material risk concentrations (e.g., counterparty, industry, country, collateral type, product) at the group-wide, business line and legal entity levels; d) not be based on peer comparisons or regulatory limits; e) not be overly complicated, ambiguous or subjective; and f) be monitored regularly.
4. Board of directors and senior management's[1] roles and responsibilities (not all-inclusive)	**The Board of Directors should:** • approve the RAF collaboratively developed by the CEO, CRO and CFO; • ensure the RAF remains consistent with short- and long-term strategic, business and capital plans, risk capacity and compensation arrangements; and • hold the CEO and other senior management accountable for the RAF's integrity. **The CEO (chief executive officer) should:** • establish, in collaboration with the CRO and CFO, an appropriate risk appetite consistent with short- and long-term strategic, business and capital plans, risk capacity, compensation arrangements and supervisory expectations; and • be accountable, together with the CRO and CFO, for the RAF's integrity. **The CRO (chief risk officer) should:** • develop, in collaboration with the CEO and CFO, an appropriate risk appetite that meets the institution's needs and aligns with supervisory expectations; and • obtain the board's approval of the RAF and regularly report to the board on the institution's risk profile relative to risk appetite. **The CFO (chief financial officer) should:** • establish, in collaboration with the CEO and CRO, an appropriate risk appetite consistent with short- and long-term strategic, business and capital plans, risk capacity, and compensation arrangements; and • incorporate risk appetite into compensation and decision-making processes, including business planning, new products, M&A, risk assessment and capital management processes. **Business line/legal entity heads should:** • be accountable for effective risk management within their business line or legal entity; and • ensure the approved risk appetite is aligned with planning, compensation and decision-making processes. **The internal audit function should:** • regularly assess the RAF on an enterprise-wide, business line and legal entity basis.

Note 1: Senior management includes the CEO, CRO, CFO, heads of business lines and business units organized as separate legal entities, the internal audit function, etc.
Source: FSB's Principles for an Effective Risk Appetite Framework (excerpted and edited by NRI)

communicating the RAF, evaluate opportunities for appropriate risk-taking and act as a defense against excessive risk-taking. An effective RAS should be linked to short- and long-term strategic, capital and financial plans and to compensation arrangements. It should also establish the amount of risk the financial institution is prepared to assume in pursuit of its strategic objectives and business plan. Risk limits should be set at a level that constrains risk-taking within risk appetite, established for business lines and for business units that are separate legal entities, and expressed in terms of earnings, capital, liquidity or other relevant measures. The board of directors and senior management's roles and responsibilities should include, for example, holding the CEO and other senior management accountable for the RAF's integrity and ensuring that the RAF maintains consistency with short- and long-term strategic, business and capital plans, risk capacity and compensation arrangements.

In Japan's financial sector, where RAFs have yet to be widely adopted, the FSB's Principles provide standards for RAF development and implementation. Unfortunately, however, merely complying with these principles' definitions and elements does not necessarily ensure that a financial institution develops an optimal RAF. Such compliance alone is insufficient for two reasons. First, the most important point in RAF implementation is developing a framework tailored to the financial institution's own business model and strategies, not complying with the FSB's principles. Overseas, the RAF was originally developed as an internal control framework for financial institutions. RAFs' advent varies somewhat by country, but financial institutions began developing RAFs as early as 2006-07 in certain countries. After the global financial crisis, RAF implementation gained momentum in Western countries where financial institutions had suffered large losses. In no country, however, did regulatory authorities initially impose detailed RAF requirements on financial institutions. They refrained from doing so because RAFs should be developed in alignment with financial institutions' respective business models and strategies. In other words, the optimal RAF depends on the business models and strategies of the financial institution in question. Overseas financial institutions have been independently developing their own frameworks through repeated trial and error. Financial institutions' RAFs consequently differ from each other while sharing certain commonalities.

Second, the FSB's Principles are not necessarily RAF best practices. They are a compilation of common practices and views of financial institutions and regulators in countries at various stages of RAF development. Because RAFs differ depthwise among financial institutions and internationally, the members of the working group that drafted the Principles had different priorities. For example, one principle states that an RAF "should evaluate opportunities for appropriate risk-taking and act as a defense against excessive risk-taking" (principle 1(d) in Exhibit 4). An earlier version of this principle in a consultative draft released to solicit public comments, stated that an RAF should act as a brake against excessive risk-taking. At that time, some overseas financial institutions at the leading-edge of RAF implementation had already reached the stage where their RAFs were contributing to earnings growth. These financial institutions strongly objected to the consultative draft's wording on the grounds that the RAF was liable to be construed as merely a control framework intended to restrain excessive risk-taking. Additionally, numerous commentators expressed concern that the FSB's Principles would detract from RAFs' true utility by prompting financial institutions to take a box-ticking approach. Such concern was partly a response to the Principles' omission of a number of points deemed important by the leading-edge financial institutions.

Why risk appetite is needed: risk management deficiencies exposed by the financial crisis

Prior to the recent global financial crisis, many Japanese and foreign financial institutions, mostly the biggest ones, practiced integrated risk management (IRM). IRM aims to ensure that a financial institution holds sufficient capital relative to its risk by measuring overall risk, including risks not factored into risk-weighted capital calculations, and comparing it with capital[1]. The financial crisis, however, revealed several deficiencies in the IRM approach.

First, the IRM framework is not sufficiently cognizant of the inextricable relationship between risk and return. It focuses predominantly on capital adequacy relative to risk while largely overlooking relationships between risk and other equally important management metrics such as earnings and liquidity. For example, even though financial institutions formulated comprehensive budgets that incorporated earnings and liquidity in addition to risk and capital, their budgeting and budget variance control processes were conducted by separate organizational units that failed to communicate adequately with each other. Such communication deficiencies delayed financial institutions' responses to the financial crisis and were reportedly one cause of the large losses incurred by many Western financial

NOTE
1) According to the FSA's Financial Inspection Manual.

institutions. The financial crisis thus revealed that a siloed management structure where risk management staff monitor risk while finance staff oversee capital, liquidity and earnings performance does not function effectively in a rapidly changing market environment.

Second, financial institutions' IRM was overly focused on quantification. For several years preceding the financial crisis, financial institutions throughout the world were under pressure to comply with Basel II. Major financial institutions in particular were busy upgrading not only their risk quantification methods for components of risk included in Basel II's first pillar but also the second pillar's Internal Capital Adequacy Assessment Process (ICAAP). Meanwhile, they were also working on quantifying, to the extent possible, components of risk not included in the first pillar. As the financial crisis subsequently revealed, financial institutions were too focused on better quantifying individual risks and not attentive enough to their overall risk management frameworks' effectiveness.

Lastly, another deficiency, this one operational in nature, is that many financial institutions were generally monitoring risk in comparison to capital on a monthly basis. Such financial institutions were unable to keep abreast of how their capital, liquidity and earnings were impacted by their aggregate risk exposure, which was changing on a daily or even moment-to-moment basis during the crisis. In January 2013, the Basel Committee on Banking Supervision (BCBS) issued guidance on rectifying this shortcoming in its Principles for Effective Risk Data Aggregation and Risk Reporting.

RAFs are for integratedly managing not only risk and capital but other critical management metrics such as liquidity and earnings. Since the financial crisis, the overseas financial sector has made considerable progress in implementing RAFs as a management control framework that rectifies IRM's deficiencies, particularly its overemphasis of capital adequacy relative to risk.

Chapter 3

Domestic and foreign regulatory treatment of RAFs

Overseas regulatory developments with respect to RAFs

Since the financial crisis, regulation of financial institutions' risk management has been tightened both quantitatively and qualitatively. First, in the quantitative dimension, stricter regulations have been imposed in the aim of refining risk measurement and capturing risks beyond the purview of previous regulations. Such regulatory tightening began in the midst of the financial crisis. It is best exemplified by Basel 2.5 and Basel III. In the qualitative dimension, post-crisis regulatory tightening has mainly revolved around strengthening financial institutions' governance. Overseas, risk appetite and the RAF are core elements of financial institutions' risk governance.

The importance of setting a risk appetite was formally recognized in the overseas financial sector in October 2009, when the Senior Supervisors Group (SSG) released a report entitled Risk Management Lessons from the Global Banking Crisis of 2008. The report identified ten areas in which the SSG advocated improvement in financial institutions' risk management. One of the areas was management controls revolving around risk appetite or, in other words, development and implementation of RAFs. Subsequently, national financial supervisory authorities started to push G-SIFIs (mainly banks) to develop and upgrade RAFs in response to a November 2010 FSB report entitled Intensity and Effectiveness of SIFI Supervision.

In February 2013, the FSB published a Thematic Review on Risk Governance containing the results of its evaluation of major financial institutions' risk governance reform initiatives. In this report, the FSB designated the RAF, together with risk culture, as a crucial element of financial institutions' risk governance. The report also recommended issuance of guidance on RAFs' key elements by the end of 2013. In response to this recommendation, the FSB in November 2013 published its Principles for an Effective Risk Appetite Framework discussed above.

The FSB's Principles state that RAFs are relevant to not only systemically important banks but also other financial institutions and groups, including insurers, securities firms and other nonbank financial institutions. They also suggest that financial supervisors potentially require all types of financial enterprises to develop and implement RAFs appropriate to their operations' scale and scope. Some foreign countries ahead of Japan on the RAF learning curve are already requiring smaller banks and non-bank financial institutions to adopt RAFs.

Foreign supervisory authorities' assessment of RAFs' effectiveness

In some such countries that are ahead of Japan, supervisory authorities have already assessed the effectiveness of financial institutions' RAFs. For example, the US Office of the Comptroller of the Currency (OCC) requires financial institutions with assets of $50 billion or more to explicitly define their risk appetite and communicate it throughout their organizations[2]. The specific points that the OCC looks at when assessing a bank's RAF include whether the bank's RAS contains both quantitative and qualitative components; whether the qualitative components define a safe and sound risk culture; whether the quantitative components involve stress testing and include the bank's earnings, capital and liquidity; whether the board of directors has vetted the RAS from the standpoint of the bank's business model, strategies, risk profile and other relevant factors; and whether the RAS has been communicated throughout the bank's organization to ensure that all employees make decisions in accord with risk appetite.

2) OCC Guidelines Establishing Heightened Standards for Certain Large National Banks.

In the OCC's RAF assessment process, risk appetite and the RAS that documents it, the combination of which constitutes the nucleus of an RAF, serve as an effective means of promoting discussion and sharing perspectives between financial institutions and supervisory authorities with respect to the financial institutions' risk-taking and the strategic orientation thereof.

What foreign supervisory authorities' assessments of RAF effectiveness have in common is that they focus on the financial institution's business model and strategies. Supervisory authorities' strong interest in financial institutions' business models and strategies is based on a recognition that risk is inherent in financial institutions' operations and that their risk-taking practices are deeply connected to their business strategies, business models and, in turn, corporate cultures.

Understanding this fundamental point is crucial to developing an effective RAF.

Developments in Japan's banking sector

In Japan's banking sector, interest in risk appetite dates back to around 2010. The first interested parties were major financial institutions. However, the term "risk appetite" initially proved to be somewhat of a stumbling block, largely because the connotation of the Japanese equivalent of the word "appetite" conveyed an impression of aggressive risk-taking in pursuit of returns. Many in the financial sector consequently misperceived RAFs as culturally incompatible with Japanese financial institutions. The Japanese financial sector's initial hesitancy toward RAFs also reflected that, back then, no domestic financial institution had adopted an RAF yet and there was no international consensus on RAF specifics. As a result, the Japanese financial sector took a long time to understand RAFs' true essence.

Since September 2013, when the FSA first added RAF development to its Strategic Directions and Priorities' inspection checklist for large financial institutions[3], RAF adoption is gaining momentum in Japan, mainly among large financial institutions. Even among regional banks, interest in risk appetite and RAFs has been growing in the past year or two, partly because regional banks expect to eventually be required to develop RAFs. However, regulatory compliance is not the only driver of regional banks' interest in RAFs. Since 2013, regional banks have been under pressure from regulators to rethink and revamp their business models and strategies from a medium/long-term perspective. In response, regional banks have increasingly been seeking information on RAFs in the hope that they will be able to utilize an RAF to reform their strategies and business models.

3) Mainly SIFIs and other major banks.

Chapter 4

Key points for RAF development and implementation based on overseas case studies

At NRI, we have been periodically surveying overseas financial institutions about their RAFs since 2010. One point underscored by our overseas case studies is that RAFs do not encourage aggressive risk-taking without adequate regard for potential returns. On the contrary, RAFs are utilized by overseas financial institutions as a management control framework that enhances medium/long-term financial performance by uniting their entire workforces with common values expressed in the form of risk appetite, aligning risk-taking with risk appetite in the course of day-to-day operations and helping financial institutions to earn returns commensurate with the risks they take.

At most overseas financial institutions with RAFs, the RAF serves as a control framework that promotes constant awareness of risk appetite amid the financial institution's management cycle of formulating business strategies, budgeting, tracking budget variances and evaluating performance. However, while overseas financial institutions' RAFs share some commonalities, they also vary among the institutions as a function of their respective business models and strategies as explained above.

Following are seven universal points, gleaned from our overseas case studies to date, that I consider most important for developing and implementing an RAF.

(1) RAFs develop in stages and there are no shortcuts

The RAF development process can be divided into five progress levels (Exhibit 5). At level one, the firm takes stock of its existing management control framework and formulates an RAF development plan. At level two, it sets and documents its group- or enterprise-wide risk appetite based on its level-one decisions. At level three, the firm begins to implement its RAF by communicating its risk appetite and integrating it into its management cycle on a group- or enterprise-wide basis. At level four, it continues to implement its RAF by setting, documenting and communicating risk appetite at an increasingly granular level (e.g., business lines, subsidiaries). At level five, risk appetite is embedded throughout its organization and the implemented RAF is contributing to improving its earnings performance.

RAFs' benefits include upgrading risk management, fostering a sound risk culture, strengthening the three lines of defense and improving overall corporate governance, including board/senior management functions. Improved corporate governance, for example, is an outcome of levels one through three while a sound risk culture is regarded as an outcome of levels four and five.

However, you cannot develop an effective RAF by perfunctorily progressing through all five levels. Pursuing depth at each level is crucially important to enhancing an RAF's effectiveness. In other words, there are no shortcuts to level four or five. To build an effective RAF, you must make sure that your work at each level has firmly taken root before moving on to the next level.

(2) Embed risk appetite throughout the organization: ultimate objective is to reach level five

Overseas financial institutions' ultimate objective when adopting an RAF is to reach level five. Among the earliest adopters, quite a few overseas financial institutions are already at level five and still deepening their RAFs' implementation.

Exhibit 5: RAF development stages

Stage	Process steps
Level 1	Take stock of existing management control processes and formulate plan
Level 2	Set and document group/enterprise-wide risk appetite
Level 3	Implement RAF at group/enterprise level: cultivate shared mindset among directors, risk management and finance staff and business unit heads
Level 4	Set and document risk appetite and cultivate shared mindset at business line/subsidiary level (RAF implementation)
Level 5	Embed risk appetite throughout organization; RAF is now contributing to enhancing earnings performance

Source: NRI, based on overseas case studies and IIF/Ernst & Young, "Making strides in financial services risk management" (April 2011)

However, it is not easy to reach level five or stay there.

To reach level five, you must embed your risk appetite throughout your entire workforce. This process requires much time and effort. Overseas financial institutions have found the transition to level four, the stage at which group- or enterprise-wide risk appetite is cascaded downward to business lines, subsidiaries and other organizational subunits, to be challenging. Many overseas financial institutions have had difficulty transitioning to level four if they use the same approach they used for levels two and three. In some cases, their progress has stalled once they hit level four. In developing and implementing an RAF, financial institutions must forge ahead with the attitude that mistakes and setbacks are inevitable.

(3) Render risk appetite easily understandable

Overseas financial institutions treat risk appetite as medium/long-term guidance on how much of which types of risk to assume in which businesses, how to best do so, and how much they can expect to earn in return.

Risk appetite and the RAS that documents it constitute the core of an RAF. Setting and documenting risk appetite are key tasks in the initial stage of RAF adoption. When documenting risk appetite, firms tend to draft lengthy statements that convey their corporate philosophy and/or management policies in grandiose language. To pervasively embed risk appetite throughout a workforce, however, ease of understandability is of utmost importance.

When an RAF is implemented at the business-line level, for example, every single one of the business line's personnel needs to understand and always be conscious of risk appetite in the course of day-to-day operations. Toward this end, expressing risk appetite concisely and in readily understandable terms is important. Accordingly, when embedding risk appetite throughout your organization, you must express the risk appetite in a manner tailored to the individual organizational units that will implement the RAF and the specific personnel you aim to inculcate with risk appetite consciousness. Be aware that your risk appetite may not pervasively embed throughout your organization unless you are willing to deviate from your initially documented RAS's wording as warranted.

Overseas financial institutions place more priority on the process of setting risk appetite up to the documentation step than on documentation itself because this process promotes a shared mindset among its participants with respect to risk appetite. This is another reason that adhering too rigidly to the initially documented RAS is inadvisable.

(4) Monitoring framework is risk/return communication tool

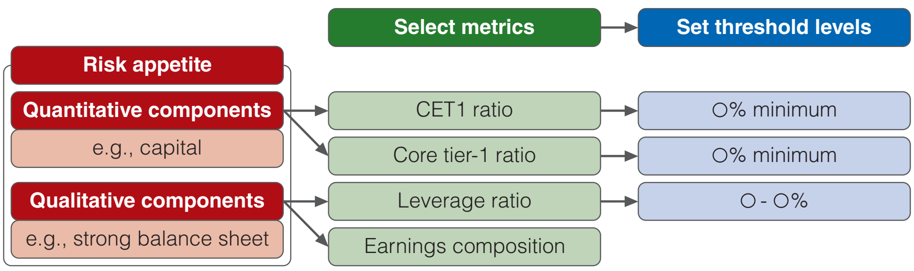
After setting risk appetite, overseas financial institutions select control metrics compatible with risk appetite (risk appetite metrics) and build a framework for monitoring risk appetite compliance. These are important tools for cascading risk appetite down to the front-line level. Overseas financial institutions take great pains to select and calibrate these risk appetite metrics.

For example, one aspect of risk appetite is maintaining adequate capital, but capital can be quantified by various measures, including regulatory capital ratios, economic capital and risk-weighted assets. Additionally, selection of risk appetite metrics differs depending on their specific use cases (e.g., the organizational level at which a metric will be utilized).

Through our overseas case studies, we have identified the following key points for selecting risk appetite metrics and calibrating their threshold levels.

1) Measurable metrics are preferable but sophisticated quantification is not necessary. Overseas financial institutions continue to search for quantitative proxies for qualitative risk appetite.

Exhibit 6: Monitoring framework



Source: NRI, based on surveys of overseas financial institutions

2) The metrics should be easy to understand and monitor. A metric for which data collection is too time-consuming would not be suitable even if otherwise optimal.

3) The metrics should be within the control of the organizational unit being monitored. Overseas financial institutions place priority on risk appetite compliance and improvement in risk appetite metrics and often include such compliance and/or improvement among their performance evaluation criteria.

4) Stress testing is often used to set the metrics' threshold levels because it is important to set threshold levels at which risk appetite compliance is feasible even during stress episodes. However, stress testing is not always used, depending on the metric's type, role and use case.

5) The metrics and their threshold levels should continuously improve as RAF implementation progresses. Threshold levels do not remain static once they have been initially set. Through RAF implementation, you must assess the adequacy of your chosen metrics and their threshold levels, change the metrics and/or thresholds as necessary, and endeavor to optimize the metrics to your operations.

This monitoring framework may be perceived as an internal control tool, given its similarity to conventional risk limits. At leading-edge overseas financial institutions, however, the framework's utility as an internal control tool takes a backseat to its role as an in-house source of risk/return guidance and a tool for promoting internal communication about risk and return.

When financial institutions building a monitoring framework overemphasize the framework's role as an internal control tool, they sometimes adopt so many different types of metrics that they end up impeding business units' autonomous decision-making on risk-taking and undermine their enterprise-wide risk resilience. Be careful to avoid this pitfall when building a monitoring framework.

(5) Incorporate risk appetite into budgeting processes

Overseas financial institutions have seen their budgeting processes change substantially since adopting RAFs. Specifically, after RAF adoption, the budgeting process has been transformed into a forum for the corporate planning function (CEO), risk management function (CRO), finance function (CFO) and business lines (or business units organized as separate legal entities) to thoroughly discuss how much of which types of risk to assume in which businesses, how to best do so and how much profit they expect to earn in return. Another major change since RAFs' advent is that the risk management and finance functions have become deeply involved in business-line budgeting processes.

In the budgeting process, risk appetite serves as an enterprise-wide standard for making decisions on risk and return. It also promotes communication among directors, C-suite executives and other senior management.

Once RAROC (risk-adjusted return on capital) emerged as a key performance metric in the early 1990s, the prevailing attitude throughout the global financial sector was that as long as business units achieved their profit target through risk-taking within the bounds of their capital allocations, the composition of those risks did not matter. Overseas, this attitude has become obsolete as RAFs have gained widespread prevalence. Business-line heads are not only required to commit to achieving a profit target, they are also held accountable for their decisions with respect to what types of businesses they engage in, how much of which types of risk they assume, how they do so and how much they earn or have earned in return.

(6) Continuous improvement is essential for an effective RAF

An RAF is by nature a perpetual work in progress. Continuous improvement is essential to enhance an RAF's effectiveness. Through such continuous improvement initiatives, an RAF becomes a framework that flexibly adapts to changes in the internal and external business environment and is able to detect newly emerging risks before they manifest. Flexibility and modifiability are strengths of RAFs, in contrast to previous management control frameworks that lacked these attributes.

As mentioned previously, RAFs' core elements, including risk appetite, risk appetite metrics and monitoring frameworks, also vary across organizational strata. Through meticulous customization to specific use cases, RAFs can serve as a tool for fostering, strengthening and maintaining a sound risk culture that is deeply embedded throughout an organization and constitutes a foundation for organizational activities.

(7) Effective RAFs require a sound corporate/risk culture

Since the financial crisis, overseas financial institutions have become more attentive to their corporate cultures in response to the revelation that corporate culture was a factor behind disparities in financial institutions' earnings performance during the crisis. Overseas financial institutions and regulatory authorities both keenly realized that weaknesses in corporate culture led to management missteps at financial institutions.

In April 2014, the FSB issue Guidance on Supervisory Interaction with Financial Institutions on Risk Culture. In it, the FSB recommended four indicators for assessing the soundness of financial institutions' risk cultures. They are tone from the top, accountability, effective communication and challenge, and incentives. In the overseas financial sector, tone from the top is considered most important for fostering a sound risk culture.

A sound corporate/risk culture is a prerequisite for RAF implementation to contribute to improving earnings performance (level five of the RAF development stages in Exhibit 5 above). In other words, without the underlying foundation of a sound corporate/risk culture, you cannot build a truly effective RAF. Overseas

Exhibit 7: Risk culture assessment

Indicator	Examples
Tone from the top	• Leading by example • Assessing espoused values • Ensuring common understanding and awareness of risk • Learning from past experiences
Accountability	• Ownership of risk • Escalation process • Clear consequences (e.g., policy violations can affect compensation and career progression)
Effective communication and challenge	• Openness to alternate views • Elevation of risk management function's stature (e.g., to parity with business lines)
Incentives	• Compensation arrangements strongly linked to institution's core values and risk culture • Inclusion of risk management experience in succession planning for key management positions

Source: FSB's Guidance on Supervisory Interaction with Financial Institutions on Risk Culture financial institutions are utilizing RAFs as a tool for fostering, strengthening and maintaining a sound corporate/risk culture as a foundation for their employees' conduct by pervasively embedding risk appetite throughout their entire workforces.

However, RAF implementation alone is not sufficient to foster, strengthen and maintain a sound corporate/risk culture. Another prerequisite is a strong commitment by management. In other words, management must adopt a tone conducive to a sound corporate/risk culture. At overseas financial institutions, top management is already explicitly expressing, both internally and outwardly, a strong commitment to fostering, strengthening and maintaining a sound corporate culture. Maintaining a sound corporate culture is one of a financial institution CEO's most important tasks.

Even among overseas financial institutions that adopted RAFs much earlier than Japanese financial institutions, some see RAF implementation as merely a regulatory requirement and focus more on meeting requirements than on improving their RAFs' effectiveness. However, many overseas financial institutions that initially developed an RAF at regulatory authorities' behest are now proactively upgrading their RAFs beyond the regulatory authorities' expectations, having keenly recognized RAFs' benefits as they embedded their RAFs throughout their organizations. This fact is testament that an effective RAF is an outstanding management control framework for addressing the challenges facing financial institutions. I hope that Japan's financial sector likewise proactively embraces RAFs from the standpoint of upgrading their management controls instead of merely complying with regulatory requirements.

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