New Landscape (Or Landslide?): Regulation's Impact on the Capital Markets and Technology Priorities

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Executive Summary

It comes as no surprise that the capital markets landscape is undergoing dramatic change in the wake of the financial crisis. The character of trading, the business and funding models the market will allow, and heightened sensitivity to credit and risk — all are aspects of the capital markets business that will evolve in new directions. To prosper, institutions and their technology departments will need to adapt swiftly.

Regulatory response to the global financial crisis is inevitable. TowerGroup believes regulatory forces will change not only the rules but the very manner in which securities firms operate, shaping the capital markets business in terms of:

- **Regulatory harmonization:** across and within national boundaries, even potentially conceding influence to supra-national bodies
- **Increased intervention:** the current laissez faire regulatory regime will become demonstrably more activist
- **Systemic risk management:** a framework that depends upon data collection and analysis of markets and participants to manage the "too-big-to-fail" phenomenon
- **Holistic view:** regulators will monitor the health of entities, activities, products, and asset classes, across business units and geographies
- **Greater transparency:** into products, processes, and data
- **Enhanced technology infrastructure:** to better manage, extract, and analyze data and put it into actionable form

For capital markets regulation to achieve its mission of fostering stable markets, enhancing transparency, and limiting market dislocations — despite the risks inherent in capital markets businesses — it must be strict but flexible. Regulators' failure to recognize the danger signs that led to the crisis, or then manage it effectively, has scarred their credibility. Though they will be tempted to swing too far in the direction of intervention and control, it is incumbent upon regulators to craft balanced solutions in order to restore the health of the securities business.

This TowerGroup report describes the landscape that capital markets players now face. It discusses the key regulatory drivers that brought us to where we are today — and ones that are setting the stage for global evolution of the business. The report analyzes the key initiatives that regulators are likely to undertake to reign in — but hopefully not stifle — the market forces that have historically enabled efficient flows of capital within and across markets around the world. And it highlights the massive technology implications of the altered regulatory landscape so that forward-thinking capital markets firms can make the right strategic choices about where and how to react. In a time of tight budgets firms will nonetheless be forced to invest in areas such as data management, complex event processing tools, and improved IT architecture in order to accommodate regulatory directives.

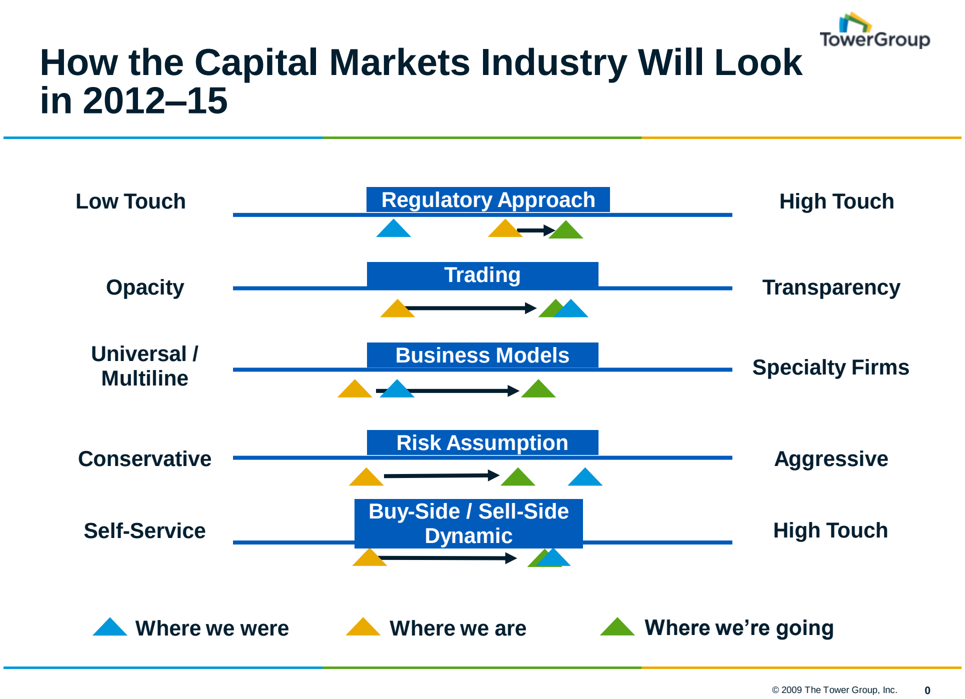
What to Expect

The fear of economic collapse prevalent in late 2008 and early 2009 led market participants to think the worst and overreact to the events unfolding around them. Executives obviously should avoid making long-term business decisions while in "the valley of despair" — and few did make such decisions, except those forced to by circumstances. In fact, as economic uncertainty spiraled upward, it seemed that decisions virtually ceased to be made at all.

With a return to relatively healthy markets in recent months, however, sentiment has started to swing back to confidence, albeit with some residual trepidation. The lessons of the last two years appear to have stamped market participants with an imprint of caution that is not likely to dissolve, even in the face of an extended upturn.

A subtle, but fundamental, shift has occurred in the psychology of the capital markets to a more conservative approach to business. The pendulum will oscillate in the next three to five years, as shown in Exhibit 1, but it will not revert back to the status quo.

Exhibit 1



Regulatory Approach

As in Darwinian evolution, some products such as CDO[2] will die a natural, market-driven death. And regulators will force other changes on the market. It is clear that the overall regulatory approach has already shifted from "low-touch" to "high-touch," and the trend will continue.

Trading

Trading activities, products, and exposures have moved well down the path from opacity to transparency and will continue to do so. Much has already been said about the merit of returning to less arcane, more easily understood products that trading counterparties and investors can readily understand. The "return to basics" may well result making the tasks of valuation and monitoring task easier. (Even with automated tools and subscription services, however, manual intervention and lengthy interactions with trading partners over collateral or other valuation management issues will still make valuation a challenge.)

Business Models

Business models have, for the time being at least, moved even further into universal or multiline structures. Notwithstanding the Merrill Lynch/Bank of America combination and JP Morgan/Goldman bank holding company transforms, however, the pendulum is likely to swing back in the direction of specialization in the future. The vaunted synergies of financial supermarkets have proven elusive for two decades, and recent events have spotlighted an often-overlooked risk of such business models: With diversity comes complexity, and with complexity often comes lack of control.

As institutions find themselves facing, by necessity or choice, the need to focus on a few core competencies, they will increasingly align themselves with a narrower set of capital markets or related businesses. A private bank model, focused on a few proprietary trading and investment banking/wealth management strategies, is likely to be increasingly successful in a marketplace that is demanding a clearer line of sight into institutions' value propositions and risk profiles. Among the downtrodden, Citigroup — at one time the world's largest financial services provider — has been forced by economic necessity (and its government owners) to divest not only its vaunted retail brokerage Smith Barney but also its Phibro energy trading unit (the latter partially due to restrictions on employee compensation).

Even broad-based firms that have achieved a profit turnaround, like JP Morgan and Goldman Sachs, are tending to "stick to their knitting" in their core trading, underwriting, and wealth management businesses. Despite their recent successes, such firms are pursuing a more focused model largely because they, and their trading partners, feel they it's the best way to avoid getting into trouble. Whether that turns out to be the case during the next downturn on Wall Street remains to be seen. In the meantime, firms are narrowing scope and appear positioned to continue to do so.

Risk Assumption

Clearly, few counterparties are willing to do business with any firm that has real or perceived issues regarding risk exposure. As stress-testing becomes routine, stricter capital standards are adhered to, and all but traditional lending-and-securitization deals become unbankable, firms may slightly reverse their precipitous moves toward the conservative end of the spectrum. Nonetheless, more bad news in the macro economy, an effort to reinvigorate mark-to-market accounting rules, or other risk factors could spell further trouble for risk positions — inhibiting the general risk appetite again.

Buy-Side/Sell-Side Dynamic

Direct market access and increasingly sophisticated analytical tools and capabilities have allowed buy-side trading desks to take control of the relationship with Wall Street. As sell-side trading became commoditized (and much less profitable), the self-service model was the only means for brokers to stay in the business — and the buy side embraced its new-found freedom from broker dependence. In the wake of the crisis, however, the buy side has come to appreciate the Street's in-depth market knowledge and execution capabilities, and has discovered how to use brokers in specialized ways with difficult trading situations. Brokers themselves, meanwhile, are focusing on core capabilities, outsourcing execution to larger competitors that are able to harness the scale needed to build and maintain a competitive electronic trading infrastructure. One bulge bracket firm puts the proportion of its trading activity for other brokers at over 60% today, and expects this percentage to increase.

The Future

These shifts show that our current state is still largely a function of the pressures brought to bear on institutions as a result of the financial crisis. The institutions understandably had to react to severe dislocations. But with the return to functioning markets it's clear their responses were not indicative of where the firms want to be in the future. Compliance with more stringent regulation will be a key business driver for the next few years, requiring technology solutions that maximize compliance and minimize related costs.

The shifts show how important it is for firms to look at their businesses from a measured perspective as the industry climbs out of the valley of recession. Institutions need to think calmly and carefully about how the world will be in the coming three to five years and prepare accordingly by tightening operations, taking share from weakened or distracted rivals, and other means. Taking such steps now as the light is dawning will pay outsize dividends down the road.

Regulators' Role in (Mis)Managing the Crisis

For a generation of regulators, it has been an article of faith that a laissez-faire approach to the markets is best. Particularly in the United States, many have supported as noble goals unfettered wealth creation, product innovation, and sustainable economic growth driven by free markets. Unfortunately, even the best-intentioned approaches were not equal to the task when the financial crisis erupted. The hands-off mindset prevented original thinking in increasingly dire circumstances, as major players failed and liquidity and trading markets devolved into chaos. When the aversion to intervention met the implacable forces of deleveraging and risk paranoia, the result was paralysis on the part of regulators.

The laissez-faire regulators lacked insight into the operations and exposures of the entities they regulated. Without information, they were unable to determine the extent of the problem before and during the crisis, were unable to make decisions, and therefore unable to protect the markets' stakeholders from harm. To prevent future paralysis, regulators have realized they must be able to gather data from institutions.

The power of government agencies and rule-makers has clearly been on the rise of late. Bans on short selling and oil speculation, nationalization of institutions and forced mergers, enactment of unprecedented stimulus packages, infusion of capital, and provision of liquidity of last resort to paralyzed markets all evidenced a significant shift in the balance of power from private to public institutions. So despite their aversion to entering the business of the capital markets, most regulators were forced by events and their legislatures to think and act in entirely new ways.

Meanwhile, regulatory authorities in various jurisdictions were unable to cooperate to the extent called for at a time of such stress to the world financial system. With little precedent and fewer mechanisms for working together, the hodge-podge of financial regulators was culturally incapable of coordinated action. This was true of the Federal Reserve, Treasury, SEC, CFTC, FINRA, and other regulatory bodies in the United States. In Europe, despite the European Union's history of standardizing and simplifying business rules across national boundaries, entrenched legal systems, views on risk, and propensities to pursue narrow national agendas still lead to conflicts. The German government was unwilling to ramp up spending to support weakened institutions and markets though the United Kingdom was following the Americans' lead by stimulating the economy and effecting a massive financial rescue of the industry at almost any cost. The result was two very different initiatives driven by very different national consciousnesses.

Similarly in Asia, national regulators and governments each pursued their own agendas, in the form of bodies like the China Securities Regulatory Commission, India's Securities and Exchange Board, and Japan's Financial Services Agency. The approaches taken by developed markets like Japan and Australia — typically focused on control and risk management — differed from those of emerging economies like India and China, where the recovery was expected to come sooner and massive changes to a largely a free-market mandate were not in the cards.

Despite this sometimes bewildering diversity, regulators around the globe were united in several respects. They all suffered from an inability to understand the extent of the issues institutions were facing (particularly the lack of visibility into opaque over-the-counter markets). They were unable to address the root causes of the credit crisis — namely, the astonishing expansion of credit and market exposure due to lax lending standards and other factors — because the speed and severity of the crisis were beyond any single authority's ability to arrest it. In many cases, regulators lacked legal authority to take decisive action, even if they had wanted to.

Exhibit 2 summarizes the constraints regulators faced in dealing with a crisis as massive as the most recent.

Exhibit 2

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Why Governments Couldn't Quash the Crisis

Initial responses were ad hoc, a "finger in the dam"

- Philosophical aversion to aggressive actions
- Inability to address root cause of credit crisis
- Lack of clarity on extent of issues
- Lack of visibility into opaque over-the-counter (OTC) markets
- Lack of legal authority to take extreme measures

Regulators' risk management capabilities were (<u>and still are</u>) flawed

Clearly the constraints sorely tested the regulators' ability to stay ahead of risks to the global trading system. It is clear, too, that their processes are still inadequate, if not fundamentally flawed. Regulators cannot expect to mitigate all of the failures in the financial system but only fix some of the most egregious flaws. A single rule is not going to reverse eight years of low rates and weak credit standards. Nonetheless, regulators do not want ever again to be in the position being asked the question: "What will be the consequences of XYZ Bank failure?" and having to answer: "I don't know."

The next two sections examine some of the forces driving regulation to adapt and respond globally to the current crisis, and the means regulatory bodies are employing to deter anticipated crises.

Global Regulatory Issues

As fragmented as the regulatory responses to the crisis were across national markets, the global regulatory framework is set to become more diverse, not less. The Group of 8 countries having called the tune for the last 40 years, the balance of power now is shifting to the Group of Twenty (G-20) Finance Ministers and Central Bank Governors, with the influence of the southern and eastern hemispheres becoming more pervasive.

The bifurcation between developed and emerging countries in the Asia-Pacific region (noted above) may play out in a similar way. The interests of new, vibrant markets in places like Brazil, India, China, and the Middle East will take on increasing importance in the regulatory debate. As the flow of capital moves inexorably from traditional market centers in North America and Europe to these newcomers, their interests in generally unfettered competition (except as it impacts local market participants) may act as a brake on efforts to rein in laissez-faire rule making. Many emerging nations built capital markets with an implicit promise that free market prosperity was the path to growth. The financial turmoil has invalidated that theory for some and may impede the opening markets without assurances from trusted organizations such as the World Bank.

Entities like the International Monetary Fund (IMF) and the Bank for International Settlements, which have shaped macroeconomic policies in emerging countries, are expected to exert greater influence on financial policy in the future. Their traditional strength in these countries makes them a natural force for shaping regulatory direction. Because such bodies are fundamentally internationalist in character (if not always in behavior), we expect their bias will be toward a more “universal,” standardized approach to capital markets regulation wherever possible — a factor that should foster the trend toward harmonization globally.

Many emerging markets have one advantage over established markets, having leapfrogged established centers in the electronification of trading and other processes. As a result, some emerging market centers may be better positioned to take advantage of advanced portfolio management, dealing, and trading tools than their counterparts in developed countries. Forward-looking technological infrastructure enables these markets to provide greater transparency in the form of exposure measurement and monitoring, giving them an advantage in compliance with the anticipated new demands by regulators for clarity regarding capital markets activities.

One of the most significant developments in the global regulatory landscape is the rise of systemic risk regulation, which began with regulations attempting to save institutions deemed too big to fail. By definition, this type of regulation will need to deal with transnational issues and capital markets players, which will necessitate the formation of a supranational oversight body or bodies. Given the national, political, and simply operational hurdles such an entity would face — either to its formation, its charter, or its actions — it is likely its initial activities would be purely advisory or focused on data gathering and analysis.

Nonetheless, in light of the momentum engendered by the fear and chaos resulting from the financial crisis, TowerGroup believes such an entity will become a major force. A global risk oversight body would be charged with monitoring and potentially acting on risks posed by global firms that are believed to threaten the capital markets so as to minimize the social costs of broken credit systems, unemployment, and high deficits. The ability to bring together capital positions, results from stress tests (and reverse stress tests), enterprise-wide risk data from multiple jurisdictions (not just those related to one country), and other data in one place would be a powerful means of controlling not just individual firms’ risk profiles but that of the market as a whole.

Of course, daunting technological and operational hurdles stand in the way of such a vision. Neither the regulators nor the institutions can access the breadth or depth of information needed to form a holistic picture of exposures and impacts. The evolution of the vastly interconnected global capital markets depends on finding a workable solution to this problem, however. The alternative is a formula for further disasters in the future.

What Regulators Will Do

The first principle of regulation should be like the Hippocratic Oath: "First, do no harm." For the most part, capital markets participants recognize that regulation itself is not bad, as long as strictness and flexibility are balanced. Regulation encourages investment and innovation by fostering stable markets and clarity about rules and expected outcomes. The social and political costs of bank failures or investment markets' inability to operate are simply too high: Without a secure financial economy, the "real" economy ceases to function efficiently. Regulators will enact rules that help them identify, measure, and mitigate systemic risk. Because these rules will force institutions to invest in the right technologies, regulation has consequently become a top driver for technology spending.

The recent crisis has reminded us that ensuring a stable financial landscape is a legitimate government purpose, one that is sanctioned not only by the participants but also by society at large. Witness recent US efforts to legislate direct intervention in major banking conglomerates' activities (even to the extent of forced divestiture of capital markets activities if a bank is perceived to be a risk to itself and to the financial system as a whole). Prospects seem remote for such a retrograde approach to bank regulation, which would in effect give the government the ability to turn back the clock to a Glass-Steagall world for certain institutions. Nevertheless, we have obviously come a long way from a laissez-faire conception of regulation.

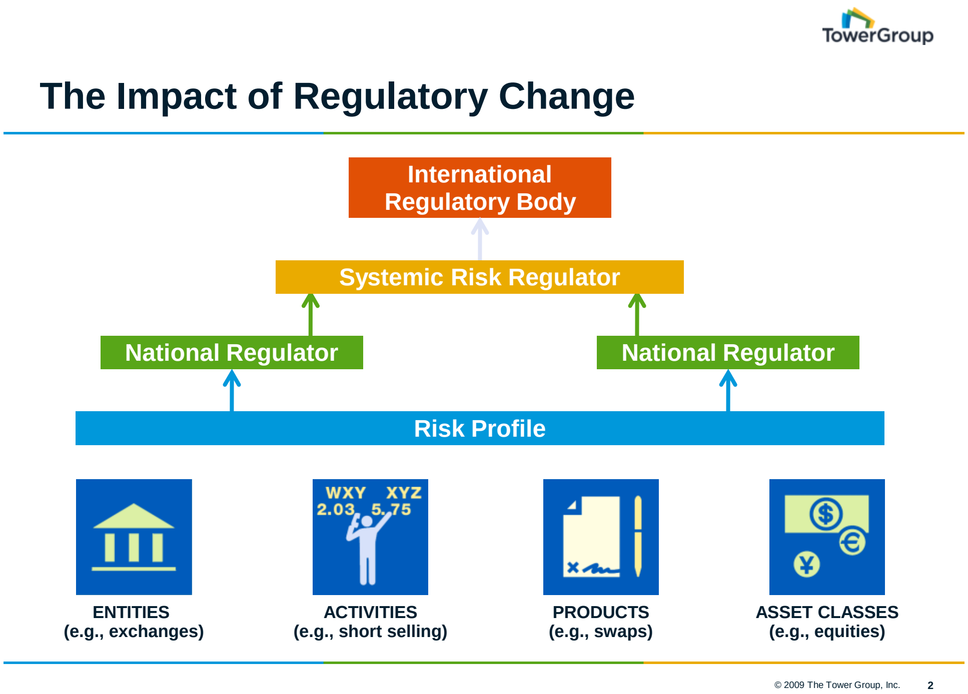
There is little debate as to whether regulators will or should play a bigger role in the capital markets. The only question is what form the reporting, analysis, standards, etc. will take, and whether the resulting requirements will balance the needs for transparency and safety with the related burdens on capital markets firms. Few voices are raised to object that an overly onerous regulatory bureaucracy could hamper legitimate business. Instead, most players acknowledge that greater scrutiny will likely benefit us all by helping to mitigate severe economic dislocations in the future. The markets seem to be looking for a dose of medicine to make sure they don't get so sick again.

The actual application of regulations will undoubtedly diverge across jurisdictions. Hence, the chance for regulatory arbitrage if, for example, reporting or capital requirements remain significantly lower in offshore investing havens, is very real. Some activities will migrate to those locations from more cautious ones. Harmonization will be a journey not a destination because of the vast scope of the task and the deep-seated resistance to conformity of such heterogeneous players.

National regulators are likely to remain suspicious of the intentions and quality of their counterparts in other countries, so demands for duplicative reporting will very likely emerge, for example. And since regulators in one country will seek full accounting of conditions across the enterprise — not just the business unit — in the local jurisdiction, the likelihood of duplicative reporting rises even higher.

Overall, the goal for regulators will be to ensure full coverage and prevent key issues from slipping through the cracks. To get the full picture of risks and conditions of the capital markets they oversee, regulators will take a broader view than hitherto, examining four essential dimensions: entities, activities, products, and asset classes as shown in Exhibit 3.

Exhibit 3



Regulators will look beyond institutions to the relationships between the entities, their activities that take place, the products they create and trade, and trends within the asset classes. To obtain this holistic view, regulators will design requirements to account for risks that are hidden at the institutional level but apparent at (for example) the product level. Looking at an institution in isolation is ineffective because actions that are logical for a single institution can become destructive when multiplied across many institutions. A single bank structuring a handful of collateralized debt obligations (CDOs) does not introduce systemic risk; systemic risk is introduced when products grow rapidly because every institution wants to trade them, but infrastructure around processing, reporting and pricing is not created as quickly.

Entities

Regulators will first segment institutions into those that constitute large/medium/small risks to the overall system. Based on scale relative to the market as a whole, along with the nature and perceived riskiness of the firm's activities, this segmentation will in turn determine regulatory requirements for the firm. For example, capital standards and reporting and analysis requirements will be far more stringent for a Top 20 multiline universal bank that is engaging in proprietary trading in arcane commodities or derivatives than for a large regional depository that is focused on its own credits with little outside investment activity. The amount of detail and frequency of reporting on risk positions and counterparty exposures will be greater for the former and regulators may even demand real-time profit and loss reporting on the firm's highest risk activities.

We have all witnessed the unthinkable: the failure of once mighty institutions due to a confluence of factors few predicted — but which could have been foreseen had we been open to the possibility. In the wake of so many rapid-fire implosions, it would be foolish to believe it won't happen again — and regulators are going to look for firms they oversee to incorporate such scenarios into their risk management and business planning. Reverse stress testing, where an institution must have identified scenarios — such as an extended absence of liquidity from multiple trading partners — that would threaten the firm's survival and to articulate a plan for how the institution would protect itself against them. The FSA's new rules in the U.K. have taken the lead, but new legislation in the United States suggests that a similar requirement may be imposed there, as well.

Inadequate risk assessment, for example as a result of over-reliance on mathematical models such as value-at-risk (VaR), will also be taken to task. Practitioners and their regulators are coming to internalize the common sense, real-world lessons the financial crisis taught: no model can perform effectively when swings in the markets of 5%, 20%, or more are happening. Instead of relying blindly on the math behind the model — taking on faith that the results are an accurate depiction of real exposures under all circumstances — regulators will be looking for market participants to come up with more, and especially, worst-case scenarios, and planning for when they come to pass.

Activities

Within and across institutions, regulators will focus on such activities as short selling, proprietary trading, and mix of on- and off-balance sheet entities for funding or other activities. With greater or lesser concern every day the markets recover, regulators will still keep a close on eye on excesses in such activities at the institutions in their purview.

The possibility that certain market participants like hedge funds are engaging in bear raids, for example, will draw considerable scrutiny because of the fundamentally destabilizing and manipulative nature of such actions. So will practices such as broker dealers providing naked access to the buy side. Hedge funds will have to succumb to greater reporting requirements as a result of the push to have them register as investment companies. Restrictions on short selling, particularly during periods of market turmoil or severe volatility, are likely to be imposed — and will need to be monitored and reported on by capital markets players such as hedge funds, broker/dealers, and some asset managers. Stricter limits and greater transparency around leverage and leveraged financing, in addition to well-publicized higher capital standards generally, will also be imposed — which will affect not only banks and bank-holding companies (and therefore several former B/Ds), but also bank-affiliated investment managers, for whom as a result capital and leverage strategies will be constrained.

Products

Also receiving more regulatory scrutiny will be existing products like credit default swaps (CDSs) as well as new products. Regulators will demand greater control and transparency the more aggregate risk such products represent (e.g., a highly specialized and arcane kind of derivative like a bet on the likelihood of snow ruining an orange crop would likely have little in the way of systemic risk impact and hence would not need to be regulated). As certain products become more popular, their potential to cause greater impact on the capital markets grows, so they will likely be subjected to higher capital and monitoring requirements. Nevertheless, the point at which such regulations ought to kick in will be a subject of heated debate.

The need for transparency of derivatives and structured products generally will be heightened. The imposition of central clearing of over-the-counter (OTC) derivatives is also likely. Stringent standards on underwriting and securitizing mortgages and asset securitization in general will also prove to be a constraint on the revenue and investment potential (and risks) these products represented to broker-dealers and investment managers.

Asset Classes

A more abstract subject for regulatory scrutiny, entire asset classes, will also be examined. In the case of equities, the market microstructure of dark pool execution and high-frequency trading will be more closely monitored. Regulators will examine the market dynamics of the fixed-income asset class. CDS pricing is a driver of the pricing for the underlying debt. Regulators will monitor such interrelationships to ensure that pricing and transparency within one asset class cannot be skirted via other instruments in that asst class. More narrowly focused asset classes like OTC foreign exchange swaps behave quite differently from CDSs, where markets are much deeper. Each class requires a different set of rules, and regulators will be monitoring the impact of those diverse rules on the health of the markets more carefully than ever before.

Stress testing and capital adequacy standards are two of the most visible rules imposed on capital markets players, but other requirements for reporting and analysis will begin to be promulgated that will entail a significant shift in mindset, operations, data management, and risk sensitivity. These reporting requirements will be challenging, forcing institutions to serve up large and frequent volumes of information on activities, counterparties, products, and asset classes.

For obvious reasons, given their impact in fomenting the crisis, OTC derivatives and risk management will receive stronger regulatory attention. Regulators were frustrated by their inability to obtain and analyze data across the derivatives market. The inefficiency of the often heavily manual confirmation process put these instruments in the regulatory spotlight. The failure of Lehman Brothers, in part because uncertainty surrounding OTC derivatives valuations fueled the firm's death spiral, highlighted how quickly the products could have second- and third-order effects across entire markets.

Exhibit 4 describes some of the most significant changes in rules and reporting that regulators are likely to impose. The demands will be great for transparent and compelling information to be placed at the regulators' disposal in both these areas.

Exhibit 4

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Anticipated New Rules on Derivatives and Risk Management

Derivatives	Risk Management
OTC position and other reporting	Regulatory harmonization
Segmentation of collateral	Stress testing
Off-balance-sheet accounting	Automated collateral management
Client qualification	Liquidity calculations across multiple drivers
OTC clearing	Capital requirements
Infrastructure improvements	BIS principles
Exchange listing	Qualitative and quantitative reporting
Ratings agency reform	

Among the many initiatives that may be enacted, four will drive IT development:

Valuations. Regulators will force institutions to bolster their valuations process and be able to justify that process. Investors such as pension plans and endowments will place similar pressures on institutions. The accuracy of an asset valuation is driven by the models and methodologies and assumptions employed by each firm. Honest differences of opinion occur as to the best quantitative approach to generate the most accurate valuation. Common to all firms, though, is the need to improve the technology architecture that supports the valuations process. Accuracy will always be key criterion for a valuations process, but a poor infrastructure will result in delayed valuations or an inaccurate price because of operational ineffectiveness.

Liquidity calculations. Regulators and institutions recognize that market liquidity-related and funding-related liquidity issues worsened the financial crisis. They will require institutions to devise more complex liquidity calculations across more scenarios to contribute input to the regulators' view of how entities and products introduce systemic risk into the market.

Collateral management. Regulators want to improve counterparty credit risk management, particularly bilateral OTC derivatives collateral management. Some of the improvements will come in the form of defined standards and processes to streamline the function. Others will be a result of publishing best practices around (1) counterparty analysis and (2) counterparty positions analysis. Counterparty analysis looks at the components that help the institution measure creditworthiness, such as credit ratings, market data (CDS and equity prices, for example), examination of public filings, and other credit analysis techniques. Only when the creditworthiness of the counterparty has been established can an analysis of position data be placed into context. Gathering position data across asset classes and geography is a challenge today; correlating that data with the fundamental analysis is an ideal yet to be reached.

Stress testing. Regulators demanded stress tests of large, systemically important financial institutions, and they will demand more such testing as the foundation for analysis of systemic risk. The stress tests will reflect some of practices conducted in the summer of 2009, in which FSIs were asked to correlate the impact of events on seemingly unrelated assets such as their mortgage exposures and their FX exposures. FSIs will then need to correlate risk positions and scenarios with their capital positions. Regulators will want to know not only the impact of certain scenarios on an institution, but also the impact of the affected institution on other institutions and the system as a whole.

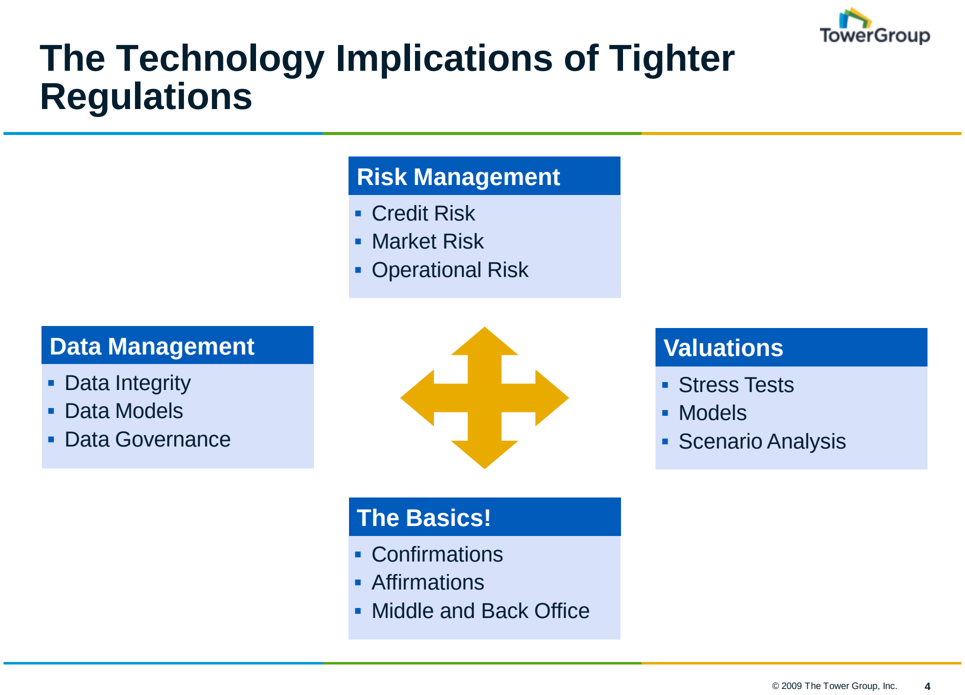
Each of the four regulatory drivers is a catalyst for technology changes. Together, they represent the need to securities firms to rethink how they manage their technology platforms in a new regulatory world.

Technology Implications for Capital Markets

The regulators have concluded that many of their own practices are flawed. They are setting an example for the industry as a whole by correcting their own issues while demanding that institutions raise their standards. Even without a global systemic risk regulator, the deficiencies in regulators’ own understanding and monitoring framework are so glaring as to demand immediate attention. By extension, it is clear that firms’ understanding of the risks they face and how they should be addressing them are equally inadequate.

So what must firms do? Essentially, they need to ensure the risk regulator has the necessary data to manage systemic risk. This is easily said, but making it happen will be a large challenge. Exhibit 5 lays out the four key technology implications for capital markets firms and outlines the specific steps institutions need to undertake to make that happen.

Exhibit 5



The Basics

First and foremost, data is the key. Good data management in terms of integrity, sound governance processes, and robust, proven models is also sine qua non for dependable inputs. Good data coupled with efficient extraction and analysis will then drive good valuations. "The basics" in terms of operations is foundational in ensuring the transactions that feed position and exposure information are correct. All of these elements combined are needed to ensure accurate and reliable risk management.

Regulators will increasingly be looking for near-real time information, so firms that have not already done so will need to re-architect their IT infrastructure to enable this. Information on counterparties, positions, exposures all will need to be accounted for, readily accessed, reported out, and, in several cases, predigested and analyzed prior to delivery to the authorities — and this in an increasingly fast cycle.

Valuations

Low latency (high speed) understandably receives a lot of attention in the cash equities space. Speed is also an important factor in OTC derivatives, but for different reasons. Latency is an impediment to effective risk management. The markets move too fast and are too volatile and data needs are too onerous to manage data on traditional platforms. Low-latency tools are available that should be considered in order to reduce run time. For complex instruments and enterprise analytics, it is necessary to compare real-time information with historical data to determine exposure. In addition, quickly analyzing the effect of multiple events (such as rate increases in multiple countries or simultaneous corporate downgrades) requires a new way to interrogate the data sets and a better way to analyze the impact of changing market conditions on positions and portfolios.

TowerGroup believes that tools such as in-memory databases and complex event processing (CEP) should be applied to risk management activities, including valuations of complex instruments and counterparty exposure analytics. The nature of OTC trading — the numerous positions firms hold with each other, the rapid changes in the values of those positions, and the fluctuating financial health of counterparties — lend itself to CEP engines. Brute force in the form of increasing hardware components is important but is not scalable to the real-time demands of risk managers and regulators.

Data Management

The main challenge is often how to extract data from systems as diverse as core accounting, P&L, risk analytics, and trading, to name a few. Capital markets firms have a wealth of transactional data, position data, business rules, and analytical tools. The typical technology architecture does not make it easy for different functional areas to share information or for institutions to provide the full risk picture to managers and regulators. Firms face daunting problems trying to "untie" the complex organizations, processes, and systems that make up the global capital markets enterprise in order to bring the right kind of risk knowledge together with the people who can act on it. The goal is to achieve a single view of reality across geographies, products, and businesses.

Clearly, flexible solutions are needed to achieve transparency across such a complex business system. Institutions the world over are grappling with how to map solutions to the array of corporate and business functions, locations, and product and customer systems. The problem is that risk information is scattered across unconnected systems, which means that requests for integrated information are generally slow, ad hoc, and require several manual processes.

Legacy systems also stand in the way. Considerable work has to be done to integrate with a front end that can aggregate exposure, position, counterparty, and other information and present it in a structured and insightful way that allows management and regulators to interact productively, while simultaneously reducing the costs of compliance. Robust data models and good data governance practices will also need to be the norm in organizations hoping to achieve this goal.

Risk Management

Aggregated risk knowledge helps the regulator and benefits the institution. Every time a single electronic file can aggregate and analyze exposures, geography, product risks, a regulator has the answer in a hurry and the firm has avoided costs, errors, and delays. Although complex and expensive, data warehousing and management projects can resolve multiple issues at once: efficiency and responsiveness to the regulator and improvement in the institution's own ability to harness and act on risk data. That, in turn, leverages the investment and lowers costs and improves risk management effectiveness overall for the enterprise.

The hard-learned lesson of risk management was that poor liquidity management on the part of one or two firms could devolve rapidly into a complete crisis of confidence across all counterparty relationships. Particularly in the banking sector, it also became apparent that a liquidity crisis bears a huge social cost in terms of dramatically limited access to consumer and business credit. And finally, the correlations among various risk types, and the speed with which mismanagement of the relationship among capital, liquidity, and overall risk could bring down key players enlightened everyone to the central role risk management must play in the sound conduct of capital markets businesses.

The answer, though not simple, is nonetheless within reach. The solution requires reorientation around comprehensive risk views and the data associated with understanding them, enabled by the implementation of a risk management and reporting platform that aggregates risk data and connects processes and people across products and transactions. By creating a shared repository of the data and a platform to allow its ready use, institutions gain a 360-degree view of their exposures that can serve as the primary source of risk information for reporting or other purposes throughout the firm, including risk management, compliance, and management control. Aggregated risk information, enabled through data warehousing and access solutions, is the foundation that allows institutions to build a true control environment.

And the benefits accrue not just from the standpoint of control: sound enterprise risk management will also become a competitive differentiator. A world is not far off in which ISO 9000-type practices (operationalized in annual certification by third parties, for example) will be expected by counterparties, clients, and others. Adherence to high standards will become a necessary precondition for investment mandates from institutions, risk reviews from venues, and investors themselves.

Conclusion

The fundamental changes to the capital markets landscape over the last two years have altered many aspects of the business forever. Propensities to take on risk, business models, trading approaches, and relationships between the buy and sell side have all undergone major transformations. Regulators have also shifted their orientation dramatically from laissez faire to interventionist.

A consequence of these changes is that securities firms must now tackle major operational and technological challenges to not only manage their business, but also to respond to new and more demanding regulatory requirements. The following characterizes the changes and the impacts on securities firms.

Harmonization. The lack of standardization across and within national boundaries made a coordinated response to the crisis virtually impossible — and very likely contributed to it. A patchwork of rules created uneven playing fields — allowing certain activities to go unchecked and unmonitored — and resulted in inconsistent responses once the crisis erupted. Despite the obvious political hurdles to harmonization, the momentum for such a solution is stronger now than it has been in a generation, and TowerGroup expects far greater effort on the part of individual regulatory bodies to closely align their approaches, and perhaps even concede influence to a supra-national oversight or coordinating body.

Degree of intervention. Despite resistance from many quarters, regulators will become more aggressive over the next 3–5 years. The laissez-faire regime that has largely defined regulation for the last two-and-a-half decades will become more proactive.

Systemic risk management. Because of the "too-big-to-fail" phenomenon that forced regulators to pick winners and losers at the most unpropitious time (the middle of a crisis), TowerGroup expects regulators to address in a concerted way how individual weaknesses might eventually lead to system-wide failures. Such a focus will lead to more scrupulous monitoring and evaluation of structural issues (e.g., clearing and settlement methods, market micro-structure, etc.) and a closer examination of participant-level issues to avoid a situation of too much control and risk centered around too-few players.

Holistic view. Regulators will adopt a more comprehensive perspective on securities markets and participants, looking to monitor the health of the business across multiple dimensions: entities, activities, products, and asset classes. They will seek to pull together and understand what is going on in the entire organization, regardless of business line or geographical dispersion, and to assess not just slices, but the full picture and all its interrelationships.

Greater transparency. A lack of clarity on both the nature and extent of issues within individual institutions, and in the markets at large, was very likely one of the root causes of the crisis. As a result, regulators will seek, and institutions will be compelled to provide, a much greater level of detail on risk exposures, scenarios, new products, etc.

Enhanced technology infrastructure to better manage, extract, and analyze data. As a direct consequence of regulators' emphasis on transparency and a holistic view, institutions (and the regulators themselves) will face a technology challenge to rigorously harness, access, and transform their risk and other data into actionable forms. Although conceptually straightforward, the intricate and siloed nature of typical IT architectures, legacy systems, and organizations will make this a significant undertaking.

Despite what are likely to be dramatic ramifications for strategies, processes, and technology support, the impact of regulation will also be positive for the industry as a whole. The capital markets comprise a complex, global, interrelated system that has undergone a severe test, and is now in need of fundamental change to restore it to health. Firms that address the technology challenges of the new business environment and regulatory regime will survive and thrive.

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