# Dodd-Frank: A Piece of the Evolving Regulatory Puzzle for Financial Institutions

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**Financial Institutions are constantly being challenged to operationalize market and regulatory expectations and/or rules. The landscape of financial management is evolving rapidly in response to the financial crisis of 2008 and worldwide regulatory initiatives. This is especially challenging because financial markets are global in nature, but regulated at parochial levels by governments. Capital requirements are set by the Bank for International Settlements under Basel rules. In contrast, the Dodd-Frank Act represents the specific U.S. response. While efforts at international cooperation are an ideal state, the fact remains that there are disparate regulatory environments which create systemic inefficiencies and resource misallocations. This reality makes navigating global capital markets challenging at best.**

A sound understanding of the macro-environment is essential before compliance reporting systems and decision support models can be designed and executed in alignment with the demands of capital markets and institutional regulators. This is especially true in the post-meltdown era when failures to assess, manage and price risk have permanently changed the landscape of regulations and management of financial institutions. To accomplish the goal of full compliance, there must be "clear lines of sight" or transparency from macro-expectations to micro-execution at the operational level of financial institutions, to include design and pricing of products and their delivery.

This paper presents a survey of key issues which need to be addressed by the evolving regulatory landscape and the response of financial

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institutions. In July of 2010 the United States government established the Dodd-Frank Act in response to the near disastrous financial failures which occurred in the Fall of 2008. These events required massive federal capital infusion in many different markets, including financial products offered from many platforms. To ground this study, specific provisions of the Dodd-Frank Act, relating to products, risk assessment and capital allocation, will be investigated. A discussion of issues related to operationalizing Dodd-Frank in financial institutions will be presented.

## ORIGINS OF THE PROBLEM

The financial crisis and world recession of 2008 and 2009 demonstrated how little regulators, and even market participants themselves, understood about the inter connectedness of financial transactions and balance sheet positions (Friedman, 2011; Kaufmann, 2011). While the failure of Lehman Brothers shook the financial world, the bailouts of the likes of AIG, Citi, Merrill Lynch, and the effective nationalization of Fannie Mae, Freddie Mac, and the Royal Bank of Scotland, among others, were demonstrative of the approach taken by central banks and governments to err on the side of overextending credit facilities (Frame & White, 2007). While the bailouts avoided a complete collapse of the payments system, the limited effectiveness of central banks to extend their infusions of liquidity to the end users of credit proved to be of limited effectiveness in preventing a world economic recession.

The troubles began in the first few years of the 21st Century with efforts to promote home ownership, resulting in increased subprime mortgage lending in the U.S. and increased financial institution leverage to support this market (Frame & White, 2007). Various factors of increased competition led to a secondary mortgage market of dubious quality, such as the Federal Home Loan Bank mortgage purchase programs. This was accomplished despite the adoption of revised risk-based capital requirements for large banks (Basel II). This was a period of cheap sources of financing, but it also narrowed yields that gave rise to sophisticated financial engineering to create customized risk-return tranches in Collateralized

Debt Obligations (CDO), and structured investment vehicles to enhance yields of underlying Mortgage Backed Securities. Weakly understood mathematical modeling of risk parameters, in addition to conflicts of interest in ratings assignments, led to overly optimistic assessments of risk levels (Gibson, 2004). In addition, the market for Credit Default Swaps (CDS) proliferated, adding to the false sense of security for those holding these assets. However, unbeknownst to market participants, this only served to substitute counterparty risk for market risk when it was revealed that AIG could not perform on its CDS obligations at the height of the financial crisis in 2008 (Stulz, 2010).

The triggering event for the domino effect that occurred was a simple but material increase in mortgage delinquencies and defaults that correlated with rising interest rates, a high percentage of adjustable rate mortgage products, speculative housing construction, and far too many mortgages issued under lax lending standards. This created a cascading effect of liquidity shortages as a result of interconnected receivables among the major financial institutions all over the world which had highly leveraged themselves to participate in the CDO market. In order to meet risk-based capital and liquidity requirements, simultaneous sell-offs of CDO's depressed market valuations to default levels, triggering calls on CDS contracts to perform. Mark-to-market accounting caused even greater urgency to maintain capital cushions to meet regulatory requirements (Stulz, 2010).

A contagion effect hit the rest of the world, especially Europe, full force. Major financial institutions in the European Union (EU), and even smaller private investors, were heavily invested in CDO's after relying on the inflated credit ratings they carried. But, in addition, EU financial assets were also highly concentrated in what turned out to be subprime sovereign debt and volatile emerging market stock. This put the world into the unprecedented predicament of a simultaneous collapse of the banking system and economy, as well as rapidly shrinking trade. In fact, the World Bank declared this period to be the first instance of global economic decline since World War II. The crisis also brought down the government of Iceland as its currency and banking sectors

collapsed. The financial collapse even led to a schism in the economics profession as to what had caused the collapse to occur (Krugman, 2009). As Krugman (2009) states:

> Unfortunately, this romanticized and sanitized vision of the economy led most economists to ignore all the things that can go wrong. They turned a blind eye to the limitations of human rationality that often lead to bubbles and busts; to the problems of institutions run amok; to the imperfections of markets—especially financial markets—that can cause the economy's operating system to undergo sudden, unpredictable crashes; and to the dangers created when regulators don't believe in regulation. (p. 2)

Coordinated interest rate cuts to unprecedented low levels and massive infusions of liquidity by the U.S. Federal Reserve, Bank of England, European Central Bank, Bank of China, and others. G-20 meetings began in earnest to scope out a process for coordinated economic and financial market policy response to the crisis. In the U.S., the Bush administration initiated the Treasury Asset Relief Program (TARP) to infuse direct liquidity to the banking sector and, upon transition of presidential power, the Obama economic stimulus package sustained it (Mayer, Pence & Sherlund, 2008).

## RE-REGULATION INITIATIVES AND COORDINATED INTERNATIONAL COOPERATION

The special role of banking and the systemic risks inherent in a financial system whose foundation is grounded in public confidence were the impetus behind the Glass-Steagall Act of the Great Depression era. The act defined deposit-taking banks narrowly and separated the securities underwriting function of investment banks from other banks that focused primarily on deposits and lending. In addition to the basic role as a repository for small savings, banks provide the critical function of serving as a platform for an efficient payment system, and intermediation to transform short-term deposit liabilities into longer maturity commercial and consumer lending (Kroszner & Rajan, 1994). All of this leads to economic

growth. Further, on an international scale, these financial institutions are the gateway for central bank transmission of monetary policy, and also serve as financiers for governments through the purchase of domestic and foreign sovereign debt (Cukierman, Web & Neyapti, 1992).

However, deregulation of the financial services industry over a long period of time—in fact, the final impediments to Glass-Steagall were removed by the Gramm-Leach Bliley Act only a little more than a decade ago—has broken down virtually all of the barriers and firewalls that separated banks from other financial service conglomerates. The task of re-regulating the financial services industry is a much broader challenge today because of the complexities in defining, measuring, and monitoring the products that financial firms offer, and the risks that are inherent in these products. Ever-larger financial markets and financial crises have become increasingly threatening to society, forcing governments around the world to dole out ever larger bailouts (Crotty, 2009).

Further, never before have financial markets been so integrated on a world scale where funds flow quickly to opportunities for increased returns or to pursue safety in times of financial stress. The financial firms themselves are international in terms of branches and subsidiaries. The internationalization of finance poses what may be the biggest challenge of all to safeguard the world from systemic risk, i.e., provincial governments that must come together to achieve an unprecedented level of cross-border regulatory, economic, and financial cooperation. So far, the progress made by the G-20 nations is promising. Central banks such as the U.S. Federal Reserve, Bank of England, and European Central Bank (ECB) are independently charged by their governments. They may also be subject to international oversight commissions to establish prudential rules for their regions (Acharya, Cooley, Richardson, & Walter, 2011).

Countries are dealing with the crisis with reasonable consistency. In the U.S. and England, the governments have favored and awarded increased powers to the central banks. In the U.S., the Dodd-Frank Act of 2010 broadens the definition of holding companies subject to regulatory oversight that are required to support and provide capital strength for subsidiary banks. New councils and commissions are being established

to monitor risk, enforce capital standards, and provide liquidity for distressed debt. The Dodd-Frank Act creates the Financial Stability Oversight Council to define and regulate large financial firms that pose the potential for systemic risk to the financial system. In the EU, the European Financial Stability Facility was created with substantial funding to structure bailouts of distressed sovereign debt for Greece, Ireland, Portugal, and others. The Basel Committee on Banking Supervision has agreed upon higher risk-based capital standards to be phased in over the next few years. Banks in Europe are required to submit to stricter and more frequent stress testing using comprehensive "Value-at-Risk" models (Basel Committee on Banking Supervision [BCBS], 2001; Eubanks, 2010; 111th Congress, 2010).

Both in the EU and, as a result of the Dodd-Frank Act in the U.S., the reach of re-regulation will also extend beyond direct banking to related financial and non-financial firms. Swap derivatives will be subjected to margin requirements, clearing, and exchange trading to replace over-the-counter (OTC) transactions. While standardized derivatives contracts that trade on "exchanges" may be less efficient in comparison to optimal OTC contract terms for market participants, counterparty risk would be nearly non-existent. Furthermore, data on positions taken will be readily available to the clearinghouse and regulators. The burden of compliance for these types of regulations will be broader in scope, including both financial and non-financial firms that pose systemic risk. Non-financial firms that fall under the U.S. Act will include firms designated as "Financial Market Utilities" that process and clear payments, and "Technology Service Providers" for IT processing (Schiller, 2011; Davis, Polk & Wardwell, 2010).

As the world continues to recover from the 2008 financial meltdown, it is critical that international cooperation and coordination continue among governments, central banks, and international councils such as the G-20, EU, and International Monetary Fund. With Basel III taking the lead on risk-based capital standards, the G-20 is moving to shift its emphasis to issues of systemic risk and ways of handling financial institutions deemed "too big to fail" (Stern and Feldman, 2004; Volcker, 2004), such as AIG, Lehman Brothers and others.

The G-20 summits have been less successful in reaching common goals for economic metrics, such as each nation's balance between exports and imports. Furthermore, as liquidity stimuli have resulted in inflationary pressures, governments such as China and India have already started the process of restoring interest rates to more normal, higher levels. The Bank of England is under pressure to follow suit because of a sharp rise in the rate of inflation over its target rate, and the ECB has changed course and recently announced it will do the same. The U.S. Federal Reserve Bank, in contrast, is holding steady with short-term interest rates near zero and its quantitative easing program (Friedman, 2011). The next challenges the world economy will need to meet include whether international cooperation on financial reform can survive differing cross-national rates of economic recovery from the world recession, whether effective mechanisms for compliance on economic goals can be established, and whether it is possible for sovereign entities to share the burden of distressed sovereign debt and bailouts of governments at risk of default or even bankruptcy (Gelpern, 2011; London School of Economics & Political Science, 2010).

## Rationalization: From Regulation to Management Profitability and Decision Support

Financial Institutions are constantly being challenged to operationalize market and regulatory expectations and/or rules. The landscape of financial management is evolving rapidly in response to the financial crisis of 2008 and worldwide regulatory initiatives. This is especially challenging because financial markets are global in nature, but regulated at parochial levels by governments. Capital requirements are set by the Bank for International Settlements under Basel rules. In contrast, the Dodd-Frank Act represents the specific U.S. response. While the effort at international cooperation is an ideal state, the fact remains that there are disparate regulatory environments which create systemic inefficiencies and resource misallocations. This reality makes navigating

global capital markets challenging at best (Volcker, 2004). As Stern and Feldman (2004) state:

> We start with the trivial observation that banks fail. Some banks fail without notice. Other failing banks capture the attention of policymakers, often because of the bank's large size and significant role in the financial system. Determining the appropriate policy response to an important failing bank has long been a vexing public policy issue. The failure of a large banking organization is seen as posing significant risks to other financial institutions, to the financial system as a whole, and possibly to the economic and social order. (p. 1)

The Dodd-Frank Wall Street Reform and Consumer Protection Act was signed into law in July, 2010, stands to change the landscape for financial institutions significantly. Dodd-Frank requires that internal metrics used by management to support decisions and evaluate performance must be in alignment with capital market expectations and the economic reality of financial institutions. They must also be in conformity with regulatory requirements (111th Congress, 2010). This is no small task for financial institutions. It requires organizational discipline to avoid suboptimal decisions that, while advancing the narrow interest of a particular business unit, destroy total institutional value. A comprehensive regulatory and economic environment context is required for the subsequent development of management profitability systems that are both internally consistent with overall economic expectations of financial institutions and are in compliance with regulatory requirements (Skeel, 2011; Stewart, 1991).

## MACRO DRIVERS OF FINANCIAL MARKETS: ECONOMIC VALUE ADDED

Value is created when earnings on assets exceed the cost of funding them. EVA™ is a concept that has been used at the total entity level to evaluate an entire entity's composite performance. Stewart (1991) as the "creator" of the EVA™ brand, emphasized that there is a need to unbundle these

macro variables and bring them down to the specific activity or product level. At the total financial institution level, all items of revenue and expense are direct and can be tied or traced to the entity without distortion. The challenge is to assign portions of the total direct revenue and/or expense to the individual products or projects for decision support, with allocations of elements used to assess performance such as return on capital. Financial organizations are faced with making decisions that may not be in alignment with the value propositions demanded of all business undertakings. Therefore, it is critical for all such organizations to assess the macro drivers in all capital markets, the dimensions of risk in financial institutions, the recent breakdown of financial markets, and the current state of regulatory intervention (Stern & Feldman, 2004). One of the most important internal drivers of success for financial institutions is its assessment of risk.

## Risk and Capital Requirements

Banks are in the business of risk, with balance sheets and relationships representing an inventory of risk. The challenge to any financial institution is assessing, pricing and ultimately managing risk in a manner which adds value to the entity In light of the highly leveraged financial position of banks—with debt in many multiples of equity—it is critical that they have sufficient capital. The capital buffer must be capable of absorbing losses that have not already been impounded in equity through estimated losses charged off on the income statement (Lucas, 2001).

Capital requirements play a major role in the banking industry. Two characteristics of capital may be distinguished: market capital requirements and regulatory requirements. Market capital requirements reduce agency problems and transaction costs if new investment capital is needed. Regulatory capital requirements, on the other hand, protect the government and tax payers "…against financial distress costs and guaranteeing the soundness and stability of the financial system (Lucas, 2001, p. 1)." Capital requirements ultimately relate to the bank's charter value—the difference between the market value of a bank and its book

value (Furlong & Kwan, 2005). A bank's risk taking behavior is tied to such external factors as: (1) the rapid advance in information technology that has allowed banks to attain levels of scale and scope economies, as well as operating efficiency that were previously impossible to attain, (2) bank consolidation across interstate lines, (3) banking legislation and regulation and (4) increase in book-value capitalization among banking organizations (Furlong & Kwan, 2005).

Risk factors affecting financial institutions include: (1) interest rate risk, (2) credit risk, and (3) operational risk (Eubanks, 2010). Interest rate risk has two dimensions—mismatch risk and basis risk. Mismatch risk is the risk that the product's interest rate margin will fluctuate due to the differences in the re-pricing of the product and its funding. Mismatch risk increases as the difference between the re-pricing terms of the product and its funding increase. Basis risk is the risk of a change in margins due to a less than perfect correlation between assets/liability pricing and funding. This occurs when a product's funding is tied to a different money market rate than its pricing. An example would be pricing a loan based on prime while funding the loan based on Eurodollars. Credit risk arises because promised cash flows from the primary security held by the financial institution may not be paid in full. Operational risk arises when existing technology malfunctions or back office support systems break down causing losses to financial institutions (Bessis, 2002).

Lucas (2001), while back-testing banks' internal risk management models, found that under the current regulatory framework, banks were prone to underreport their true market risk. The 1996 Basel capital accord served as a breakthrough in determining capital requirements. Rather than using a uniform supervisory approach, banks were allowed to use their own internal models for computing the capital required. This was designed to eliminate the moral hazards implicit in banks' using a potentially self-serving model which may not be an adequate way to measure risk (BCBS, 2001; Eubanks, 2010). Lucas (2001) found that a much stricter penalty scheme is required in order to align banks' incentives with those of the regulatory supervisor.

## Regulatory Response and Risk-Based Capital: What are the New Rules of the Game?

Regulators across the globe are suggesting a wide variety of responses to the fallout of the financial crisis. One of the prime target areas of these responses is a revision of risk-based capital requirements. Under such requirements, banks must hold an amount of capital based on the level of risk assessed on its balance sheets and its off-balance-sheet commitments. The objective of risk-based capital requirements is to insure the institution against adverse events which could threaten its solvency (Friedman, 2011; Kaufman, 2011). In this section, the history of risk-based capital requirements under the first international standards will be discussed (Basel I), as well as standards under the current regime, Basel II. The proposed revisions to these requirements (Basel III) will then be discussed, which have been put forth with the aim of further insuring the financial system against the type of disruption that it experienced during 2008-2009 (Allen, 2003; BCBS, 2001; Eubanks, 2010). Also examined is the significant unresolved discrepancy between Basel III and the proposed U.S. standards under the Dodd-Frank Act. The section then closes with a discussion of the uncertainty of the ultimate direction of regulatory reform.

## Risk-Based Capital Requirements under Basel I and Basel II

Capital requirements are set by the Basel Committee on Banking Supervision (BCBS), which is an international body made up of representatives from Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States (www.bis.org). The BCBS has no enforcement authority. Rather, it relies on the regulatory bodies in adopting countries to enact and enforce its standards. In some cases, countries may

modify BCBS requirements to fit their individual regulatory structures (FRB, 2003). The fundamental objectives of the Basel Capital Accord are "to promote the soundness and stability of the international banking system and to provide an equitable basis for international competition among banks" (FRB, 2003, p. 396).

Under the Basel requirements, banks calculate a capital ratio that is assessed against a minimum capital threshold. The numerator of the capital ratio represents the regulatory capital available to the bank, while the denominator represents the specific capital required by the risk associated with the positions held by the bank (FRB, 2003). Regulatory capital is determined based on definitions set forth by BCBS standards, while risks are represented by risk-weighted assets under the Basel rules.

The first Basel capital standards, or Basel I, were finalized by the BCBS in 1988. Basel I dealt primarily with credit risk, or the risk of loss due to counterparty default. In 1996, Basel I was amended to include market risk, which is the risk of loss due to a change in market prices. The capital standards were a major step forward in financial regulation. However, regulators soon noted the need for a change in the standards for several reasons. First, the methods under Basel I did not adequately measure risk exposure in an increasingly complex financial system (Eubanks 2010; FRB, 2003). This created a perverse incentive for banks to engage in riskier lending activities (Allen, 2003). As the capital required was under-reported, bank returns were artificially high. Second, because Basel I did not specifically address asset securitization, banks were able to conduct "regulatory arbitrage". Examples of such arbitrage included the use of securitization to concentrate and transfer credit risk and the use of special purpose vehicles to sell off the cash flows of a loan portfolio as asset-backed securities (Jones, 2000). Such efforts at regulatory arbitrage have been described as follows:

> The limited differentiation among degrees of risk also creates incentives for banks to "game" the system through regulatory

> arbitrage by selling, securitizing, or otherwise avoiding exposures for which the regulatory capital requirement is greater than the market requires and pursuing those for which the requirement is lower than the market would apply to that asset, say, in the economic enhancement necessary to securitize the asset (FRB, 2003, p. 396).

Third, the requirements under Basel I did not take into account operational risk, which is "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events" (BCBS, 2001, p. 2). The occurrence of catastrophic operational risk events, such as the September 11th terrorist attacks and Hurricane Katrina, and their resulting impacts on the financial system highlighted the need for operational risk capital requirements.

In response to Basel I shortcomings, the BCBS issued revised capital standards, or Basel II, in 2004. Basel II did not change the minimum required capital ratio of 8% under Basel I. However, it did introduce capital requirements for operational risk and made changes in credit risk requirements. Credit risk changes primarily focused on the determination of the bank's risk-weighted assets, such as the addition of risk categories and the specific treatment of securitization activities (FRB, 2003). Additionally, banks had several options to evaluate credit risk. Unlike the provisions of Basel I, Basel II allowed institutions the option to utilize internal models in the assessment of their credit risk.

The European Union implemented Basel II in 2006. U.S. regulators issued the final rules for Basel II adoption in December, 2007 and published the regulations governing its implementation in April, 2008. However, the severity of the financial crisis interrupted adoption, and Basel II was never fully implemented in the U.S. (Eubanks, 2010). In response to the 2008–2009 financial crisis, the BCBS introduced new capital standards, or Basel III, in 2010. Additionally, the U.S. imposed new risk-based capital requirements on financial institutions as part of the Dodd-Frank Act in July of the same year.

## PROPOSED CHANGES TO RISK-BASED CAPITAL REQUIREMENTS—BASEL III AND DODD-FRANK

Basel III was developed to "remedy the regulatory capital and liquidity failures" that led to the financial crisis (Eubanks, 2010, p. 2). Basel III makes some significant changes to risk-based capital. Specifically, the standards change the composition of capital and significantly increase minimum capital requirements. The Basel Capital Accord defines two types of capital: (1) Tier 1 capital, which represents the core element of the bank's capital and needs to make up at least 50% of the bank's capital base, and (2) Tier 2 capital, which represents the bank's supplementary capital. Under Basel III, Tier 1 capital is more strictly defined to consist primarily of common equity and retained earnings. This is a change from the initial standards, in which Tier 1 capital can consist of common equity, disclosed reserves, retained earnings, and perpetual non-cumulative preferred shares (Eubanks, 2010).

The rationale for this change is that the credit losses and write-downs that were seen during the financial crisis were mainly cushioned by retained earnings, which represents a primary portion of a bank's tangible equity base (Eubanks, 2010). This regulatory change could have a significant impact on the balance sheets of financial institutions, as many of the assets that are filling the role of regulatory capital would have to be converted to common tangible equity in order for the institutions to comply (Eubanks, 2010).

Basel III also increases the amount of capital that banks must hold. The standards introduce a Capital Conservation Buffer (CB), which is an added layer of capital that can be drawn down by the bank when it incurs losses. The CB represents an additional 2.5% of risk-weighted assets, and must be comprised of Tier 1 capital. Once a bank draws down its CB, it must rebuild it, and regulators may forbid the bank from distributing capital to signal its financial strength once the CB is depleted (Eubanks, 2010). Additionally, Basel III introduces a Countercyclical Capital Buffer (CCB), which requires a flexible level of capital contingent upon regulator evaluation of economic conditions. The CCB ranges from 0 to 2.5% of total

risk-weighted assets, and must consist of common equity or other fully loss-absorbing capital (Eubanks, 2010). Therefore, Basel III could result in minimum capital requirements equivalent to 13% of risk-weighted assets.

Complicating the regulatory landscape are national efforts that conflict with Basel III. In the United States, the Dodd-Frank Act represents such a challenge. A prime concern is Dodd-Frank's prohibition of the use of rating agencies to determine asset quality. This prohibition arose from the belief that rating agencies helped to fuel the housing bubble leading to the financial crisis by giving unwarranted ratings to mortgage-related securities. Basel III, in contrast, relies on rating agencies in its risk assessment of bank securities. U.S. regulators are charged to come up with alternative methods to assess the riskiness of bank assets. However, at the time of this writing, there has not been a resolution to this issue.

Additionally, there is concern that capital requirements set forth by the Collins Amendment of the Dodd-Frank Act may be more stringent than those proposed by Basel III (Davis, Polk & Wardwell, 2010). The Collins Amendment requires federal banking supervisors to develop capital requirements for all insured depository institutions, depository institution holding companies, and systemically important nonbank financial companies. If indeed capital requirements end up being more stringent in the U.S., banks could move their businesses to other countries, putting U.S. banks at a competitive disadvantage (Eubanks, 2010).

## U.S. Financial Institutions: Where are we now?

The uncertainty surrounding Basel III and the Dodd-Frank Act raises significant questions for U.S. financial institutions. Current conditions promise that it will be quite some time before any resolution is reached between the regulatory regimes. As one source puts it:

> The banking supervisors will have the unenviable task of implementing the intersection of Collins Amendment, Basel III, capital standards under the systemic risk regime, the requirement elsewhere in the bill to adopt countercyclical regulatory capital

> requirements and the capital requirements that will apply to the separately capitalized subsidiaries required for certain derivatives activities (Davis, Polk & Wardwell, 2010, p. 1).

Additionally, it is quite possible that the regulations will change prior to full implementation. For example, while speaking at the American Bankers Association on March 15, 2011, John Walsh, the Acting Comptroller of the Currency, issued the following statement on the elimination of credit agency ratings in risk assessment:

> Many of our capital regulations and standards for permissible investments for national banks will be rendered unworkable if all references to credit ratings are removed and I don't see any solution without a fix by Congress.

There is also discussion regarding the significant increase in capital requirements mandated by both the Dodd-Frank Act and Basel III. Eubanks (2010) calls the increase to 13% of risk-weighted assets mandated by Basel III "remarkable" and notes that "…very few banks were able to maintain a regulatory capital requirement of 13% at the record breaking peak of bank profitability in 2006" (p. 6). Given the lack of clarity regarding the final shape of regulation, it is no surprise that bank representatives that we have spoken to have adopted a "wait and see" attitude when considering any structural changes within their organizations.

## UNRAVELING THE REGULATORY PUZZLE: FUTURE DIRECTIONS

Regardless of the ultimate resolution of the issues noted above, it is very likely that banks will have to hold a higher level of capital to ensure against future crises and that risk management processes, procedures, and reporting will have to change significantly to comply with new regulations.

One area that is certain to be affected by changes in capital requirements is that of pricing and performance measurement. The origins

of the financial meltdown, while they are complex, essentially begin with an understanding of how success is determined for each business entity. To be successful at the total entity level, all financial institutions must make the transition from the roll-up offered in external financial reports to a decision specific focus. Success is measured one transaction and investment at a time. Decision support requires building effective income statements from various perspectives including activities through products and channels, as well as across the entire organizational hierarchy. The transition from external reporting and capital market assessment of performance starts with a macro understanding of the business landscape faced by financial institutions (DeNicolo, 2001).

It is also likely that banks' internal risk models will need to be back-tested to reflect the sensitivity of results to such factors as: changes in the length of the planning horizon, portfolio risk, time preferences, risk attitudes, and the distribution of financial returns (Lucas, 2001). In addition, leading banks understand that a better picture of risk-adjusted-return-on-capital (RAROC) can provide insight into how well business units are performing, and how products should be priced (e.g., James, 1996). This is echoed by various researchers, who have commented on the competitive advantages made possible by such an approach (Kimball, 1997; Kimball, 1998; Samuels, 2005). For example, it has been stated that "risk based pricing is emerging as the best practice tool for improving competitive advantage" (Cartwright & Sarraf, 2005, p. 217).

Another question to be addressed is given that economic capital is not equivalent to regulatory capital, what implications should increased regulatory capital requirements have on pricing decisions? Additionally, what ramifications do such changes have for bank IT systems, risk management processes, and managerial reporting?

The above are just a few examples of the questions that will have to be answered as we move forward into a new regulatory environment. The quest for such answers represents rich research opportunities for academics, with the object of understanding the past financial crisis and ultimately preventing similar situations in the future.

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