

REVIEW OF FUTURES MARKETS

Volume 21 Special Edition

Research funding for this Special Edition was made possible by a generous donation from the Clearing Corporation Charitable Foundation to the Institute for Financial Markets.



THE INSTITUTE FOR
FINANCIAL MARKETS

THE TALE OF TWO REGULATIONS — DODD-FRANK ACT AND BASEL III: A REVIEW AND COMPARISON OF THE TWO REGULATORY FRAMEWORKS

Ohannes George Paskelian and Stephen Bell*

The worldwide financial crisis of 2008 highlighted the weaknesses of the financial regulatory environment. In the United States, the Dodd-Frank Act (2010) was passed to curb and prevent the financial and regulatory shortcomings that resulted in the meltdown. Likewise, the Basel III framework was developed to strengthen international banking sector regulation, supervision, and risk management. In this paper, we provide a comprehensive overview of the Dodd-Frank Act (2010) and Basel III. In addition, the paper provides an analysis of the impact of Dodd-Frank on United States financial system competitiveness when compared to worldwide financial systems. We also provide a discussion of the anticipated implementation procedures that will be necessary to comply with the regulations and quantitative requirements of the Dodd-Frank and Basel III regulatory frameworks. Finally, we empirically examine the impact of Basel III regulatory requirements on optimal equity holdings of large banks. Our results suggest that the implementation of Basel III by US large banks will increase bank lending rates, which in turn could counteract the effect of any economic growth policies.

The recent financial crisis imposed unprecedented damage on financial markets and institutions around the world. The world faced a near catastrophic financial meltdown, which triggered the worst recession since the Great Depression of the 1930s in the United States and Europe. The crisis revealed fundamental weaknesses in the financial regulatory systems of the United States, Europe, and other countries. Those weaknesses made regulatory reforms an urgent priority.

*Ohannes George Paskelian (the corresponding author) is an assistant professor of finance in the College of Business, FACIS Department, at the University of Houston-Downtown. E-mail: paskeliano@uhd.edu.

Stephen Bell is an associate professor of economics in the School of Business and Management at Park University. E-mail: sbell@park.edu.

Acknowledgements: The authors gratefully acknowledge financial support from the Institute for Financial Markets. Views expressed reflect those of the authors and not necessarily the IFM.

Keywords: Dodd-Frank Act, Basel III, financial crisis response, regulatory comparison

JEL Classification: G01, G18, G28

While the recession caused by the crisis has technically ended, the regulatory response is just beginning. In the United States, the Dodd-Frank Wall Street Reform and Consumer Protection Act (2010) was passed to curb and prevent the financial and regulatory shortcomings that have been blamed for causing the 2008 crisis. In conjunction with the Dodd-Frank Act (2010), the Basel Committee on Banking and Supervision updated its framework, labeled Basel III, as a global regulatory standard on bank capital adequacy, stress testing, and market liquidity risk.

In this paper, we provide a comprehensive overview of the Dodd-Frank Act (2010) and Basel III. We compare and contrast the similarities and differences between these post-2008 financial crisis regulatory frameworks. In addition, we analyze the impact of Dodd-Frank on United States financial system competitiveness when compared to worldwide financial systems. We also discuss the anticipated financial institution implementation procedures that will be necessary to comply with the regulatory and quantitative requirements of the Dodd-Frank and Basel III regulatory frameworks. The empirical portion examines the effect of Basel III capital requirements on lending cost levels in US banks.

The empirical study adds to the body of knowledge by showing that the higher capital requirements imposed by Basel III will likely raise loan rates charged by financial institutions. The higher loan rates could counteract low interest rate monetary policies designed to stimulate investment and economic growth. Using a structural model of bank behavior from Chami and Cosimano (2010) and Barajas et al. (2010), our empirical study identifies optimal bank equity holdings. We estimate that the 100 largest banks in the United States would raise lending rates by 13.6 basis points in order to increase their respective equity-to-asset ratios by the 1.3 percentage points needed to achieve the new Basel III 7% equity to new risk-weighted asset ratio requirement.

The remainder of the paper is organized as follows: Section I overviews and summarizes the Dodd-Frank Act of 2010, while Section II overviews and summarizes Basel III regulation. Section III provides a comprehensive comparison of the two regulatory frameworks, and Section IV examines anticipated implementation procedures and challenges. Section V presents a statistical analysis of the implications of the Basel III regulations. Section VI is the conclusion.

I. DODD-FRANK SUMMARY

Many economists argue that the financial collapse was the primary factor in causing the recession that followed the financial crisis. The Dodd-Frank Act (2010) is a sweeping legislation designed to address problems and areas of need in the regulatory framework governing US financial institutions. Chief among the regulatory reforms affecting the financial industry is the creation of the Financial Stability Oversight Council, which provides a top layer of oversight for financial institutions as well as for the numerous financial regulatory agencies already in place. The lack of coordinated effort in implementing policy and regulatory enforcement among the many regulatory agencies governing the financial industry was a particular concern. In addition, the Council's purpose is to identify risks affecting US financial system

stability and to appropriately respond to any threats to the system posed by those same risks.

The Dodd-Frank legislation seeks to strengthen financial institutions by making capital and leverage requirements more stringent. The legislation also restricts the securitization market and provides for a new resolution procedure for financial companies. The Dodd-Frank Act places significant new regulatory restrictions on the derivatives sector. The Act also addresses regulatory reform in the areas of the Volcker Rule governing proprietary trading, adviser registration for specified private funds, and credit rating agency activities (Davis, Polk, and Wardwell 2010).

A. Bank Capital and the Collins Amendment

The Collins Amendment to the Dodd-Frank Act requires that the risk-based capital standards applicable to US insured depository financial institutions will also extend to US bank holding companies, US intermediate holding companies of foreign banking organizations, and systemically important non-bank financial institutions. The Collins Amendment capital requirements measure is the ratio of regulatory capital requirements over risk-weighted assets. Leverage capital requirements must include the ratio of regulatory capital components over average total assets. The capitalization requirements provide categories for Tier 1 and Tier 2 requirements. Tier 1 capital applies to banks and thrift holding companies with more than \$15 billion in assets. The Collins Amendment will eliminate hybrid securities as a component of Tier 1 capital and will only allow such securities to be included in measures of Tier 2 capital.

The Collins Amendment does not simply adopt the Basel III guidelines. Instead, the Amendment establishes the minimum leverage and capital floors referenced above and only allows US regulatory authorities to adopt Basel III capital guidelines so long as those guidelines do not violate the established Collins Amendment floors. Thus, the overall effect of the Collins Amendment is to establish current leverage and risk-based capital requirements applicable to insured depository institutions as the minimum standard not only for depository institutions but also for bank holding companies and systemically important non-bank financial institutions. In addition, the legislation grants the Federal Reserve the power to impose an exemption from those same requirements. If the Federal Reserve, in coordination with the Financial Stability Oversight Council, determines that the capital and leverage requirements are not appropriate for the non-bank financial company in question, then the Federal Reserve may impose custom-made, but similarly stringent, capital and leverage control mechanisms (Davis et al. 2010).

B. Derivatives

The Dodd-Frank Act (2010) comprehensively regulates most derivatives transactions formerly deregulated by the Commodity Futures Modernization Act of 2000. The most significant parts of the derivatives regulatory section are (1) mandatory clearing through regulated central clearing organizations and mandatory trading through either regulated exchanges or swap execution facilities; (2) new

categories of regulated market participants, including swap dealers and major swap participants; and (3) expanded regulatory coverage of swap activities performed by bank affiliates rather than banks themselves.

The Dodd-Frank Act (2010) regulates credit default swaps, interest rate swaps, and total return swaps on a broad range of asset categories. Swaps based on a single security or a narrow based index of securities are generally regulated by the SEC, while swaps based on broad-based securities indices, government securities, and most other reference assets are regulated by the US Commodity Futures Trading Commission (CFTC). Options on equities and other securities, certain forward contracts, and futures contracts are excluded from the definition of swap, and their current regulatory status is generally not affected by the Act. The definition of swap excludes sales of a non-financial commodity or security for deferred shipment or delivery that are intended to be physically settled as well as any transaction providing for the purchase or sale of one or more securities on a fixed basis that is subject to the Securities Act and the Securities Exchange Act of 1934. The Dodd-Frank Act (2010) provides that foreign exchange swaps and forwards will be considered to be swaps, and subject to CFTC jurisdiction, unless Treasury makes a written determination that either or both types of transactions (1) should not be regulated as swaps and (2) are not structured to evade the Act (Davis et al. 2010).

C. Dodd-Frank Act Key Provision Summary

1. Credit Rating Agency Regulatory Supervision

The Dodd-Frank Act (2010) calls for the establishment of a new Office of Credit Ratings to regulate credit rating agencies. The SEC will require national credit rating agencies to provide evidence of an effective internal control structure. The new regulations impose more stringent public disclosure requirements for rating methodology and due diligence activities. The Dodd-Frank Act (2010) gives authority to the SEC to impose penalties on national credit rating agencies for failing to produce accurate ratings. Furthermore, the Dodd-Frank Act (2010) creates a new private civil cause of action for plaintiff-investors harmed by the acts or omissions of rating agencies in knowingly or recklessly failing to perform due diligence of facts pertinent to establishing a financial rating or failing to obtain analysis from independent sources when establishing ratings.

2. Over-the-Counter Derivative Regulations

The Dodd-Frank Act authorizes the CFTC and SEC to require centralized clearing of over-the-counter derivatives. Regulatory agencies will consider factors such as trading liquidity, operational clearing expertise, and systemic risk in making a determination about whether derivatives are to be cleared for trading. Over-the-counter derivatives that are cleared will be subject to real-time public reporting, which will result in greater public access to trading transactions. Each trade transaction will be reported to a swap data repository.

Over-the-counter derivative market participants defined as swap dealers or

major swap participants will be subject to registration, capital, reporting, and recordkeeping regulations. Such dealers will be required to disclose risks and conflicts of interest to counterparties in a given trade.

The Dodd-Frank Act (2010) also imposes position limits that restrict the size of over-the-counter derivatives which any person or entity can hold. Further, swap dealers and major swap participants are prohibited from governmental assistance through Federal Reserve Discount Window access. Federal Deposit Insurance Corporation (FDIC) insured institutions defined as swap dealers will be required to place derivative investments in an affiliate of the bank holding company that is non-FDIC insured and independently capitalized. The Dodd-Frank Act (2010) creates a private civil cause of action for plaintiffs harmed by persons who manipulate over-the-counter derivative contracts in violation of CFTC rules.

3. Private Fund Adviser Regulations

The Dodd-Frank Act (2010) requires advisers to private funds with \$100 million or more in assets to register with the SEC as investment advisers. The effect of the new legislation is to raise the SEC registration asset threshold from \$25 million to \$100 million. Those advisers that fall below the threshold will be required to register with his/her home state. Registered advisers subject to SEC regulation are also subject to recordkeeping and reporting requirements as well as examinations by SEC personnel. Advisers who solely advise venture capital funds are exempt from the SEC registration requirement. Advisers to family offices and advisers to small business investment companies are exempt as well; however, it should be noted that exempt advisers still have reporting and recordkeeping requirements.

4. Originators of Asset-Backed Securities

Dodd-Frank Act (2010) requires that originators of asset-backed securities are to retain a credit risk of 5% or more of the asset-backed security if such security is transferred or conveyed to a third party. In addition, originators are subject to more stringent reporting and disclosure requirements with respect to the quality of the assets backing the securities.

5. Security Law Enforcement and Legal Remedies

The Dodd-Frank Act provides that violators of certain sections of the 1940 Investment Advisers Act will be barred from associating with other broker-dealers, investment advisers, transfer agents, or credit rating agencies. Similarly, Regulation D protections provided under the Securities Act of 1933, which exempt companies issuing securities from registration with SEC, will not apply to offerings made by known “bad actors” who have either been barred from association with regulated entities as described above, or if said bad actors have been convicted of a felony or misdemeanor in connection with the sale of securities or a false SEC filing.

The Dodd-Frank Act (2010) expands liability exposure to those individuals who either aid or abet the commission of securities violations. The government can

undertake enforcement steps against those who knowingly or recklessly provide substantial assistance toward commission of a securities violation.

The Dodd-Frank Act (2010) strengthens SEC enforcement by permitting the agency to assess monetary penalties against individual violators as well as regulated entities. The legislation expands federal court jurisdiction by permitting the SEC to exercise its enforcement powers against individuals and entities taking significant steps to further the commission of a securities violation — even if those steps take place outside of the United States.

6. Federal Reserve Supervision

The Act creates the position of Vice-Chairman for Supervision within the Board of Governors of the Federal Reserve System, a member from the Board of Governors designated by the President of the United States by and with the advice and consent of the Senate. The duties of this position include the development of recommendations for supervision and regulation of depository institution holding companies and other financial institutions supervised by the Federal Reserve. The Dodd-Frank Act (2010) empowers the Federal Reserve to regulate fees charged by merchants for accepting debit cards in given debit card transactions.

7. Authority to Seize Failing Financial Institutions

The Dodd-Frank Act (2010) provides that the FDIC may seize, break-up, and wind down a failing financial company. This power enables the FDIC to seize any company falling under the broadly defined term “financial company” including bank holding companies, non-bank financial companies under the supervision of the Federal Reserve, and companies determined by the Federal Reserve to be predominantly involved in financial transactions. It is well known that the FDIC has been empowered to seize and resolve depository institutions for many decades. This provision extends the FDIC resolution power to more broadly defined “financial companies” as outlined above.

The resolution process will allow the FDIC to take over management of financial company assets, arrange mergers with or sales to financially healthy companies, and transfer assets and/or liabilities as deemed necessary. The FDIC will have the regulatory authority to provide financial assistance and a corresponding repayment plan to troubled financial companies. The repayment plan gives payment priority to the repayment plan over shareholders of the troubled company; that is, shareholders do not receive payment until after FDIC financial assistance has been fully repaid through the repayment plan.

8. Volcker Rule

The Act includes implementation of the Volcker rule, which generally speaking prevents proprietary trading by insured depository financial institutions and bank holding companies. These institutions are also prohibited from sponsoring or investing in either private equity funds or hedge funds. Proprietary trading is defined as

transactions taking place from the trading account of a financial entity. The sponsoring of private equity funds is defined as either serving as a private fund partner or managing member, or participation in the selection of private fund directors, trustees, or managers. Furthermore, affected financial institutions are prohibited from engaging in marketing activities that share the name of the private fund in question.

There is a significant exception to the Volcker Rule allowing financial institutions to sponsor a private equity or hedge fund but only if the institution provides fiduciary, trust, or investment advisory services to the fund. Clearly, the intent of Congress in adding the Volcker Rule to the Act is to prohibit conflicts of interest between a financial institution and its clients. The above-referenced Volcker Rule exception requires that the financial institution give full disclosure to client of any proprietary trading that may be in conflict with investment advice being given to clients. Congressional testimony in the aftermath of the 2008 financial meltdown shows evidence that allegedly financial institutions were taking short positions on proprietary investments while giving conflicting “buy” advice to clients. This type of testimony led to the inclusion of the Volcker Rule in the legislation; however, strong lobbying efforts were successful in including significant exceptions that have served to weaken the strength of the rule (Davis et al. 2010).

9. Hotel California Rule

This provision is named after the Eagles song, which includes the line: “You can check out any time you like, but you can never leave.” The Dodd-Frank Act (2010) provides that former bank holding companies with total consolidated assets of \$50 billion or more as of January 1, 2010, and that have received financial assistance under the TARP plan will be treated as non-bank financial companies to be supervised by the Federal Reserve. This regulation comes into play in the event that an entity existing as a bank holding company any time before January 1, 2010, ceases to exist as a bank holding company any time after January 1, 2010 (and meets the asset size and TARP aid definitions stated above). The obvious intent of this legislation is to prevent financial institutions, perceived as having systemic risk, from merely changing legal form in order to escape Federal Reserve regulatory supervision. Thus, while an entity can change its business form to something other than the title of bank holding company, the Hotel California Rule makes sure that the entity in question will never leave the supervision of the Federal Reserve.

II. BASEL III SUMMARY

On December 16, 2010, the Basel Committee adopted rules designed to strengthen the world banking and financial institution framework. The Committee focused on reform of bank capital quality, quantity, liquidity, control of derivatives, restriction of leverage levels, and the accumulation of capital buffers in anticipation of either capital growth or periods of losses. This approach was implemented as a direct result of the 2008–2009 worldwide financial crisis in which the international banking community witnessed the failure of some of its largest financial institutions

due to inadequate capitalization, excessive leverage, bank funding programs that had low levels of liquidity, and lack of bank “rainy day” buffers designed to soften the blow of a major recession. The Basel III rule development process is reflected by the following timeline:

- (i) 2009: Basel III Rules published as proposals.
- (ii) July 2010: Committee provisionally adopts proposals (with changes).
- (iii) November 2010: The G-20 Seoul meeting results in approval of Basel III Rule content and time deadlines.
- (iv) January 2011: Quality of capital Basel III Rules further strengthened by the addition of greater loss buffer requirements for all Additional Tier I and Tier 2 instruments.

The Basel III Rules supplement rather than supersede the previously formulated July 2009 rules developed by the Basel Committee, which were implemented in 2011. The July 2009 rules were designed to improve bank trading book capital requirements by enforcing an incremental default risk charge on trades involving bank assets. Also, bank securitization risk exposure was reduced by requiring that resecuritization risk be more strongly capitalized. The July 2009 rules allow the imposition of stronger capital requirements for the time period prior to the time the Basel III Rules take effect (Bank of International Settlements 2010a).

A. Basel III Capital Quality Reforms

A bank’s Tier 1 capital shall be primarily comprised of Common Equity Tier 1 ordinary shares. Any non-Common Equity Tier 1 capital, hereinafter referred to as Additional Tier 1 capital, will be strictly regulated and must be capable of supporting a bank as a going concern. All additional Tier 1 shares must be able to withstand losses caused by bank issuer nonviability. In the event of the occurrence of nonviability, the shares will either convert to common equity shares or the principal write-down mechanism process will be initiated.

Tier 1 capital ratios are to be raised from the Basel II level of 4% risk-weighted to 6% by 2015. The Common Equity Tier 1 share of risk-weighted assets shall increase from the current 2% minimum level to the 4.5% minimum level by 2015. These ratio requirements reflect the Committee’s recognition of the lessening of Tier 1 capital quality in the years leading up to the 2008–2009 financial crisis and the resultant desire to improve the quality of Tier 1 capital instruments as part of the overall effort to strengthen the international banking system.

Although the Committee's rules clearly reflect a preference for Common Equity Tier 1 capital, instruments known as Additional Tier 1 capital are permitted. Basel III sets forth criteria that must be met in order for Additional Tier 1 capital to qualify as part of overall Tier 1 capital:

- (1) payments shall be discretionary in order to assist the firm in avoiding default;

(2) instruments shall not contribute to liabilities exceeding assets thus avoiding firm insolvency; and

(3) instruments must be able to sustain losses while the firm remains a going concern.

Additional Tier 1 capital will be fully subordinated to general creditors, coupons or dividends can be cancelled at the discretion of the firm, no maturity dates will be applied to the instruments, and there will be no incentive to seek early redemption of the instruments.

The previously applied Tier 2 capital subcategories have been eliminated by Basel III. Now all Tier 2 capital will be subject to a single set of entry criteria. Tier 2 capital must have a loss absorption provision, which, upon initiation of the triggering process, shall either have the principal written off or be converted to common equity. The triggering mechanism is the earlier decision by the appropriate regulatory authority that a write-off is necessary to avoid nonviability, or a decision to inject public sector funds in order to stave off nonviability.

B. Capital Deduction Treatment Reform

The Basel III Committee reformed the subject area of deductions from capital, with the most significant rule change being that deductions must primarily be charged against the stronger Common Equity Tier I capital rather than spread among Tier 1 and Tier 2 capital instruments as is now the case.

Deductions, which must now be fully subtracted from capital, include deferred tax assets, cash flow hedge reserves, shortfalls on provisions to expected losses, and gains on securitization transaction sales. Also included in these deductions are change in credit risk gains or losses on fair valued liabilities, deferred benefit pension fund assets and liabilities, investments in own shares, reciprocal cross holdings in other financial institutions, excess holding in the capital of banks or financial institutions deemed material (“material” defined as 10% or more of the capital of the issuer).

Furthermore, certain minority interests, mortgage servicing rights, significant assets in the common shares of unconsolidated financial institutions, and recognized deferred tax assets that arise from temporary differences will all be subject to the 10% rule; that is, if any one of these instruments is counted as comprising 10% or more of Common Equity Tier 1 capital, the bank must deduct the excess over 10%. In addition, if these items in the aggregate total 15% or more of Common Equity Tier 1 capital, the excess over 15% must be deducted.

Note that deductions will be phased in at a rate of 20% per year for a five-year period beginning in 2014 and ending in 2018. Minimum Common Equity Tier 1 and Tier 1 requirements will be phased in with full compliance (Common Equity Tier 1 ratio of 4.5% and 6% Tier 1 ratio) being achieved by January 2015.

Grandfathering of existing capital instruments was addressed by the Committee with the Basel III regulation being that capital *not* qualifying as Common Equity Tier 1 capital on January 1, 2013, will not be counted as such after that date; that is,

grandfathering will not be permitted for Common Equity Tier 1 capital. However, grandfathering will be allowed for Additional Tier 1 and Tier 2 instruments with qualifying instruments being counted as Additional Tier 1 and Tier 2 capital over a 10-year period beginning January 2013.

1. Capital Requirements for Derivatives, Repos, and Security Financing Transactions

The Committee substantially increased the capital requirements for derivatives, repos, and security financing activities not cleared by a central counterparty. The Committee also mandated that the above-referenced instruments and activities will be subject to much stricter margin and disclosure requirements by January 2013.

2. New Capital Buffer Requirements for Loss Periods and Excess Growth Periods

The Basel III Committee requires banks to adhere to two new capital buffer requirements: (1) a capital reserve buffer up to 2.5% of Common Equity Tier 1 capital to be built up during strong economic growth periods in order to develop a “rainy day” reserve from which to draw during loss periods, and (2) a 2% Tier 1 capital buffer to be initiated by regulatory authorities during periods of excess credit growth.

3. Leverage Restriction

The Committee further demonstrated its concerns over the issues of excess risk exposure and capital quality by imposing a 3% leverage ratio restriction on Tier 1 capital. The leverage ratio restriction will be measured using Tier 1 capital during the implementation phase beginning January 2013 and ending January 2017.

4. Asset Liquidity Reform

The Basel III Committee’s concern about the quantity and quality of bank liquidity led to the enactment of a required liquidity coverage ratio and a net stable funding ratio. The Committee’s goal was to improve the overall level of bank liquidity, in particular during times of financial downturn or crisis. The net stable funding ratio is designed to require banks to match funding liquidity with asset profile liquidity.

5. Evaluation of Capital Reform Effectiveness

The Committee’s decision to increase the Common Equity Tier 1 capital and Tier 1 capital ratios will significantly improve bank capital quality. However, intense lobbying efforts by the banking industry have weakened the overall effectiveness of the reforms. Originally, the 2009 Basel III proposals required full deduction of minority interests, mortgage servicing rights, deferred tax assets arising from temporary timing differences, and investments in the common shares of unconsolidated financial institutions. These activities present potential conflicts of interest and leave the door open for accounting abuses, which shift losses elsewhere in order to make firm value appear better to investors. This was what the Committee had in mind when it required full deduction from capital for investments in own

shares and reciprocal cross holdings in other financial institutions. Ultimately the Committee's original full deduction proposal was reduced to the previously discussed weaker 10%/15% (aggregate) final Basel III deduction rule.

The Committee's actions reflected its strong desire to have Common Equity Tier 1 capital be the primary instrument to implement its capital quality improvement reform. The Committee's goals were accomplished to the extent that the Common Equity Tier 1 ratio requirement was more than doubled. However, the Committee compromised by allowing less desirable Additional Tier 1 and Tier 2 capital to remain in its various forms over a 10-year phase-out basis beginning in 2013. This concession in part weakens the achievement of higher capital quality reform (BIS, 2010a,b).

III. BASEL III AND THE DODD-FRANK ACT: A COMPARISON

Both Basel III and the Dodd-Frank Act address the issue of higher quantitative and qualitative capital requirements. Basel III sets minimum common equity requirements for Tier 1 at 4.5%. The minimum Tier 1 capital requirement will increase from 4% to 6%. All of these ratios are based on risk-weighted assets.

The Collins Amendment portion of Dodd-Frank establishes minimum leverage and risk-based capital floors and only allows US regulatory agencies to adopt Basel III capital guidelines as long as those guidelines do not violate the established Collins Amendment floors. In all likelihood, Collins Amendment requirements will exceed the Basel III guidelines, thus creating a competitive advantage for non-US financial institutions not subject to the Collins Amendment. This could result in arbitrage opportunities for investors and owners of those same international financial institutions.

Both Basel III and Dodd-Frank Act eliminate trust-preferred securities from the calculation of Tier 1 capital requirements. However, the two regulatory schemes differ greatly in their respective transition periods. Under the Collins Amendment, Tier 1 capital requirements will exclude trust-preferred securities over a three-year phase-out period ending January 2016. In contrast, Basel III provides a much more generous 10-year phase-out period ending January 2023. The advantage from the phase-out period differential clearly lies with institutions subject only to Basel III regulations. At the same time, Dodd-Frank permits trust-preferred securities issued before May 19, 2010, to be grandfathered as Tier 1 capital. Basel III does not permit any grandfathering exception (Barnard and Avery 2011).

Basel III imposes a mandatory capital conservation buffer requirement and a discretionary countercyclical capital buffer. The capital conservation buffer must be in the form of common equity and is considered a rainy day fund which can be reduced during periods of financial downturn or stress. The non-binding countercyclical buffer is a fund designed to increase (and provide additional strength) during times of excessive credit growth, which could result in higher levels of potentially damaging systemic risk. The Dodd-Frank Act does not require either of these buffer funds.

The treatment of credit rating agencies is dramatically different between the Dodd-Frank Act and Basel III. Due in part to allegations of improper determination of financial ratings, the Dodd-Frank Act requires that newly developed financial

regulations are not to be based on credit rating determinations from national credit rating agencies. In contrast, the Basel III regulations are heavily based on credit rating agency input. In addition, under the Dodd-Frank Act the credit rating agencies are subject to new regulatory requirements including more stringent public disclosure of rating methodologies, stronger evidence of effective internal controls, and better due diligence activities.

Finally, the Dodd-Frank Act and Basel III treat credit risk retention very differently with respect to securitized asset originators. The Dodd-Frank Act requires that originators of securitized assets retain 5% of the asset credit risk. In contrast, Basel III does not require securitized asset originators to retain any credit risk in the issued securities. Dodd-Frank's approach to this issue is to align the financial incentives of investors and originators by requiring both groups to be subject to credit risk, thereby improving loan quality and security performance. The Basel III approach (no originator credit risk retention) has both weakness and benefit. Banks not required to retain credit risk will force investors to carry the additional burden of greater research resource investment in order to determine whether investments are good or not. Basel III regulators argue that the Dodd-Frank Act risk retention requirement for originators will stifle lending and freeze capital markets. Thus, they argue that the lack of a credit risk retention requirement will lead to greater lending and a more robust macroeconomic recovery (Barnard and Avery 2011).

IV. ISSUES WITH DODD-FRANK ACT AND BASEL III IMPLEMENTATION

A. Basel III Implementation Problems

The adoption and implementation of the Basel III regulatory structure will greatly challenge the banking community on a worldwide basis. According to a report published by Moody's Analytics (2011), the new regulations will require much more effort aimed at creating a considerably more sophisticated technological approach to gathering, storage, access, and analysis of the data necessary to comply with the new regulations. The challenge of implementing the new Basel III regulations will vary from region to region worldwide. For example, the EU plans to utilize a uniform set of regulations among all of its members as it makes the transition from Basel II to Basel III. The United States, not having adopted Basel II, will be integrating the provisions of the Dodd-Frank Act with Basel III. Eastern European, Middle Eastern, and African nations may either fully adopt Basel III or use the framework as a set of guidelines to follow as best they can. Financial institutions with multiple worldwide offices in different regions will be faced with the task of integrating compliance with Basel III regulations, knowing that compliance and adoption of the Basel III framework will greatly vary between countries and regions. Local regulators will have to work closely with financial institutions in order to provide a consistent application of the regulations so as not to create confusion about reporting requirements and compliance.

Perhaps the most daunting task facing both regulators and the financial

community will be the data management requirements necessary to provide a centralized data repository accessible to both the institution and to regulators. Financial institutions will be required to generate financial reports from the data showing compliance with the new capital, leverage, and liquidity ratio requirements. These reports will necessarily have to be in a format meeting the requirements of regulators (Casey 2011).

The regulators receiving financial reports from banks will need to have access to the data to accurately verify report results. Likewise, banks without centralized databases will have a difficult time retrieving data necessary to comply with regulatory requirements and stress testing. It will be critical for financial institutions to create and maintain an easily accessible, user-friendly data repository so that the regulatory requirements of Basel III do not become overwhelming. Financial institutions can take one of two basic approaches to Basel III compliance. One option is to merely add to the financial organization's existing business model framework. The institutions will make the necessary additions to the existing framework so that Basel III capital and leverage ratios can be managed, stress tested, and reported. The advantage of this type of approach is that it is arguably less disruptive to current business operations and will probably be less expensive than a complete overhaul of the business model tailored to regulatory requirements. Conversely, the second approach would be to create a completely new business model more completely integrating the new Basel III regulatory requirements. This approach may lower costs in the long run when compared to a piecemeal approach. Further, it will necessarily include a more integrated view of the overall structure of the organization, which will combine profit and regulatory concerns, as the organization moves forward in the new regulatory environment.

No matter what approach is taken with respect to Basel III compliance, it will be much more efficient for financial organizations to have a centralized, integrated approach to databases needed for compliance reports, recordkeeping, stress testing, and report generation. The centralized system must be user-friendly for both organization employees and Basel III compliance regulators. The great advantage of such a system will be the "big picture" overview provided to the organization; that is, decision-making will be based on an overall understanding of risk, leverage, profitability, and regulatory issues. The creation of a centralized, integrated data management system with the capability of handling firm decisions while meeting Basel III compliance standards has the great potential to improve financial institution efficiency on a worldwide basis (Casey 2011).

B. Dodd-Frank Implementation Problems

As is the case with the implementation of Basel III, financial institutions subject to the Dodd-Frank Act will find that the creation of a centralized data management repository will be one of the primary challenges in comportsing with the regulatory structure. Financial institutions will be required to complete reports on leverage, liquidity, and capital requirements ratios in an efficient fashion. The data will have to be gathered and delivered in a transparent manner so that institution managers

and Dodd-Frank regulators can access the information for verification. This can only be done with a much more sophisticated data management approach to gathering, storing, and accessing financial information (Davis et al. 2010).

The proprietary trading restriction imposed by the Volcker Rule will tend to be problematic. The intent of the restriction is to prevent financial institutions from acting in a manner that conflicts with the interests of its clients. However, actual enforcement of the regulation will be difficult due to the fact that regulators will experience difficulty in interpreting the actions of a financial institution when the institution engages in financial transactions.

Financial institutions face a very serious problem when trying to integrate Dodd-Frank with the provisions of Basel III. This will be particularly true for larger financial institutions that have multiple international offices. The success or failure of the Dodd-Frank Act will be determined by the ability of regulators and financial institutions to work well together in a spirit of cooperation and good faith. As was mentioned, the data management issues will be critical as well. The regulatory provisions are truly a work in progress and will require that workable, practical solutions be found (Casey 2011).

V. EMPIRICAL ANALYSIS OF BASEL III

This study adds to the body of knowledge by demonstrating that the increased Basel III capital requirements will significantly raise lending costs which in turn will increase the interest rates charged by financial institutions to their customers. The higher interest rate charges will likely result in lower levels of investment in the worldwide economy, thus leading to slow economic growth. The Basel III regulations significantly increase bank capital requirements. The implementation of these capital requirements is based on the premise that higher capital requirements lower leverage and reduce the likelihood of bank failures (see, e.g., Admati et al. 2010). Opponents point out that higher capital requirements have the effect of increasing the marginal cost of raising capital, which will result in higher lending prices, slower loan growth, and ultimately cause a macroeconomic slowdown or a diminished economic recovery (e.g., BIS 2010b; Angelini et al. 2011).

Several studies have found that increases in the capital to asset ratio, like those to be imposed by Basel III, have resulted in significantly larger lending spreads. This supports the argument that the Basel III capital requirements will result in higher lending costs to consumers, which in turn will slow down loan growth and any economic recovery (Kashyap, Stein, and Hanson 2010; BIS 2010b; Angelini et al. 2011; Slovik and Cournede 2011).

The analysis will follow the assumptions made by Cosimano and Hakura (2011) that regulatory capital constraints result in loan demand shocks, which are in turn transmitted to the credit supply. Increased capital requirements will result in higher marginal costs for equity holdings and in turn higher lending rate costs. The study relies on a capital channel structural model developed by Chami and Cosimano (2010) as well as an analysis of large bank holding companies in the United States (Barajas et al. 2010). We use US bank data for the period 2001–2011 to investigate the impact of the new capital requirements for the 100 largest US banks.

A. Empirical Model

The model estimation relies on a generalized method of moment (GMM) estimation procedure that observes the simultaneous decisions of a bank to determine (1) how much capital to hold, (2) loan rate levels, and (3) loan portfolio size. The first stage regression for bank capital holdings is specified in terms of periods: period changes in capital, interest expenses, and non-interest expenses (Chami and Cosimano 2010; Cosimano and Hakura 2011). The study hypothesizes that there is a negative and convex relationship between bank capital and the three above-referenced factors. This is based on the conclusion that an increase in future loan marginal cost will result in a reduced loan level. The second stage regression portion of the study utilizes bank loan rates as the dependent variable and is specified in terms of the optimal bank capital predicted by the first stage regression, interest and non-interest expenses, and economic activity levels. A regression of total loans on the predicted loan rate from the second stage GMM regression is then used to determine the interest elasticity of loan demand. Annual data for commercial banks of the United States are collected from the Bankscope database for the 2001–2011 period. We restrict our analysis to the largest 100 commercial banks.

Following Chami and Cosimano (2001, 2010) and Cosimano and Hakura (2011) bank capital levels are dependent on management’s view of optimal future loan levels. Capital is seen as a call option in which the strike price is the difference between the expected optimal loans and the amount of loans supported by the capital. The capital requirement restricts loan levels since a fraction of loans must be held as capital. Banks will lose future opportunities as measured by the capital constraint shadow price in the event that next period’s optimal loan level exceeds the capital limit. In this case, total capital has a positive option value, which will result in a tendency for the bank to hold more capital than required in an effort to increase its supply of loans in the future. In contrast, if future loan demand is low, causing the loan demand shock to fall below the critical level, then accumulations to total capital in anticipation of higher demand (which does not actually occur) will result in a zero payoff.

Banks with more capital will have a higher strike price since their loan capacity is greater. Thus, greater capital accumulations in the current period will result in less demand for future capital K' . An increase in loan marginal cost will result in bank forecasts of higher future marginal costs based on the tendency that such expectations perpetuate themselves in future periods. Consequently, a bank anticipates a decrease in optimal future loans and will in turn reduce holdings of capital in the current period. Similarly, an increase in marginal revenue related to stronger economic activity will lead to an increase in optimal loans so that the optimal capital levels increase.

In view of this analysis and following Barajas et al. (2010), the relation for the bank choice of capital is specified as:

$$\frac{K'}{A} = a_0 + (a_1 + a_2 \frac{K}{A})x\Delta \frac{K}{A} + (a_3 + a_4 \frac{K}{A})r_D + (a_5 + a_6 \frac{K}{A})(C_L + C_D) + a_7 \log(A) + \varepsilon_3 \tag{1}$$

Call options are generally decreasing and convex in the strike price. As a result, we expect $(a_1 + a_2 \frac{K}{A}) < 0$, such that $a_2 > 0$ and $a_1 < 0$. Similarly, it is expected that $a_3 < 0$, $a_4 > 0$, $a_5 < 0$ and $a_6 > 0$. So, for example, a decrease in capital in the past that lowers the strike price should lead to a significant increase in total current capital. This impact should be smaller when the bank has more initial capital, consistent with the convex property of call options. In addition, a decrease in interest and non-interest expenses should lead to an increase in bank capital at a decreasing rate. Banks are assumed to have some monopoly power so that they choose the loan rate, r^L , such that the marginal revenue of loans is equal to its marginal cost. The marginal cost consists of the interest rate on deposits, r^D , and the non-interest marginal factor cost of loans and deposits, respectively, C_L and C_D . The marginal cost of loans also depends on the risk adjusted rate of return on capital (RAROC). Thus, total marginal cost, MC, is given by:

$$MC = \frac{D}{A}(r^D + C_D) + C_L + \frac{A-D}{A}r^K \quad (2)$$

Here, r^K is the return on equity, A is total assets, and D is deposits so that bank capital is $K' = A - D$. As a result, the marginal cost increases with an increase in bank capital only if $r^K > r^D + C_D$. Loan marginal revenue is dependent on the degree to which economic activity (M) affects loan demand. As a result, the optimal loan rate is given by:

$$r^L = b_0 + b_1 r^D + b_2 (C_L + C_D) + b_3 \frac{K'}{A} + b_4 \log(A) + b_5 M + \varepsilon_1 \quad (3)$$

An increase in the deposit rate, the noninterest cost of deposits, and the provision for loan losses would lead to an increase in the loan rate, since the marginal cost of loans would increase. The marginal cost also increases with an increase in RAROC. This effect is measured by the optimal capital asset ratio K'/A as given in equation (3) above. An increase in loan demand, as shown by the level of economic activity M (measured by the level of real GDP and the inflation rate), will increase both marginal revenue and the loan rate. Finally, ε is the estimation error.

Loan demand levels, given a degree of monopoly power, are affected by both economic activity M and the optimal bank loan rate as determined in equation (3) above. Thus, loan demand, L , can be modeled as:

$$L = c_0 - c_1 r^L + c_2 M + \varepsilon_2 \quad (4)$$

where $c_i, i = 0, 1, 2$ are parameters to be estimated. It is expected that an increase in the loan rate will reduce loan demand, and thus reduce the amount of loans issued by the bank. Conversely, economic activity increases would result in higher loan demand. Note that c_1 and c_2 capture the long-run responses of loans to changes in

loan rates and the level of economic activity. Given that the variables are nonstationary (I(1)), we test the null hypothesis of no cointegration in the model. We were able to reject the null hypothesis; that is, cointegration was found.

Banks simultaneously choose optimal capital holdings, the loan rate, and the quantity of loans. The simultaneous nature of this determination requires use of a generalized method of moments (GMM) estimation procedure. In the first stage, the capital regression is estimated to determine the bank's projected or optimal level of capital. The change in the capital-to-asset ratio, the interest expense ratio, the noninterest expense ratio, and the nonperforming loans to total assets ratio, as well as the interaction of each of these variables with the previous period capital-to-asset ratio, are assumed to be decision-making tools to determine the optimal capital ratio. The predicted demand for capital is then used in the second-stage regression to determine the bank's loan rate. The GMM estimations are conducted using the Bartlett kernel function, thereby yielding heteroskedasticity- and autocorrelation-consistent (HAC) standard errors. Lastly, the loan demand regression is estimated using the GMM loan rate estimates as an explanatory variable.

B. Estimation Results and Analysis

Table 1 provides estimates of the capital choice equation and the loan rate equation, respectively. These estimates are obtained using GMM for the 100 largest banks in the United States as measured by their assets in 2006. Heteroskedasticity- and autocorrelation-consistent standard errors are reported in parentheses. The dependent variable in the first stage capital equation is the equity to asset ratio.

Table 1 shows that for the 100 largest banks, the choice of bank capital in a given period was negatively related to the prior change in the equity to asset ratio, $a_1 < 0$, and positively related to the interaction between this change and the initial level, $a_2 > 0$, but these effects are not significant. The interest expense to asset ratio has the expected negative sign $a_3 < 0$ and is statistically significant at the 1% level, so that a 1% increase in the interest expense ratio reduces the banks' holding of equity by 2.957%. The interaction term with the initial equity-to-asset ratio, $a_4 > 0$, has the correct positive sign, so that banks with a 1% higher equity-to-asset ratio would reduce their optimal holding of equity by 2.64% for a 1% increase in the interest expense ratio. The marginal cost of deposits and loans is measured by the non-interest expense to asset ratio and the nonperforming loan to asset ratio. Both effects are negative $a_5 < 0$ as expected but only the non-interest expense ratio is statistically significant at the 1% level. A 1% increase in non-interest expense ratio leads to a 0.721% reduction in capital which is increased to 0.667% for a bank with 1% higher equity-to-asset ratio. With an adjusted R-square of 62%, the optimal equity equation is supported by the data for the largest banks in the United States.

Table 1 also reports the second stage loan rate regression equation. An increase by 1% in the equity-to-asset ratio yields a statistically significant 13.6 basis point increase in the interest income ratio or loan rate. Therefore it can be concluded that the net cost of raising equity is about 13.6 basis points for the 100 largest banks

Table 1. GMM First-Stage and Second-Stage Regressions.

	E/A Ratio		Interest Income/A
Constant	9.59*** (2.584)	Constant	1.528*** (0.718)
Δ E/A (lagged)	-0.428 (0.418)	E/A	0.136*** (0.0318)
Δ E/A (lagged)*E/A	0.0287 (0.218)	Interest Expense	1.058*** (0.0327)
Interest Expense	-2.957*** (0.512)	Non-Interest Expense	0.217*** (0.0387)
Interest Expense*E/A	0.317*** (0.087)	Non-Performing loans/A	0.000394 (0.000287)
Non-Interest Expense	-0.721*** (0.205)	Log (A)	-0.0527 (0.0328)
Non-Interest Expense*E/A	0.0536*** (0.018)		
Non-Performing loans/A	0.0052 (0.002)		
Non-Performing loans/A*E/A	-0.0018 (0.000)		
Log (A)	0.071 (0.057)		
Adjusted R-squared	0.6182		0.8961

The table shows the first and second stages GMM regression for the equity-asset ratio and the interest income-asset ratio. In addition to the variables listed above year dummies are included. Heteroskedasticity-and autocorrelation-consistent standard errors are shown in parentheses, and significances of 1 (***), 5 (**), and 10 (*) percent are indicated.

in the United States. It should be noted that this is a long-run relationship; therefore, the estimated effect cannot be attributed to temporary asymmetric information effects as was the case in Admati et al. (2010).

A 1% increase in the interest expense ratio leads to an increase in the interest income to asset ratio of 1.058%. This effect is significant at the 1% level. A 1% increase in the non-interest expense ratio also has a significant positive effect on the interest income ratio, but it changes the interest income ratio by only 0.217%. The nonperforming loans-to-assets ratio has a positive but insignificant effect.

Table 2 reports long-run loan demand equation estimates for the 100 largest banks. The equation is estimated using the previously predicted loan rate. The loan rate has the expected negative impact on loans issued by studied banks. The coefficient (-0.085) can be used to estimate the elasticity of loan demand -0.135 (-0.085*(4.53/2.86)), 4.53 being the average loan rate in the sample, divided by 2.86, the average level of loans in the sample. The elasticity of loan demand estimate shows an absolute value of less than one, which reflects the fact that the largest banks are operating at loan levels associated with negative marginal revenue. Generally speaking, many large bank customers lack access to alternative fund

Table 2. Loan Demand Equation.

	Loans
Constant	-7.3874*** (2.117)
Real GDP	-0.000715** (0.00052)
CPI	-0.00069 (0.0175)
Predicted Loan Rate	-0.08542*** (0.03847)
R-squared	0.425

Robust standard errors are shown in parentheses, and significances of 1 (***), 5 (**), and 10 (*) percent are indicated.

sources other than bank loans, suggesting lack of access to capital markets. Consequently, a 1% increase in the predicted loan rate leads to a reduction in loans by the world’s largest banks by about 1.135%.

The BIS (2010c) and the Committee of European Banking Supervisors (CEBS 2010) have conducted quantitative impact studies, which report additional capital needs for banks under Basel III given their respective financial positions on December 31, 2009. The BIS study is for banks in 23 jurisdictions across the world, while the CEBS report is for 19 European countries. Both studies report information for Group 1 banks having at least 3 billion Euros of Tier 1 capital, a capital level consistent with the largest US banks. The BIS (CEBS) estimates that under Basel III the equity to risk-weighted asset (CET1) ratio would fall to 5.7% (4.9%) from 11.1% (10.7%) for the gross CET1 ratio (pre-Basel III ratio) for Group 1 banks. A large portion of this decline can be attributed to the loss of goodwill associated with tighter bank equity standards. Other factors causing the decline include stricter rules on risk-weighted assets, adjustments for counterparty risk, and application of the capital definition.

The results of this study can be used to infer the impact of more stringent loan rate capital regulations for the largest banks. Under the Basel III regulations, the largest banks would be required to increase their equity-to-asset ratio from 5.7 % to 7%. The results reported in Table 1 show that a 1.3 percentage point increase in the equity-to-asset ratio would tend to increase the loan rate by 0.1768% (0.136*1.3%).

The results from Table 1 reflect the impact of the Basel III requirement that over the long run, loans will be subject to an increase in the equity ratio of 1.135%. The resulting increase in capital would lead to a 3.4% (0.154/4.53) increase in the loan rate when the equity-to-asset ratio is used as a proxy for the new regulation. Given a long run elasticity of loan demand with respect to the loan rate of -0.135%, this would result in an overall reduction of loans by 1.135%. Our results are broadly consistent with the findings from BIS (2010c) and CEBS (2010) for the loan rate, which found that the mean, weighted by GDP, lending rate would increase across 53 models by 16.7 basis points over eight years and 15 basis points, respectively.

VI. CONCLUSIONS

The Basel III regulatory structure significantly increases the capital requirements for institutions operating in the international financial community. One of the inherent problems in applying the Basel III regulations will be the development of centralized data management repositories. The challenge facing financial institutions subject to Basel III (and to Dodd-Frank) will be the rather monumental task of centralizing institutional data so that required reports and recordkeeping can be accessed by both the institution and regulators seeking to verify report results. For affected large financial institutions in the United States, there will be the additional challenge of integrating and synthesizing the Basel III regulatory structure with Dodd-Frank Act regulations.

The Dodd-Frank Act introduces sweeping reform to the US financial community. The Act provides for new capital requirement rules, credit rating agency regulations, more stringent regulation of over-the-counter derivatives, new registration requirements for hedge fund and private equity fund advisers, and required risk-sharing for loan originators.

The Act provides that banks must be “well capitalized” and “well managed,” as determined by the appropriate governing agencies. It empowers the Financial Stability Oversight Council to identify and seek solutions to systemic financial risks. Among the most important parts of this provision is that the Council can aid in identifying nonfinancial institutions that pose systemic risk danger to the U.S. financial system. These institutions will, in turn, be subject to direct Federal Reserve and/or SEC financial regulatory supervision.

The Dodd-Frank Act either fails to provide a solution for some problems, or it provides weak regulations easily thwarted by financial institutions. For example, the imposition of Volcker Rule regulations prohibiting proprietary trading is in conflict with the aims of client-investor funds. The larger banks are already seeking to circumvent the spirit of this rule by reclassifying risk traders as “money managers” while claiming that any trades made by managers are automatically approved by investor-clients who (they argue) gave them authority to invest funds on their behalf. Regulators will have to correct this problem by prohibiting such reclassification or abandon the idea of going forward with the Volcker Rule.

No regulations are imposed by the Act on credit rating agencies to address the problem of banks shopping for favorable ratings on debt securities that they underwrite. However, the Act does impose significant restrictions on the credit rating agencies by forcing transparency and independence in investment rating determinations and allowing substantial regulatory agency penalties as well as legislatively creating a new private civil cause of action for credit rating agency rating determination tortious acts or omissions.

As a result of the 2008 financial crisis, the BIS (2010a) developed the Basel III regulatory structure, which focused on the imposition of more stringent bank capital requirements. There has been much speculation concerning the impact of the new capital requirements on cost increases to both banks and their customers. In this study, we examine the behavior of the largest 100 US banks from 2001–

2011 to determine to what extent the increase in capital requirements will lead to higher loan rates and slower loan growth.

Using a structural model of bank behavior from Chami and Cosimano (2010) and Barajas et al. (2010), this study identifies the optimal holding of equity by banks. The study results indicate that the largest banks in the world would raise their lending rates by an average 13.6 basis points in order to increase their equity-to-asset ratio by the 1.3 percentage points required to achieve the new Basel III 7.0% risk-weighted asset ratio regulation.

An additional feature of Basel III is a countercyclical capital requirement, which will likely lead to an additional increase in the required capital ratios subject to a declaration of “excessive credit growth.” The estimations in this paper suggest that such a declaration is predicted to reduce large bank loans by 1.135%. As a result, a declaration of “excessive credit growth” could have a significant countercyclical impact. This result indicates that such a declaration should be closely coordinated with monetary policy decision-making. Otherwise, a simultaneous declaration of “excessive credit growth” combined with a contractionary monetary policy could result in an undesired “overkill” scenario where credit growth and contractionary monetary policy cause an excessively harsh economic downturn.

Regulators should be cautioned that excessive zeal in the implementation and enforcement of the new regulations will have a cost in the form of reduced loan availability and credit growth in the economy. Policymakers must approach these problems with a sense of balance. Sometimes regulations have unintended consequences; therefore, regulators must guard against rigidity in thinking and acknowledge that the regulatory structure they will be implementing and enforcing should be treated as a work in progress, which may very well require changes in the regulations themselves as well as changes in the approach regulators take when working with the financial institutions they govern.

Our empirical results, when viewed in combination with the Federal Reserve’s current monetary policy, suggest the possibility of long-term pressure on US banks to broaden income sources and improve risk management by transforming operating models. Once the Federal Reserve begins the process of taking steps to allow interest rates to rise, lending rates will increase dramatically in the United States. The challenge for financial institutions will be in finding ways to save capital to meet Basel III requirements while simultaneously developing quality corporate clients, expanding retail business, and growing high-end financial services. These goals are posing challenges in their own right, including identification of quality clients, development of accurate pricing strategies, measurement of client and product profit contribution, determination of accurate risk exposure, and accrual of sufficient capital reserves. The results provided in our study have important implications to policy makers and the financial institutions they regulate. Policy makers must recognize the impact of the the Dodd-Frank Act and Basel III regulatory frameworks on both financial institutions and the overall performance of the economy. Financial institution executives must find ways to improve the efficiencies of their respective operations while complying with the applicable regulatory frameworks.

References

- Admati, A.R., DeMarzo, P.M., Hellwig, M.F. and Pfleiderer, P., 2010, Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is not Expensive. *Working Paper*, Graduate School of Business, Stanford University.
- Angelini, P., Clerc, L., Cúrdia, V., Gambacorta, L., Gerali, A., Locarno, A., Motto, R., Roeger, W., Van den Heuvel, S., and Vlèek, J., 2011, Basel III: Long-Term Impact on Economic Performance and Fluctuations, *Federal Reserve Bank of New York Staff Report No. 485* (Federal Reserve Bank, New York).
- Bank of International Settlements, 2010a, Basel III: A Global Regulatory Framework for More Resilient Banks and Banking Systems. Available at <http://www.bis.org/list/basel3/index.htm>.
- Bank of International Settlements, 2010b, Assessing the Macroeconomic Impact of the Transition to Stronger Capital and Liquidity Requirements. Available at <http://www.bis.org/list/basel3/index.htm>.
- Bank of International Settlements, 2010c, Results of the Comprehensive Quantitative Impact Study. Available at <http://www.bis.org/publ/bcbs186.pdf>.
- Barajas, A., Chami, R., Cosimano T., and Hakura, D., 2010, U.S. Bank Behavior in the Wake of the 2007–2009 Financial Crisis, *IMF Working Paper No. 10/131* (International Monetary Fund, Washington, DC).
- Barnard, K.F. and Avery, A.W., 2011, Basel III v Dodd-Frank: What Does It Mean for US Banks. Arnold & Porter LLP Publications. Available at <http://www.whoswholegal.com/news/features/article/28829/basel-iii-v-dodd-frank-does-mean-us-banks/>.
- Casey, K.L., 2011, The Challenges of Implementing the Dodd-Frank Act. U.S. Securities and Exchange Commission. Available at <http://blogs.law.harvard.edu/corpgov/2011/08/19/the-challenges-of-implementing-the-dodd-frank-act/>.
- Chami, R. and Cosimano, T., 2001, Monetary Policy with a Touch of Basel, *IMF Working Paper No. 01/151* (International Monetary Fund, Washington, DC).
- Chami, R. and Cosimano, T., 2010, Monetary Policy with a Touch of Basel. *Journal of Economics and Business*, 62, 161-175.
- Committee of European Banking Supervisors, 2010, Results of the Comprehensive Impact Study. Available at <http://www.eba.europa.eu/cebs/media/Publications/Other%20Publications/QIS/EUQIS-report-2.pdf>.
- Cosimano, T.F. and Hakura, D., 2011, Bank Behavior in Response to Basel III: A Cross-Country Analysis. *IMF Working Paper No. 11/119* (International Monetary Fund, Washington, DC).
- Davis, Polk, and Wardwell, LLP, 2010, Summary of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Enacted into Law on July 21, 2010. Available at <http://www.davispolk.com/>.
- Kashyap, A., Stein, J.C., and Hanson, S., 2010, An Analysis of the Impact of Substantially Heightened in Capital Requirements on Large Financial Institutions. *Working Paper*, University of Chicago.

-
- Moody's Analytics, 2011, Implementing Basel III: Challenges, Options and Opportunities. Available at <http://www.moodyanalytics.com/~media/Insight/Regulatory/Basel-III/Thought-Leadership/2011/11-01-09-Implementing-Basel-III-Whitepaper.ashx>.
- Slovik, P. and Cournede, B., 2011, Macroeconomic Impact of Basel III. *OECD Economics Department Working Papers, No. 844* (Organization for Economics Cooperation and Development Publishing, Paris).