CONTINGENT CONVERTIBLE CAPITAL: A NEW CAPITAL REQUIREMENT TO SOLVE ‘TOO BIG TO FAIL’

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ABSTRACT

The adoption of Basel III capital requirements has been championed as one of the primary means for addressing the ‘Too Big to Fail’ conundrum. However, many have argued that higher standards do not effectively solve the ‘Too Big to Fail’ problem while imposing significant costs on the banking industry, which ultimately are transferred to the economy as a whole. This decision memorandum examines to what extent CoCos would effectively address the shortcomings of the current capital structure required by regulators. CoCos are hybrid capital securities that absorb losses when the capital of the issuing bank falls below a certain level, especially in times of stress. This recapitalization restores banks to a viable position of capital adequacy and thereby avoids regulatory resolution and possible government bailouts. The main objective of the contingent capital would be to provide strong incentives for the voluntary, preemptive, and timely issuance of equity. However, in the U.S. experience with CoCos is quite limited and there are a range of potential issues that could be associated with these instruments, being market manipulation the most controversial (CoCos short-selling). Therefore, the implementation of CoCos in the U.S. market should be considered as a long-term measure. Thus, before fully implementing CoCos in the U.S market, further empirical studies should be made. In the meantime regulators should allow banks to issue minimum quantity of CoCos by the largest banks, which are the ones that assume the highest burden of the stringent regulation under Dodd-Frank Act. However, the permission to issue CoCos should be in accordance with some requirements in order to avoid unexpected risks that could affect the entire market.
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DECISION MEMORANDUM

To: Janet Yellen
   President of the Federal Reserve

From: Federal Reserve Consultant

Re: Contingent Convertible Capital: a New Capital Requirement to Solve ‘Too Big To Fail’

I. ACTION FORCING EVENT

Pursuant to Section 165 of the Dodd–Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank Act”), the Federal Reserve issued on November 2015 the final rule to establish enhanced prudential standards for large U.S. bank holding companies and foreign banking organizations.¹

Under this rule, the Federal Reserve required the most systemically important U.S. bank holding companies to further strengthen their capital positions, by holding additional capital to increase its resiliency. These surcharges have been recently phased on January 1, 2016.

II. STATEMENT OF THE PROBLEM

The adoption of Basel III capital requirements has been championed as one of the primary means for addressing the ‘Too Big to Fail’ conundrum². However, many have argued that the higher standards do not effectively solve the ‘Too Big to Fail’ problem while imposing significant costs on the banking industry, which ultimately are transferred to the economy as a whole.

Even though there is a general consensus of the essential role that capital requirements play in the stability of banks and of the financial system, “the available evidence suggests

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² This problem arises when the failure of a large and complex financial institution threatens to cause such significant disruption to the financial system and the economy which would be too severe to bear, leading to government bailout. In: William C. Dudley. “Ending Too Big To Fail.” Remarks at the Global Economic Policy Forum, New York City, November 7, 2013.
that a dramatic increase in capital requirements would indeed result in a serious credit crunch."

This is mainly because higher capital requirement is expensive, which makes banks more prone in funding themselves with debt. The additional costs assumed by the banks under a higher capital requirement will be transferred to the businesses and individuals, who will find it harder to obtain loans, due to a raise in the cost of loans and lower interest rates offered to depositors.

Capital is expensive for banks for several reasons. For instance, in the U.S. the interest payments on debt are tax-deductible while dividend payments on common stock are not. Therefore, banks prefer to fund themselves with much more debt and deposits than equity.

Another issue that increases the cost of a higher capital requirement is the explicit and implicit government insurance. Many banks’ depositors treat their deposits as if they were government-guaranteed and completely safe, due primarily to the insurance provided by the Federal Deposit Insurance Corporation ("FDIC").

Similarly, investors in bank debt assume that their risk is lowered by the government safety net. This was evidenced in the last financial crisis when the Federal Reserve injected to the financial industry $7.77 trillion, in addition to the $700 billion Troubled Asset Relief Program approved by the Congress.

The Congressional Research Services has stated that "although higher capital requirements for most U.S. banking firms may reduce the insolvency risk of the deposit insurance fund, […] they arguably could translate into more expensive or less available bank credit for borrowers.""
According to a 2015 research made by the IMF, an increase in capital requirements is likely to lead to higher loan rates and a significant reduction in lending. Their research is based on data of 250 largest baking holding companies in the United States over 2001 to 2014 period. Their findings suggest that:

"An increase in the capital ratio of 2.5 percentage points (which is the size of the capital conservation buffer, proposed under Basel III) will lead to 7 to 8 basis point increases in loan rates, or roughly 5% increases (which is a lower bound, since our loan rates are constructed as the quarterly ratio of interest income to loans). [...] As a result, our estimates indicate a drop in loan demand of roughly 4%."

Finally, it is important to notice that according to the IMF all of the banks that required bailouts in the 2008 crisis reported higher-than-average levels of capital in the last period before the intervention. In other words, during the 2008 financial crisis capital adequacy ratios were unable to clearly identify institutions requiring intervention. This fact has also been acknowledged by the Congressional Research Services.

This specific fact has evidenced that any increase in capital requirements should be accompanied with other prudential regulation that guarantee an accurate and timely recognition of losses, and the compliance of risk management and corporate governance rules.

To sum up, a debate of an increase in capital requirements should consider not only the right amount of capital, but also a less-costly and a more efficient way of lowering the risk of default at banks. This debate should also consider aligning the incentives of the stakeholders to overcome the ‘Too Big To Fail’ challenge and, consequently, the so unpopular tax-payer bailouts.

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III. HISTORY

Before banks’ deposits were insured by the FDIC and taxpayers bailouts, markets ensured that banks maintained adequate amounts of capital. Before the creation of the FDIC in 1933, capital to total asset ratios in the U.S. were about 15%.12

“If depositors believed that a bank had insufficient capital to protect the par value of their deposits, they could withdraw their funds, frequently on demand. That threat encouraged banks to maintain sufficient capital, commensurate with their portfolio risk, to ensure the continued confidence of their depositors so as to avoid runs.”13

In today's world, however, government safety net had removed the incentives for market participants to play that role, and one cannot longer rely on market forces to establish the proper level of capital.

Consequently, prudential regulators have consistently designed capital rules to ensure that bank owners, rather than taxpayers, absorb losses related to the risks banks take.

Over the last almost 30 years, the United States regulators have been constantly implementing capital rules by increasing and strengthening the amount and quality of capital required and by covering various types of risk to determine the risk weights to each asset. “In the process, the rules have become increasingly elaborate, reflecting the growing complexity of modern banks, but also the need to address ongoing efforts by regulated banks to circumvent the requirements through financial innovation.”14

Prior to the 1980’s, U.S. regulators did not impose specific numerical capital adequacy standards. Instead, supervisors applied subjective measures tailored to each individual institution.15

However, at the beginning of the 1980’s extremely high inflation and interest rates had severely weakened large numbers of savings and loans and FDIC-insured savings banks. This is what has been called the Savings and Loans Crisis (“S&L”).

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13 George B. Kaufman et. al., 6-7.
In response to the S&L crisis, federal banking agencies introduced explicit numerical regulatory capital requirements, by setting a minimum primary capital adequacy ratio of 5% for larger regional institutions. In addition, the Congress passed the International Lending and Supervision Act of 1983, increasing the capital ratio for large banking organizations from 5% to 5.5% of adjusted total assets.\footnote{Federal Deposit Insurance Corporation. “Basel and the Evolution of Capital Regulation…”}

By 1986, regulators were concerned that the primary capital ratio failed to differentiate among risks. In response, by 1988 the central bank governors of the Group of Ten (G-10) countries formed the Basel Committee on the Banking Regulation and Supervisory Practices (“BCBS”) and adopted the first Basel Capital Accord.\footnote{Federal Deposit Insurance Corporation. “Basel and the Evolution of Capital Regulation…”}

The logic behind this committee was twofold. First, more capital should make banks better able to absorb losses with their own resources. Second, by forcing bank owners to have some skin in the game, capital requirements would limit their incentives for excessive risk taking.\footnote{Asli Demirguc-Kunt, Enrica Detragiache and Ouarda Merrouche, 3.}

Since then, the capital requirements in the U.S have been predominantly guided by the BCBS accords.

Several studies of the experience in the U.S. and elsewhere, both pre- and post-Accord, suggest that firmly applied capital standards induce weakly capitalized banks to rebuild their capital ratios in various ways more rapidly than otherwise.\footnote{Patricia Jackson et. al. “Capital Requirements and Bank Behavior: The Impact of the Basle Accord.” Basle Committee on Banking Supervision Working Papers No. 1, April 1999, 2.}

Notwithstanding the above, banks respond to capital ratio pressures in the manner they believe to be most cost effective:

“Raising new capital or boosting retained earnings may be easier in booms whereas cutting back loan books may be more cost effective in economic troughs. (...) available research suggests that, in order to meet minimum capital requirements, banks are likely to cut back lending when it would be too costly to raise new capital. (...) For the U.S., there is some indication that particular sectors such as real estate or small companies, may have been affected by pressure on bank capital in the early 1990s.”\footnote{Patricia Jackson et. al., 2-4.}

Since 1988, the BCBS has issued the following three accords:

\footnote{Federal Deposit Insurance Corporation. “Basel and the Evolution of Capital Regulation…”}
**Basel I**

The first Basel Accord was issued in 1988 and fully implemented in the United States by the end of 1992.\(^{21}\) Basel I focused on developing a risk-based capital by putting the assets into four broad categories with a credit-risk weight ranging from 0% for government bonds to 100% for corporate debt and unsecured personal loans.\(^{22}\)

The main novelty of Basel I is that it used a tiered definition of capital (Tier 1 and Tier 2) that distinguishes between different qualities of capital, being Tier 1 more liquid than Tier 2. Tier 1 included common shareholders’ equity (issued and fully paid), disclosed reserves, retained earnings, and some preferred stock. Tier 2 included subordinated debt, loan reserves and unrealized capital gains on securities.\(^{23}\)

Under Basel I a bank was considered adequately capitalized if its ratio of total capital (Tier 1 plus Tier 2) to total risk-weighted assets was at least 8%. Basel I also established the leverage ratio of 4% (Tier 1 capital divided by the average total on-balance sheet assets).\(^{24}\)

**Basel II**

A criticism of Basel I was that it included an inflexible and inadaptable set of risk weights. In response, in 2004 Basel I was replaced by Basel II, a more complex capital adequacy framework. On 2007, the federal banking regulators published the final rule to implement Basel II, which became effective in the U.S. on April 2008.\(^{25}\)

The required 8% of total of Basel I did not change, but Basel II introduced new rules regarding the risk weighting of the assets: two internal ratings-based approaches, which permitted institutions to use their own mathematical risk models to estimate the riskiness of assets.\(^{26}\)

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\(^{21}\) Darryl E. Getter, 2.


\(^{23}\) Andrew R. Gladin, Joseph A. Hearn and Stephen M. Salley, 60-61.

\(^{24}\) Andrew R. Gladin, Joseph A. Hearn and Stephen M. Salley, 60-61.

\(^{25}\) Darryl E. Getter, 3.

\(^{26}\) Andrew R. Gladin, Joseph A. Hearn and Stephen M. Salley, 61.
In the U.S., federal regulators chose to implement Basel II, in the form of the advanced internal ratings-based approach, only for a small number of large, internationally active banks.\textsuperscript{27}

**Basel III**

The 2008 crisis revealed serious problems with the existing requirements and that there was a need of better capital requirements.\textsuperscript{28} As a response, in December 2010 the Basel III regulatory framework reformed Basel II by revising the definition of regulatory capital and increasing the amounts banks must hold. The final rule to implement most of the Basel III recommendations in the U.S. was approved in 2013.\textsuperscript{29}

Basel III supposes a better risk coverage, especially on activities from capital market, since Basel II and I were not sufficient to cover risks arising from banks' exposures to securitization or derivatives instrument.\textsuperscript{30}

Basel III capital standards emphasize common equity capital as the predominant form of bank capital. Common equity capital is widely recognized as the most loss absorbing form of capital. Moreover, Basel III strengthens minimum capital ratio requirements and risk-weighting definitions, increases prompt corrective action thresholds, establishes a capital conservation buffer, and provides a mechanism to mandate counter-cyclical capital buffers.\textsuperscript{31}

In 2013, the FDIC, the Federal Reserve Board (“FRB”) and the Office of the Comptroller of the Currency (“OCC”) issued regulations for insured depository institutions in the U.S. that align with Basel III capital standards and the Dodd-Frank Act. This rule has targeted particularly the largest, more internationally active banks, which have been forced to take a harder look at their business models to comply with the new capital rule.\textsuperscript{32}

\textsuperscript{27} Andrew R. Gladin, Joseph A. Hearn and Stephen M. Salley, 61.
\textsuperscript{28} Charles W. Calomiris, “How to Regulate Bank Capital.”
\textsuperscript{29} Darryl E. Getter, 4.
\textsuperscript{31} Federal Deposit Insurance Corporation. “Basel and the Evolution of Capital Regulation…”
\textsuperscript{32} Federal Deposit Insurance Corporation. “Basel and the Evolution of Capital Regulation…”
In order to prepare for the 2019 implementation of Basel III, different markets have opted for different alternatives. For instance, while the European Union opted for contingent convertible capital (“CoCos”) as the debt instrument to boost Tier 1 capital, U.S. banks are employing a form of preferred stock and China’s lenders are using a cross between the two.33

IV. BACKGROUND

Even though bank capital regulation is considered essential for the safety and soundness of the banking industry, there has not been a consensus on whether higher and stronger capital requirements effectively overcome the ‘Too Big To Fail’ problem. Conversely, many have argued that stronger capital requirement not only fails to solve the ‘Too Big To Fail’ problem, but also impairs the banking industry and the economy as a whole.

*Does higher capital effectively address the ‘Too Big To Fail’ problem?*

After the 2008 financial crisis, the strengthening of capital requirements was thought to be the main tool to end the ‘Too Big to Fail’ problem. Certainly, the most popular argument for Basel III is that higher bank capital promotes financial stability.34

Moreover, when the former Treasury Secretary Timothy Geithner was asked what steps the regulators of the banking system should take to avoid another financial crisis, he answered: “The most simple way to frame it is capital, capital, capital. Capital sets the amount of risk you can take overall. Capital assures you have big enough cushions to absorb extreme shocks.”35

Indeed, in theory, increasing safety and soundness requirements in the form of holding more capital should increase the capacity of the banking system to absorb losses associated with its various financial risks. Higher capital requirements can reduce vulnerability of

banking institutions to insolvency.  

However, currently there is a debate on whether an increase in capital requirements will end ‘Too Big to Fail’ problem and avoid any future systemic risk, or not. The main argument of the supporters of the increase in capital is twofold: “capital regulation affects financial stability by reducing ex ante incentives of banks to take risk and higher capital acts ex post as a buffer against bank losses.”

Academic papers and studies dealing with these arguments have revealed mixed results, which are presented in the following sections.

(i) Does higher capital reduce the incentives of banks to take risk?

A research made by Haan and Klomp, who managed to use data from more than 200 banks in 21 OECD countries for the period 2002 to 2008, showed that on average an increase of one percent in the level of capital regulation leads to a decrease of capital and asset risk by 0.4 percent.

Conversely, other studies in this line of research suggest that there is not a relation between capital requirements and bank risk. Moreover, according to these studies more stringent capital regulation may lead to higher bank risk-taking.

For instance, a study by Barth et al. suggests that the link between capital stringency and banking crises is not robust: “These results do not suggest that bank capital is unimportant for bank fragility. They do, however, suggest that there is not a strong relationship between the stringency of official capital requirements and the likelihood of a crisis after controlling for other features of the regulatory and supervisory regime.”

In addition, another report prepared by Camara et al. distinguishes different categories of banks based on the initial level of their risk-weighted capital ratio (highly capitalized, adequately capitalized, undercapitalized, moderately undercapitalized and strongly undercapitalized).

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36 Darryl E. Getter, 12.
37 Natalya Martynova, 2-3.
undercapitalized banks), and concludes:

“Highly and adequately capitalized banks invest in riskier assets when they use equity or subordinated debt to increase their capital. Banks that are undercapitalized in terms of the total risk-based capital ratio seem to adopt a prudent behavior when they improve their capital standards by issuing equity. (…) Highly capitalized banks, and to a lesser extent adequately capitalized banks, increase their risk taking while undercapitalized banks reduce their risk.”

To explain this result, Camara et al. refers to another report made by Calem and Rob, who stated that highly capitalized banks have incentives to invest in risky assets associated with higher expected returns; but since these banks are remote from insolvency, their portfolio choices ensure very low probability of failure.

(ii) Does higher capital act as a buffer in crisis?

In case the value of banks’ assets falls significantly due to a crisis, high capital allows banks to timely comply with its obligations and absorb losses. “The primary purpose of capital in a financial institution is to absorb financial risk, not to provide funding for the assets of the business.”

Kapan et al. study employs a sample of more than 800 banks from 55 countries during 2006 to 2010 and shows that bank capital played a cushioning role. “Better capitalized banks that were exposed to the financial market shocks decreased their supply of loans less than other banks. The evidence that bank equity acts as a buffer is stronger when capitalization is measured with tangible common equity.”

Similarly, another study shows that higher capital in U.S. banks enables them to improve their market shares during banking crises, and these banks are generally able to maintain their improved shares afterwards. This study has two main results:

“First, capital helps to enhance the survival probabilities and market shares of small banks at all times (during banking crises, market crises, and normal times. (…)

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Second, capital helps medium and large banks primarily during banking crises, and largely during the one with relatively limited government intervention, the credit crunch.⁴⁴

Conversely, studies that focus on banks in advanced economies during the 2008 crisis alone often come to different conclusions. For instance, using OECD data, a study found no relation between pre-crisis bank capital and performance during the crisis: “Interestingly, a high level of capital by itself did not make banks immune during the turmoil. A number of large banks appeared highly capitalized before the crisis, but quickly exhausted capital buffers as a result of significant exposure to troubled assets or questionable acquisitions.”⁴⁵

Likewise, the IMF, by using a sample of 36 major global banks, found that banks that received government support during the crisis had higher capital before the crisis:

“Capital adequacy ratios were unable to clearly identify institutions requiring intervention. In fact, contrary to the common belief that low capital adequacy ratios would signal weakness for a FI, all four capital adequacy ratios examined for intervened commercial banks were significantly higher than (or similar to) the non intervened commercial banks as a whole.”⁴⁶

To sum up: (i) studies are not conclusive as to whether more stringent capital requirements reduces banks’ risk-taking and (ii) even though many studies suggest that higher capital helps in economic crisis, studies that focus on banks in advanced economies during the 2008 crisis come to different conclusions.

**Does higher capital standards impose significant costs on the banking industry?**

Banks are reluctant to hold larger amounts of capital than required given that funding loans via the short-term interbank loan markets is typically cheaper than funding them with shareholders equity.⁴⁷

According to some economists, changes in a company’s capital structure do not affect its funding cost. This argument has its roots in the 1958 Modigliani and Miller model

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⁴⁷ Darryl E. Getter, 12.
Under the M&M model “an increase in the proportion of equity, which will always be more expensive than debt, would be exactly offset by a decrease in the costs per unit of both debt and equity in recognition of the lower risk of insolvency.”

However, other economists argue there are a number of important ways in which the classic M&M assumptions do not apply and are the reasons why banks are more prone to rely on debt and deposits than on equity for their funding.

i) **Tax advantages**

M&M assumed that the tax treatment of debt and equity is equivalent. In practice, debt is tax-deductible for U.S. corporations while equity payments are not. “Thus, the tax difference biases banks towards raising as much debt and deposit funding as they can, consistent with other corporate objectives, such as their overall risk management strategies.”

ii) **Guarantees**

The explicit and implicit government guarantees of deposits and debt make more attractive for the banks to raise equity. The borrowing costs for banks have usually been substantially below as a result of government guarantees.

The explicit guarantee is referred to the insurance provided by the FDIC on roughly two thirds of the deposits. Also, there is an implicit guarantee benefiting the ‘Too Big To Fail’. These banks benefit from a rational assumption by investors that the government will not let the bank default on its debt or will, in the worst likely case, limit the damage.

iii) **Information asymmetries**

According to Elliot, the main issue is that stock offerings normally come at a discount. The key explanation is the asymmetric information between companies, its managers and the

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future investors.

This is based on the assumption that companies’ management knows their firm’s situation better than anyone on the outside. And, if they are interested in selling shares, then it is unlikely that they view the shares as underpriced by the market and they may even think the stock price is currently higher than warranted.

“This is particularly concerning since managements tend to have an excessively optimistic view of the prospects of the businesses they run. (...) Recognizing this problem, investors normally demand a discount to protect them from the real possibility that they would otherwise be overpaying for the shares.”

Considering the above, it is not surprising why banks in the U.S. generally have more than ten times as much debt and deposit funding as they do common equity funding.

**Does higher capital standards affect the economy?**

A bank must decide how to distribute the costs of higher capital requirements between its shareholders and customers. Banks can respond in a number of ways to the greater regulatory burden, whether charging more for services, reducing credit availability, cutting expenses, lowering returns for shareholders, restructuring the business, etc. This creates effects on the larger economy.

“The main effect on the larger economy from operational transformations is to hold down the cost of credit below what it would otherwise have to be. Indirectly, though, efficiencies mean that someone gets paid less, whether employees, through lower compensation or unemployment, or suppliers. These effects would carry through in a more complete economic model.”

The BCBS surveys the evidence for the banks’ reaction to the introduction of the Basel I, concluding the following:

“Bank capital pressures during cyclical downturns in the US and Japan may have limited bank lending in those periods and contributed to the economic weakness in some macroeconomic sectors. (...) for the US, there is some indication that particular sectors such as real estate or small companies, may have been affected by pressure on bank capital in the early 1990s.”

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54 Douglas J. Elliott, Suzanne Salloy and André Oliveira Santos, 59-60.
55 Patricia Jackson et. al., 2, 4.
The study by the BCBS assumes that (i) increase in funding costs are fully passed through to the borrowers (which is a common assumption for similar studies), and (ii) the cost of capital does not fall as banks become less risky (M&M theorem does not hold). The simple mapping shows that 1% increase in capital ratio raises loan spreads by 13 basis points.\textsuperscript{56}

Similarly, based on data from three OECD countries between 2004 and 2006, Slovik and Cournède show that:

\textit{“A one percentage point increase in the ratio of capital to risk-weighted assets will push up bank lending spreads by 14.4 basis points on average across the three main OECD economies. The sensitivity will be comparatively higher in the United States (mainly due to a higher return on equity and a higher share of risk-weighted assets in bank balance sheets).”}\textsuperscript{57}

There is also another effect involved in stringent capital requirements. According to Stiglitz and Weiss higher lending rates may attract lower quality borrowers who are willing to pay high price for their loans.\textsuperscript{58}

Similarly, according to Martynova, “when banks choose to satisfy higher capital requirements by raising equity, one can expect lending to decline and riskiness of bank loans to increase. The latter effect may reduce financial stability.”\textsuperscript{59}

Notwithstanding the above, it is hard to estimate the direct effect of higher capital requirements on the economic activity, since borrowers who cannot get bank loans may seek alternative funding elsewhere (shadow banking) where banking regulators has limited or not access at all.\textsuperscript{60}

Shadow banking is another consequence of stringent capital requirements for many economists, who agree that high capital requirements increases the banks' incentives to turn into non-regulated entities: “extremely high capital requirements may drive banking activity into institutions or financial arrangements that are not regulated as strongly, often referred to


\textsuperscript{59} Natalya Martynova, 14.

\textsuperscript{60} Natalya Martynova, 14.
somewhat pejoratively as shadow banks."61

According to the BCBS, this shift of risk into the non-regulated sector could reduce the financial stability benefits of increasing capital and liquidity standards.62

**Other issues to take into account**

As mentioned before, prior to the financial crisis, banks maintained capital levels that exceeded the minimum regulatory requirements, yet the banks were involved in highly risky investments and practices that resulted in the worst financial crisis after the Great Depression.

Therefore, many economists argue that stringent capital requirements would not have avoided the 2008 financial crisis since there were many other factors that contributed to it, such as:

(i) Regulators failed to timely recognize the loss affecting the financial firms

Financial supervision has been broadly criticized for their inattention to the housing boom. Moreover, some argue that the “(...) primary reason for why subprime loans became so widespread and why the housing boom continued for several years was a failure of the regulatory and supervisory architecture in the United States.”63

Examiners conducted their inspections without discussing it with other fellow examiners or even with their senior managers. Moreover, some agencies did not want to address this economic issue since they were under the politicians influence.64 In general, there were not proper incentives for the regulators to fully recognize losses during bad economic times in a timely and effective manner.65

64 “It was easier for agency managers to ignore the bubble because they knew that both Democratic and the Republican Administrations wanted to encourage economic growth, favored housing as a target national policy, and wanted to extend home ownership to lower income household” In: David G. Mayes and Geoffrey Wood. “Reforming the Governance of the Financial Sector.” Routledge, September 2012, 232-234.
(ii) Regulators failed to adequately measure the risk

Due to the Basel Standards, banks were leaned to invest in low risk securities. For example, banks heavily invested in the Mortgage Based Securities issued by Fannie Mae and Freddie Mac, which carried only a 20% risk-weight and had the advantage of providing a higher return than government bonds. This was the main instrument that caused the financial crisis.

The Basel standards were inadequate not because they required too little capital per se, but because regulators failed to measure risk properly. “This problem will always exist because the true risk of any financial asset can never be known until after the fact. People poorly estimated the risk of MBS prior to 2008, but the same could have happened with virtually any other asset.”

Another example made by Calomiris to explain why the regulatory failure was not a low capital requirement is the case of Citigroup. Citigroup’s capital ratio was nearly twice that of Goldman Sachs; and yet, Citigroup was the institution whose losses produced insolvency. The difference occurred because Citigroup’s risk exposures were disproportionately larger than those of Goldman Sachs.

(iii) Disintermediation and shadow banking

According to Getter, bank capital levels may also become less effective at mitigating financial risks when a significant amount of lending occurs outside the regulated banking system.

Prior to the recent financial crisis, many loans were originated or held by nonbank institutions, which were not subject to safety and soundness capital requirements. “When large amounts of lending activity occur in parts of the financial system that are not regulated for safety and soundness, raising capital requirements for depository institutions would not

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68 Darryl E. Getter. Summary.
necessarily address the rise in the various types of financial risks in the economy.”

(iv) Capital did not absorb the losses

As mentioned above, the measure of capital in the numerator did not reflect an institution’s ability to absorb loss without going through some sort of resolution process.

In the last financial crisis, many of the instruments counted as capital for regulatory purposes did not absorb losses in practice. Subordinated debt is an example. This is because debt carries losses only once the bank is placed into insolvency, but until insolvency the debt-holders’ claim against the bank is legally intact. However, in the financial crisis most banks were bailed out rather than put into insolvency, with the result that the loss-absorbing capacity of subordinated debt was not triggered. Taxpayers bailed out subordinated debt-holders as well as depositors.

In a nutshell, the issues mentioned above make us consider that “bank capital requirements need to be set in coordination with other regulations and with a good system of supervision and examinations, ideally aided by transparent accounting that allows the capital markets and rating agencies to form their own judgments about the true riskiness of the activities of the banks.”

But most importantly, there should be a clear and trustworthy commitment from the Government that it will never bailout the banks again, in order to avoid the common believe among the banking industry that the ‘Too Big To Fail’ institutions must be protected.

Even if the strengthening of capital requirement is developed, the incentives of banks to engage high-risk transactions in stressed situations will not be diminished if there is a high probability of government bailout. Let’s not forget that before banks’ deposits were insured by the FDIC and taxpayers bailouts, markets safeguarded that banks maintained adequate

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69 Darryl E. Getter, 14.
amounts of capital. In today’s world, however, government safety net had removed the incentives for market participants to play that role.

In conclusion, while capital requirements are essential, their design matters enormously. “Regulators must therefore find ways to structure these requirements so that they minimize the incentive for avoiding the recognition of losses, while also creating powerful incentives against gaming the system.”

**Current Policy**

Under the current U.S. regulation, banks are required to maintain a minimum level of capital reserves to cover losses associated with default (credit), funding (liquidity), and systemic risk events. A bank’s capital is defined as the difference between its assets and liabilities. A bank would be considered solvent if its capital is above a minimum threshold level, and it is considered undercapitalized if it falls below the threshold. In this last case, the correspondent regulator can ultimately dissolve the bank.

For FDIC-supervised institutions, the capital rules are contained in Part 324 of the FDIC Rules and Regulations. Part 324 defines capital elements, and establishes risk-weighting guidelines for determining capital requirements under the standardized and advanced approaches. Full implementation of the rules for all institutions begins on January 1, 2019.

There are 3 components of regulatory capital:

- **Common Equity Tier 1 Capital:** includes the most loss-absorbing form of capital.
- **Additional Tier 1 Capital:** includes qualifying noncumulative perpetual preferred stock, bank-issued Small Business Lending Fund and Troubled Asset Relief Program instruments that previously qualified for tier 1 capital.
- **Tier 2 Capital:** includes the allowance for loan and lease losses up to 1.25% of

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73 Darryl E. Getter, 2.
risk-weighted assets, qualifying preferred stock, subordinated debt, among others.

Tier 1 Capital is the sum of Common Equity Tier 1 Capital and Additional Tier 1 Capital. Total capital is the sum of Tier 1 and Tier 2 Capital. Currently, U.S. banks are required to comply with the following capital requirements:

**Risk-Weighted Capital**

The system that assigns risk weights to each type of asset are based upon various categories of loans, issuers and borrowers requirements. For instance, the government securities have 0% risk weight, consumer loans have 100% weight risk, obligations of the government-sponsored enterprises have 20% risk weight, and 150% risk weight to the outstanding balance of non-performing loans. The total risk-weighted capital requirement must be 8% at least.

**Capital Conservation Buffer**

The capital conservation buffer is designed to strengthen an institution’s financial resilience during economic cycles. Financial institutions will be required to maintain a capital conservation buffer of 2.5% by the end of 2019.76

**Countercyclical Buffer**

The advanced approaches banks, called Global Systemically Important Bank Holding Company77 (”G-SIBs”), will also have to comply with the countercyclical buffer, so that the amount of capital required to be maintained by a company increases in times of economic expansion and decreases in times of economic contraction. This buffer has initially been set at 0%, could be set as high as 2.5% by the end of 2019. The advanced approaches banks would, therefore, need to maintain a combined (conservation and countercyclical) buffer greater than

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77 An advanced approach institution is an institution that has consolidated total assets of $250 billion or more, or has on-balance sheet foreign exposure of $10 billion or more.
5% to avoid restrictions on dividends and discretionary bonus payments.  

**Surcharges for G-SIBs**

On July 2015, the Federal Reserve announced a final rule requiring G-SIBs to further strengthen their capital positions. Under this rule the estimated surcharges range from 1.0 to 4.5% of each firm's total Risk Weighted Assets.  

![Capital Buffer Chart]

**Leverage Ratio**

In contrast to the risk-weighted capital ratio requirements, the leverage ratio is defined as Tier 1 capital divided by the average total on-balance sheet assets. “An un-weighted ratio requirement may be important at times when financial risks suddenly rise above what the assigned risk weight can feasibly capture.” The leverage ratio requirement for U.S. banks is 4% at least.

For advanced approach institutions, an additional supplementary leverage ratio of 3% will be required as of January 1, 2018. And, bank holding companies with more than $700 billion in consolidated total assets or more than $10 trillion in assets under custody must maintain a leverage buffer greater than 2% points above the minimum supplementary leverage ratio requirement of 3%, for a total of more than 5%.

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78 Darryl E. Getter, 2.
80 Darryl E. Getter, 10.
Main Players and Actors

Financial Institutions

The capital rules are required to be complied by depository institutions, depository institution holding companies, and nonbank financial companies. Depending on the size of each financial institution, the ratios of capital required will vary, as well as the schedule provided by the regulators to comply with such requirements. However, U.S. banks generally attempt to maintain capital levels in excess of the regulatory minimum.82

Even though the smallest banks, such as the community banks, are required to comply with certain capital standards, SIFIs and G-SIBs are the ones that are required to comply with more stringent capital requirements since they pose the major risk to financial stability.

Dodd-Frank Act states that all U.S. banks with more than $50 billion in assets, and that could pose a threat to financial stability, are labeled systemically important financial institutions (“SIFIs”), making them subject to tougher supervision by the central bank. The Financial Stability Oversight Council (“FSOC”) determines the institutions, financial or not, that should be subject to this stringent regulation.

In 2014, the Federal Reserve Board created a new category of financial institution called G-SIBs (those with $250 billion or more in consolidated total assets or $10 billion or more in consolidated total on balance-sheet foreign exposures).

Currently, eight U.S. firms qualify as G-SIBs: Bank of America Corporation; The Bank of New York Mellon Corporation; Citigroup, Inc.; The Goldman Sachs Group, Inc.; JPMorgan Chase & Co.; Morgan Stanley; State Street Corporation; and Wells Fargo & Company.83

Federal Agencies

The FDIC is a member of BCBS and works with the Board of Governors of the FRB and the OCC to establish domestic capital regulations for the U.S. financial institutions.

82 Chris Matten, 18.
According to Section 171 of the Dodd-Frank Act, the appropriate Federal banking agencies shall establish minimum capital requirements for insured depository institutions, depository institution holding companies, and nonbank financial companies supervised by the Board of Governors.

According to this rule, the minimum risk-based capital and the minimum leverage capital requirements shall not be less than the generally applicable requirements, which are considered as a floor for any capital requirement that the agency may require.

According to Section 165 of the Dodd-Frank Act the Board of Governors shall conduct annual analyses in which banks are subject to evaluation of whether such companies have the capital, on a total consolidated basis, necessary to absorb losses as a result of adverse economic conditions.

**Basel Committee**

The Basel Committee on Banking Supervision, on which the United States serves as a participating member, develops international regulatory capital standards through a number of capital accords and related publications, which have collectively been in effect since 1988.

Even though the accords are not mandatory to the members of the BCBS, the capital requirements in the U.S have been predominantly guided by such accords. Moreover, the last capital requirements set up by U.S. regulators came out tougher than Basel III capital rules.

V. POLICY PROPOSAL

In theory, higher capital requirements can reduce vulnerability of banking institutions to insolvency. Even though U.S. banks generally attempt to maintain capital levels in excess of the regulatory minimum, banks are more prone to fund themselves using debt more than equity mainly because equity is more expensive than debt. This is why U.S. banks generally have more than ten times of debt and deposit than common equity funding.85

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84 Chris Matten, 18.
85 Douglas J. Elliott. “Quantifying the Effects on Lending of Increased Capital Requirements.” 3-4
In a situation of financial distress, when it is essential for banks to hold liquid funds, private investors are usually reluctant to provide additional external capital. Even though bankers comply with even more than the minimum capital required, there are many other factors that could make capital not enough to absorb the losses, which was what happened in the 2008 financial crisis.

This situation has raised the attention of policymakers in order to develop new components of capital destined to align the incentives of the stakeholders to avoid high-risk situations that could demand another government bailout.

Therefore, in order to “significantly increase the capital available in a crisis while minimizing the increase in cost — and therefore the likelihood of a credit crunch — regulators should seek to combine equity capital with a less expensive, but still reliable, form of capital.”

The inclusion of contingent convertible capital, as part of the regulatory capital requirements for the largest banks, is an alternative that should be carefully considered by policymakers.

These instruments have been developed as a potential remedy to a perceived problem of the recent financial crisis. Under Section 112 Dodd-Frank Act, the FSOC is required to make recommendations to the Board of Governors concerning the establishment of heightened prudential standards for contingent capital for the largest banks.

**Policy Authorization Tool**

We develop a proposal for a contingent capital requirement, specifically by including them among the instruments acceptable to raise additional capital required to the largest U.S. banks.

Currently, banks can raise Tier 1 capital with equity, preferred stock, bank-issued Small Business Lending Fund and Troubled Asset Relief Program instruments, among others. Under this proposal, a new rule will add the issuance of CoCos as a valid mechanism to

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comply with the additional tier 1 capital ratio required by the regulators.

"CoCos are hybrid capital securities that absorb losses in accordance with their contractual terms when the capital of the issuing bank falls below a certain level. Then debt is reduced and bank capitalization gets a boost. Owing to their capacity to absorb losses, CoCos have the potential to satisfy regulatory capital requirements."87

CoCos are intended to significantly increase the capital available in a crisis while minimizing the increase in cost. In other words, CoCos will be used as a buffer in crisis situations, avoiding any bailout by the taxpayers, being the own investors the ones that inject the necessary capital.

The central objective of CoCos should be to incentivize the prompt voluntary issuance of equity into the market in response to significant losses of equity by a bank, before facing the risk of insolvency. Even if CoCos would be capable to absorb losses under such circumstances, the main target of CoCos will be the creation of very strong incentives for managers to take corrective action while they still have multiple options to do so.88

Policy Implementation

The proposed rule would allow the U.S. largest banks to include CoCos as part of their additional Tier 1 capital. Therefore, after enacting the rules describing the minimum requirements for issuing CoCos, the banks will be able to issue these instruments in order to comply with the Tier 1 capital ratios.

The federal agencies should design such rule considering the following:

i) High Market-based Trigger

Contingent capital instruments may convert at an early intervention point (at relatively high capital levels) or at a later intervention point (at a lower capital level). While a high trigger may be less likely to signal problems, a low trigger may be activated at a point at which it is difficult for a financial company to recover from problems associated with

88 Charles W. Calomiris and Richard J. Herring, 44.
financial distress, such as a liquidity run. In other words, at low capital ratios, shareholders have too little at stake, and it becomes rational for them to seek riskier bets. "Low capital also makes it more likely that depositors will lose confidence and run the bank, effectively forcing supervisors to support the institution."

Considering that the structure of CoCos’ proposed herein should incentivize companies to issue more equity before reaching the risk of insolvency, the regulation issued by the regulators should take into account that the trigger needs to operate before the firm is insolvent, so that shareholders are incentivized to protect the value of the remaining entity.

This has also been duly noted by Basel III, which states that in order to meet higher national capital requirements, contingent capital instruments should be converted prior to the point of distress.

To sum up, the regulation should contain high trigger levels of CoCos destined to ensure that the firm is still solvent when CoCos are triggered. The trigger must be based in the market value of the company, since it will provide accurate and comprehensive assessment, by measuring the true health of the firm. Market-based trigger is considered as the better-suited trigger, since it is forward looking and harder to manipulate.

Finally, the structure of CoCos should give triggered firms a term of perhaps 30 days, in which they could recapitalize in public markets. If they failed, then the contingent capital would automatically convert to equity.

ii) Market value conversion rate

The conversion ratio required by the regulators under this proposal should be dilutive of
preexisting equity holders. A dilutive CoCo conversion means that such conversion will leave
the holders of CoCos with at least as much value in new equity as the principal of the bonds
converted.94

Par conversion considering equity values would be the best source, since it would provide
CoCos investors with a very safe claim while ensuring maximum dilution, sharpening ex ante
shareholder incentives to contain risk.95

The banks will be more incentivized to issue equity pre-emptively when the size of
CoCos is large, when the trigger is credibly and observably long before concerns about
insolvency arise, and when the conversion ratio is dilutive of existing common shareholders.96

"Under those conditions, a SIFI experiencing significant loss and approaching the
neighborhood in which dilutive conversion would be triggered, would choose to issue
significant equity into the market, possibly combined with asset sales that would raise
the market value of its outstanding equity relative to assets, thereby avoiding the
conversion trigger."97

In addition, a highly dilutive conversion ratio could make CoCos more costly attractive
for financial firms because investors would likely demand a lower rate of return in exchange
for a greater share of the firm in the event that contingent capital is converted.98

According to Section 115(c) of the Dodd-Frank Act, the FSOC must conduct a study of
the feasibility, benefits, costs, and structure of a contingent capital requirement for nonbank
financial companies supervised by the Board of Governors and bank holding companies.

On July 2012, the FSOC issued a report to Congress recommending that contingent
capital instruments remain an area for continued private sector innovation, and encouraging
the Federal Reserve and other financial regulators to continue to study its advantages and
disadvantages.99

After reviewing the ideas herein contained, the FSOC should evaluate if another
assessment of contingent capital should be made considering the new studies and market
experiences occurred in the last four years since its last report.

94 Charles W. Calomiris and Richard J. Herring, 45.
95 Enrico Perotti and Mark Flannery. “CoCo design as a risk preventive tool.” Voxeu Article.
96 Andre D’Souza et. al., 6-7.
97 Charles W. Calomiris and Richard J. Herring. 45.
98 Andre D’Souza, et. al., 6.
Under applicable law, including the Dodd-Frank Act, the Federal Reserve has the authority to supervise and regulate the largest banks in their capital adequacy obligations. Section 165 of the Dodd-Frank Act grants the Federal Reserve with broad authority to establish various regulatory capital requirements, including the establishment of contingent capital.

Being the Federal Reserve in charge of the regulation and supervision of the issuance of CoCos, many challenges would be faced throughout its implementation.

First, the main challenge for the Federal Reserve lies in defining the trigger and the conversion rate of CoCos, which have been widely discussed by many policymakers around the world without any clear consensus on how to structure these instruments.

Second, after regulating CoCos, the Federal Reserve will be obliged to supervise the compliance by the banks that decide to issue CoCos, which is another huge challenge. Even though CoCos have been begun to be used in some European countries, there is still an unknown state on whether what would happen when the first CoCo is converted.

The Federal Reserve will be required to face any concerns regarding CoCos, always by leaning towards the best interest of the economy, while undermining the moral hazard of the largest banks, which is one of the main problems that contingent capital intends to tackle.

Also, under the Securities Act, no offer of securities may be made in the U.S. unless such offer has been registered with the U.S. Securities and Exchange Commission (the “SEC”). As a result, the SEC will also be a relevant party that should develop the necessary tools and legal framework destined to facilitate the registration of CoCos at the time of issue, and to solve any related issue.100

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100 Davis Polk & Darwell LLP. “Key Considerations Relating to Issuances of Contingent Convertible Instruments in or into the United States.” Client Memorandum, July 28, 2011, 3.
VI. POLICY ANALYSIS

CoCos are hybrid capital securities (debt securities with some equity-like features) that absorb losses by converting into equity when certain event is triggered. Then, debt is reduced and bank capitalization gets a boost.

In other words, contingent capital is considered as a tool to increase capital and reduce debt of a financial institution, especially in times of stress, when other options are impossible. “This recapitalization restores the bank to a viable position of capital adequacy and thereby avoids regulatory resolution.”¹⁰¹

The main objective of the contingent capital proposed in this policy memo is to provide strong incentives for the voluntary, preemptive, and timely issuance of equity as a means of avoiding highly dilutive CoCos conversion.

As pointed out by some authors, the incentive to issue equity preemptively will be strong given the following conditions: (i) the amount of CoCos to be converted is large relative to the book value of equity; (ii) the trigger is credibly and observably based on market prices and pegged to a high ratio of equity to assets (and thus conversion would take place well before serious concerns about insolvency arise); and (iii) the conversion ratio is dilutive of existing common shareholders.¹⁰²

“Under these conditions, a SIFI experiencing significant loss and approaching the point at which dilutive conversion would be triggered would choose to issue significant equity, possibly combined with asset sales, which would raise the market value of its outstanding equity relative to assets, thereby avoiding the conversion trigger.”¹⁰³

Basel III contemplates that CoCos meeting certain criteria might be issued by banking institutions to partially satisfy the increased quality and quantity of required regulatory capital. On January 13, 2011, the Basel Committee issued minimum criteria for CoCos to qualify as regulatory capital.¹⁰⁴

Currently, CoCos are seemed as an alternative to satisfy regulatory capital

¹⁰¹ Charles W. Calomiris and Richard J. Herring, 44.
¹⁰² Charles W. Calomiris and Richard J. Herring, 44-45.
¹⁰³ Charles W. Calomiris and Richard J. Herring, 45.
requirements, especially by the largest banks that have been obliged to comply with enhanced capital requirements after the Great Recession.

According to many economists, depending on how CoCos are design, they drive incentives among the main stakeholders to a better risk management. Huertas states that “such capital holds the promise of providing real market discipline. It introduces a class of investor in addition to the common shareholders who will monitor the bank’s condition.” 105

According to the IMF:

“The credible threat of losses due to conversion and dilution could help reduce risk taking by managers, shareholders, and bond holders. The threat of heavy dilution should encourage shareholders to require more prudent corporate governance and risk-control procedures within a bank. Similarly, requiring bond holders to bear part of the cost of a future bank recapitalization would enhance their incentive to exercise greater market discipline.” 106

This feature of CoCos has been central to the discussion of why they would be helpful in preventing ‘Too Big To Fail’ bailouts. In words of the FSOC report:

“Issuance of contingent capital instruments in the United States, whether pursuant to a regulatory requirement or done voluntarily by large financial firms, could potentially enhance the safety and soundness of financial companies issuing contingent capital and promote financial stability in the United States, thereby reducing risk to the U.S. taxpayer.” 107

Similarly, Michel and Ligon mention the following:

“The best way to end too big to fail would be for the government to announce credibly that it will not use taxpayer funds to support failing firms. Therefore, by mitigating excessive risk taking, CoCo bonds serve the dual purpose of bringing market discipline to firm managers and, in the event of financial stress, automatically providing new equity capital through the private sector.” 108

Also, according to Flannery, CoCos are expected to “protect taxpayers and solvent banks from bearing the issuer’s losses, and still permit the issuers’ to lend profitably at relatively low rates of interest.” 109

108 Norbert J. Michel and John Ligon.
109 Mark J. Flannery. “Stabilizing Large Financial Institutions with Contingent Capital Certificates.” October 6, 2009, 3
Consequently, CoCos will also have a positive impact in the bank’s moral hazard problem that makes them more prone to take excessive risk decisions:

“(…) we do believe that they [CoCos] would have also a positive impact on reducing moral hazard by changing the behavior of the financial system’s participants. Facing this potential loss of control, existing shareholders will have a greater incentive to spend time and attention monitoring the performance of bank management in order to avoid approaching situations where conversion is imminent. This may help to change the corporate culture of issuers and avoid potential systemic harms (...). These bonds would add to the firm’s risk-bearing capacity in bad states of the world without burdening the firm with tax-inefficient equity financing in the good states.”

From the banks’ perspective, contingent capital may be preferred to equity because it may potentially be cheaper (if the interest expense is tax deductible); and before conversion, it could be a non dilutive source of capital for existing shareholders, so that their issuance does not change corporate control.111

In a nutshell, despite numerous differences in design and specific intent, virtually all versions of CoCos have several properties that are beneficial to a bank and to society. In summary, they reduce the debt overhang problem by automatically raising equity, precisely when is the most difficult. They also give incentives to equity holders to reduce excessive risk taking, since conversion can punish equity owners, by diluting them.

These advantages were of sufficient appeal in the United States for Congress to mandate a study of the characteristics of contingent capital in the Dodd–Frank Act and in the United Kingdom for the Independent Commission on Banking to recommend that banks use contingent capital in their capital structure.112

Various bodies in the European Union have proposed the use of contingent capital instruments. In July 2011, the European Commission proposed implementation of Basel III through the Capital Requirements Directive 4/Capital Requirements Regulation 1. The proposed directive mandates that additional tier 1 capital is to be composed of contingent capital instruments that will be converted into Common Equity Tier 1 capital when its ratio

111 Ceyla Pazarbasioglu, Jianping Zhou, Vanessa Le Leslé and Michael Moore, 7.
falls below 5.125%. In the specific case of Switzerland, Swiss regulators have required additional capital for the country’s systemically important institutions (e.g. Credit Suisse and UBS), stating that it can be issued in the form of contingent capital. This regulation was introduced in 2013. According to this regulation there are three categories of regulatory capital that will sum to 19% of risk-weighted assets: (i) basic requirement capital (4.5% Capital Tier 1), (ii) buffer capital (8.5% Capital Tier 1 or high trigger CoCos); and (iii) progressive component capital (up to 6% low trigger CoCos only).

CoCos issuances have risen strongly year-on-year since the first CoCos were issued in November 2009. More than 20 European banks have so far issued CoCos. British and Swiss banks have issued the majority bunk of CoCos. In 2013 banks from Denmark, Germany, France, Italy and Spain issued CoCos to raise capital. The total volume of CoCo issuances reached a record level of €28 billion in the first half of 2014.

“Issuance of CoCos has been encouraged by regulators in a number of jurisdictions and CoCos have been incorporated in regulatory capital requirements in some of these jurisdictions. This is still a relatively small market segment, but it has been growing rapidly in recent years. Between January of 2009 and September 2015 banks around the world have issued a total amount of $450 billion in CoCos through 519 different issues.”

There was record issuance of CoCo bonds in 2015, with 160 CoCo bond launches globally, up from 109 in 2014, according to data from Dealogic. Data suggests that that contingent capital instruments have gained increasing support as a potential option to increase capital requirements, while stabilizing the financial market.

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114 A maximum 3% of the 8.5% buffer may be high-trigger CoCos.
How would a CoCo requirement have worked in the recent crisis? According to Calomiris, “if the proposed CoCos requirement had been in place, banks would have restored much more of their lost capital long before the collapse of September 2008.”

In words of the Shadow Financial Regulatory Committee:

“All of the six large US financial institutions that failed, required massive intervention, or were forced into mergers would have triggered the CoCo conversion requirement several months or even years before they required intervention. (…) But even if they did not achieve a sufficient recapitalization or restructuring, triggering the CoCo would provide them with roughly double the amount of equity capital and new shareholders who would undoubtedly demand significant changes.”

Similarly, as stated by Dudley, President of the New York Federal Reserve:

“Consider the advantages that such an instrument would have had during this crisis. Rather than banks clumsily evaluating whether to cut dividends, raise common equity and/or conduct exchanges of common equity for preferred shares and market participants uncertain about the willingness and ability of firms to complete such transactions and successfully raise new capital, contingent capital would have been converted automatically into common equity when market triggers were hit.”

Notwithstanding the above, there is a consensus among the academics and economists that CoCos are complex instruments with a number of points requiring attention.

There is no unanimity regarding the best-structured CoCos. On the contrary, numerous forms of CoCos have been proposed and they all differ with respect to at least four key

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features: the amount a bank should be required to issue, the trigger for conversion, the amount converted when the trigger is crossed and the price at which CoCos are converted into equity.

However, independently of the prefer structure chosen, general concerns have been raised about their operational aspects and implications for market dynamics. For example, a report made by the New York Federal Reserve suggests that a conversion could have negative signaling effects, lead to contagion, and be subject to price manipulation.122

Even though many banks have issue CoCos, none of these instruments have been triggered. Therefore, CoCos remain largely untested and could have unintended consequences, particularly in times of high market volatility and uncertainty.123

**Market-valued trigger**

According to the New York Federal Reserve, the trigger for the conversion from debt to equity is perhaps the most important and controversial parameter in contingent capital.124

Policy makers and academics have proposed many types of mechanisms that would trigger CoCos, including macroeconomic triggers established by regulators, firm-specific triggers based on market information and firm-specific triggers based on regulatory or accounting information.125

Most contingent capital issued places the mandatory conversion trigger on accounting ratios. For example, Lloyds, Rabobank and Barclays have issued CoCos that are converted if there are specific reductions in consolidated core Tier 1 Capital ratios. The Lloyds issue converts into ordinary shares if the consolidated core Tier 1 ratio falls below 5% and the Rabobank and Barclays issues are written down when their regulatory capital falls below 7%.

However, setting a trigger on accounting ratios gives the management an opportunity for manipulation and the potential political pressure and concern about false alarms may prevent regulators from timely action. Moreover, the accounting ratios of many troubled bank

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123 Ceyla Pazarbasioglu, Jianping Zhou, Vanessa Le Leslé, and Michael Moore, 6.
124 Suresh Sundaresan and Zhenyu Wang, 2.
banks in the recent financial crisis did not provide any warning signals prior to the onset of the crisis.\footnote{126 Suresh Sundaresan and Zhenyu Wang, 3.}

Therefore, market-based triggers, as proposed in this policy memo, have been put forward as better-suited triggers, since these are forward looking and harder to manipulate.\footnote{127 Kjell Bjørn Nordal and Nicolas Stefano, 6.}

The firm-specific market-based contingent capital trigger mechanisms would typically rely on information derived from public share prices, debt prices, or credit default swap premiums to assess the issuer’s current and prospective financial condition. A trigger could be based on one or more of these indicators.\footnote{128 Financial Stability Oversight Council. “Report to Congress…” 13.}

As mentioned by Bishop et. al.:

“(...) the clearly defined trigger eliminates management discretion during a conversion. This avoids many of the problems, from a regulatory point of view, that hybrid bonds faced during the last crisis. No longer will management be able to delay conversion in the hopes that the government will provide assistance.”\footnote{129 David Bishop et. al., 3-4.}

Market-based trigger prices are forward looking, because they depend on the expectations of traders about conversions. Furthermore, implementation of this type of trigger is less susceptible to political pressures since prices are generally publicly observed.\footnote{130 Douglas Davis, Oleg Korenok and Edward Simpson Prescott, 1000.}

For these reasons and others, a group of academics advocate the use of a market price trigger. This position has been principally supported by Flannery, Calomiris and Herring, and McDonald.

However, the small theoretical literature on using market prices as a trigger, since there is no financial market evidence on this type of trigger, finds its own set of problems.

Some argue that market-based trigger can cause an institution to be forced to issue additional common stock and dilute existing shareholders based on circumstances such as a drop in the company’s share price, even if the company’s regulator determines that it is in sound condition. For example, a situation such as the October 1987 stock price drop could trigger conversions even though issuers are in strong financial condition.\footnote{131 Financial Stability Oversight Council. “Report to Congress…” 13.}
In addition, according to Sundaresan and Wang, there is a potential for manipulation around the market-based trigger because the forces of supply and demand do not cause the market to converge to a unique equilibrium:

“In the case of multiple equilibria, we note that incentives of CoCos holders are aligned towards the equilibrium with early conversion, whereas the incentives of equity holders are aligned towards the equilibrium that delays or avoids conversion. (...) The lack of unique equilibrium means contingent capital does not fit into the basic economic theory to promise a stable market price and efficient capital allocation. (...) The incentives of CC and equity holders towards the different equilibria may cause them to attempt market manipulation.”

This is also claimed by the Squam Lake Working Group who expresses reservations about this security design feature, noting that “conversions based on market values, however, can create opportunities for manipulation. Bondholders might try to push the stock price down by shorting the stock, for example, so they would receive a larger slice of the equity in the conversion.”

Therefore, the Squam Lake Working Group recommends that a bank’s hybrid securities should convert from debt to equity only if two conditions are met. The first requirement is a declaration by the systemic regulator that the financial system is suffering from a systemic crisis. The second is a violation by the bank of covenants in the hybrid security contract.

Even more, according to Flannery, one of the main advocates of market-based triggers, CoCos would be subject to market manipulation caused by short selling: “A speculator could purchase some CCC, short the stock, and receive under-valued shares when the conversion trigger was tripped. If short sales could force a solvent firm’s share price to zero, CCC might destabilize financial firms rather than stabilizing them.”

Similarly, other advocates of this type of trigger, Calomiris and Herring, acknowledge that market prices may be unreliable measures of true value due to the susceptibility of market manipulation: “Declining equity values are reliable only as rough measures of a

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132 Suresh Sundaresan and Zhenyu Wang, 5.
SIFI’s health if the declines are sufficiently large and persistent—and even in such cases, stock price declines offer only a rough indication of the actual extent of the deterioration of the firm’s financial health.”

However, according to these economists, to overcome this issue they recommend using a 90-day moving average of the ratio of the market value of equity to the sum of the market value of equity and the face value of debt. They call this ratio the quasi-market-value-of-equity ratio (QMVER).

Taking into consideration the characteristics of the recent crisis, 90 days offer plenty of time for policymakers to respond to low-frequency disruptions and also plenty of time for banks to respond to declines in equity value by raising new equity in the market.

Finally, Flannery suggests the following measures in order to overcome market manipulation:

- Make the trigger depend on an average of 5 or 10 consecutive days’ share prices, so short sellers would have to maintain their positions for a longer period of time.
- Select which contingent capital bond to convert by lottery, so a short-seller could not be sure that he owned bonds that would actually convert.
- Change the law to forbid firms with an interest in CoCos from selling the underlying common stock short.

CoCos conversion rate

Another important consideration would be the conversion rate, which determines the burden sharing between shareholders and bondholders.

For CoCos with a conversion to equity loss absorption mechanism, the conversion rate can be based on (i) the market price of the stock at the time the trigger is breached (based on the par value of the instrument divided by the share price at the time of conversion); (ii) a pre-
specified price (often the stock price at the time of issuance); or (iii) a combination of (i) and (ii). 140

“The first option could lead to substantial dilution of existing equity holders as the stock price is likely to be very low at the time the loss absorption mechanism is activated. But this potential for dilution would also increase the incentives for existing equity holders to avoid a breach of the trigger. By contrast, basing the conversion rate on a pre-specified price would limit the dilution of existing shareholders, but also probably decrease their incentives to avoid the trigger being breached. Finally, setting the conversion rate equal to the stock price at the time of conversion, subject to a pre-specified price floor, preserves the incentives for existing equity holders to avoid a breach of the trigger, while preventing unlimited dilution.”141

Many have argue that it is essential for the efficacy of CoCos that investors and the market know the maximum number of common shares issuable upon conversion of a contingent capital instrument, for two main reasons.

First, the conversion feature of converting such instruments into common equity may limit the pool of potential investors. For example, there could be legal or contractual restrictions on certain investors’ holdings of common shares of the issuing institution. Some investors could be subject to contractual investment limits that would restrict the amount of common shares they could hold in a single institution or multiple institutions in the same industry. Other institutions could be prevented by regulation to own more than a specified amount of this type of contingent capital because of its potential to convert into common equity.142

Second, without a maximum conversion ration there is also a risk that short sellers and arbitrage investors could create excessive downward pressure on the issuer’s common stock price as the firm approaches a trigger event, resulting in so-called ‘death spirals’ (very sharp and continuous decline in share prices) and infinite dilution. Without a maximum conversion ratio of common shares, or a cap on the aggregate number of shares issued upon conversion, there could be an uncertain dilution of existing shareholders as a firm’s financial condition deteriorates.143

140 Ceyla Pazarbasioglu, Jianping Zhou, Vanessa Le Leslé and Michael Moore, 11.
141 Stefan Avdjiev, Anastasia Kartasheva and Bilyana Bogdanova, 46.
If the share price is reduced by short sales, a speculator might force conversion of his CoCo bond at an advantageous (temporarily low) price, yielding a capital gain on the converted shares when the short sales are reversed.

Considering the risks above mentioned, the Squam Lake Working Group prefer a fixed, pre-specified conversion price. There are at least two advantages of such an approach:\(^\text{144}\):

- The number of shares to be issued in a conversion would be fixed, so death spirals are not a problem.
- Although management might consider triggering conversion (for example, by acquiring a large number of risky assets) to avoid a payment on the debt, this would not be optimal unless the stock price was so low that the shares to be issued were worth less than the bond payment. Therefore, management will always have the incentive to induce conversion only when the bank is struggling.

Consequently, according to the Squam Lake Working Group, CoCos with a market-valued trigger and a fixed conversion price could effectively recapitalize over-leveraged firms.

However, according to Flannery, the fixed conversion price adds an element of equity risk and uncertainty to CoCos returns:

"A high conversion price might give shareholders an incentive to induce conversion as a means of selling equity cheaply. A low conversion price would make bondholders eager to bid down share prices (if possible) to trigger conversion. Such strategic considerations are unrelated to the firm’s credit condition and add nothing to the regulatory goal of stabilizing under-capitalized financial firms."\(^\text{145}\)

Finally, as stated by the FSOC, in order to address these market manipulation and death.spiRAL concerns, CoCos could be structured with either of the following conversion ratios:\(^\text{146}\):

- Conversion ratio fixed \textit{ex ante}. For example, the holders of the contingent capital instrument would receive the face value of their contingent capital instruments in shares priced at X, where X is specified in the terms of the contingent capital instrument.

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\(^{144}\) Squam Lake Working Group on Financial Regulation, 5.

\(^{145}\) Mark J. Flannery, 14.

Conversion ratio determined \textit{ex post} by a formula to be applied at the time of conversion. For example, the holders of CoCos would receive the face value of their CoCos in shares priced at X, where X is calculated according to the behavior of the share price of the issuer’s common equity during a predetermined time period prior to the activation of the trigger.

Alternatively, in order for market participants to determine the maximum dilution that could occur upon conversion, the FSOC suggests that it could be established a predetermined floor on the conversion price or cap on the number of shares issuable to CoCos holders upon conversion.\textsuperscript{147}

\textbf{Rating CoCos}

According to a report made by the Basel Committee, one of the main reasons of why the issuance of CoCos is still a young market is the absence of a complete set of credit ratings for these instruments. This is a huge obstacle for some institutions interested in investing on CoCos but that are not permitted to hold unrated securities.

According to this report, there are three factors that have influenced in the credit rating agencies’ reluctance to rate CoCos: (i) the heterogeneity in the regulatory treatment of CoCos across jurisdictions hinders the creation of consistent rating methodologies; (ii) credit rating agencies are concerned that certain high-trigger CoCos have the potential to invert the traditional hierarchy of investors; and (iii) the existence of discretionary triggers creates valuation uncertainty, which further complicates the ratings process.\textsuperscript{148}

According to Calomiris and Herring, how a CoCo trigger is defined and structured will also affect the interest of the credit agencies to rate a determined CoCo. For instance, some ratings agencies have refuse to rate CoCos in which the conversion is contingent upon the decision of a regulator or of bank management.\textsuperscript{149}

\textsuperscript{147} Financial Stability Oversight Council. “Report to Congress...” 11.
\textsuperscript{148} Stefan Avdjiev, Anastasia Kartasheva and Bilyana Bogdanova, 50.
\textsuperscript{149} Charles W. Calomiris and Richard J. Herring, 46.
As of 2013, more than half of all CoCos were unrated. Only Standard & Poor’s and Fitch rated some CoCos. Moody’s did not rate them until May 2013, when it started rating some low-trigger CoCos.\textsuperscript{150}

On the other hand, some regulators require some institutions to invest only in securities that have been awarded a particular grade. This could be a problem also since rating agencies perceive CoCos as inherently risky because of the difficulty of: predicting triggering events; measuring losses the debt holder would suffer as a result of that trigger; assessing the ability of CoCos to absorb losses; and determining how CoCos will be treated in the regulatory framework.\textsuperscript{151}

\textit{Tax implications}

Most supporters of CoCos argue that contingent capital is a cheaper substitute of equity because the bond’s coupon payments qualify for tax deduction, whereas dividend payments are not.

However, in the particular case of the U.S., tax law includes certain limitations on the ability of a corporation to deduct interest on debt that is payable in equity and limitations on the rules restricting a corporation’s use of its tax losses following an ownership change, either of which could limit the viability of a contingent capital instrument.

According to Revenue Rule 85-119, the feature of paying back the par value at maturity, if a CoCo is not converted, appears to make CoCo a debt for tax purpose.

However, the coupon payments are not tax deductible according to Section 163(l) of the Internal Revenue Codes. A security is a disqualified debt instrument if (i) a substantial amount of the principal and interest of the security is required to be paid in or converted into the equity of the issuer, (ii) a substantial amount of the principal or interest is required to be determined by reference to the value of such equity, or (iii) the indebtedness is part of an

\textsuperscript{150} Stefan Avdjiev, Anastasia Kartasheva and Bilyana Bogdanova, 50.
\textsuperscript{151} David Bishop, Ethan Zaofei Liu, Patrick Murray and Téa Solomonia, 2.
arrangement which is reasonably expected to result in a transaction described in (i) or (i).\textsuperscript{152}

Considering the above, contingent capital is not tax deductible in the U.S. unless the U.S. government changes its tax codes to exempt CoCos particularly.

\textit{Interconnectedness among issuers and systemic risk}

Finally, some researchers argue that due to the diversity of characteristics and the ongoing international efforts regarding contingent capital, it is premature to determine the potential effects on the international competitiveness of companies subject to a contingent capital requirement. Contingent capital instruments could further interconnect the banking and nonbank sectors, and the European and U.S. financial systems.\textsuperscript{153}

Financial institutions may hold CoCos issued by other financial institutions, and such cross-holdings may create systemic risk, which may have a negative impact on the system’s capacity to absorb losses.\textsuperscript{154}

However, according to the Basel Committee report, the bulk of the demand for CoCos has come from retail investors and small private banks. Large institutional investors have been relatively timid so far.\textsuperscript{155}

According to a Dealogic study, small banks and retail investors were responsible for 52\% of the total demand in the sample. Asset management companies accounted for another 27\%. The remainder is split among hedge funds (9\%), banks (3\%) and insurers (3\%).\textsuperscript{156}

This observation points to the fact that the loss absorption is not transferred to other large financial institutions (SIFIs). The retail public is carrying the majority of this risk.\textsuperscript{157}

\textsuperscript{152} Suresh Sundaresan and Zhenyu Wang, 36.
\textsuperscript{154} Enrico Perotti and Mark Flannery, “CoCo design as a risk preventive tool,” Voxeu Article.
\textsuperscript{155} Stefan Avdjiev, Anastasia Kartasheva and Bilyana Bogdanova, 49.
\textsuperscript{156} Stefan Avdjiev, Anastasia Kartasheva and Bilyana Bogdanova, 50.
VII. POLITICAL ANALYSIS

According to the FSOC, the issuance of CoCos as part of capital requirement of the largest banks could be required by the federal banking agencies, which have broad authority to set regulatory capital requirements.

This is authorized by the Dodd-Frank Act, under which Federal Reserve is granted with broad authority to establish various regulatory capital requirements, including the establishment of contingent capital.158

Therefore, the issuance of CoCos as a new capital requirement could be accomplished through special rulemakings in charge of the federal banking agencies.159

Considering the above, an important issue to be taken into account is the opinion of the federal agencies regarding this innovative financial instrument. Not only because the first step to implementing CoCos is the approval of the federal agencies, but also because it would be important for such agencies to have flexibility to be able to modify the relevant rules on an ongoing basis in response to developments in the financial system.

Federal banking agencies

There had been publicly made opinions by the presidents of the Federal Reserve regarding the issuance of CoCos. Immediately after the financial crisis, the Federal Reserve was mainly in favor of imposing CoCos. Conversely, in the last couple of years, such position has been reversed.

On 2009, William Dudley, president of the New York Federal Reserve Bank, stated that the Federal Reserve was extremely interested in the idea of having CoCos as capital requirement:

"Such instruments [contingent capital] could have reduced the likelihood of failure of large, systemically important institutions, reducing the significance of the 'too big to fail' problem and its associated moral hazard problems (...). If these contingent capital

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158 Section 165 (b)(1)(B) of the Dodd-Frank Act authorizes the Board to establish additional prudential standards for G-SIBs, including a contingent capital requirement.
buffers were large (...) then the worst aspects of the banking crisis might have been averted.”

Similarly, on 2010, Eric Rosengren, president of the Boston Federal Reserve Bank, mentioned that he strongly endorses the idea of requiring banks to hold debt that converts into equity during times of stress: “Contingent capital is an important part of the solution.”

Finally, on 2013, Charles I. Plosser, President of the Philadelphia Federal Reserve Bank, has also provided his support to CoCos, which, according to him, it might be a simpler and less costly approach to increase capital requirements.

Conversely, on 2011, Daniel Tarullo, a Federal Reserve Governor, has argued that it is unclear that contingent capital can be designed in a way so as to be cheaper than equity but still structured so as to convert in a timely, reliable fashion.

However, a recent fact has raised more doubts regarding the effectiveness of CoCos, which have looked less secure lately. Even though in 2015 investors owning European bank CoCos earned a return of nearly 7%, while high-grade Eurozone corporate debt produced a negative return; on February 2016 CoCos fell dramatically. A CoCo issued by Deutsche Bank fell to 70% of par value. Deutsche Bank’s CoCo recovered to 87% of par value on March, but they’ve since fallen back to 82%.

Yet, it is important to notice that the concern is about Deutsche not being able to pay the coupon on CoCos, rather than about them hitting the trigger.

Due to such events, opinions regarding this new financial instrument have changed. For instance, the Federal Reserve Bank of Minneapolis’s new president, Neel Kashkari, has raised

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163 Suresh Sundaresan and Zhenyu Wang. 37.
166 Dominic Elliott. “Bank CoCos deserve all the Brickbats”.
his doubts about the effectiveness of CoCos:

"My big risk or my big concern about the whole notion of contingent capital, whether it’s those things or it’s the TLACs [total loss-absorbing capacity requirement], when I first heard about them, I said, OK, this sounds like a clever idea, but it doesn’t really solve the contingent issue because if you’re in. (...) And so I think we are learning that some of these elegantly designed tools in stressed economic environments may not work out as elegantly as we think."168

Additionally, this position has been reinforced by reports prepared by public agencies. For instance, the Federal Reserve of New York have raised many problems regarding the effectiveness of CoCos, such as the uncertainty about whether CoCos will convert to equity in a timely fashion, the propensity for manipulation around the trigger, among others.169

Similarly, the FSOC issued a report under which they recommend that contingent capital instruments remain an area for continued private sector innovation and encourages the Federal Reserve and other regulators to continue to study the advantages and disadvantages of contingent capital.170

**General Popularity**

Considering that CoCos have gained increasing support as a potential option to reduce the need for public bail-outs, it should be taken into account the poll made by Harris Interactive regarding the Americans’ impression to the bailout made by the Government in the last recession.

A 2012 poll made by Harris Interactive found that just 23% of Americans think bailing out the banks in the crisis helped the economy, and even fewer, just 15%, think bailing out insurance companies helped. Additionally, the appetite for future bailouts is almost

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169 Suresh Sundaresan and Zhenyu Wang, 39.
universally gone, with 84% of respondents opposing another bank bailout, 86% opposing another insurance-company bailout and 70% opposing another automobile bailout.171

The disgust is bipartisan, with 87% of Republicans and Independents opposing future bank bailouts, along with 81% of Democrats.

Beyond the results of the polls, there has been a wide understanding that the last bailout was not supported by the vast majority of the U.S. “Americans were angry when Wall Street’s greedy and risky behavior triggered a global financial crisis in 2008. They were angrier still when the government had to borrow and spend hundreds of billions of dollars to rescue mortgage giants Fannie Mae and Freddie Mac, the largest banks and the insurance company AIG.”172

Finally, according to a Pew Institute poll, despite the federal government’s efforts to regulate the financial industry, Americans do not believe our economic system is more secure than it was before the financial crisis. In a Pew poll from February 2015, 63% said the U.S. economic system is no more secure today than it was before the 2008 economic crisis.173

VIII. RECOMMENDATION

Based on all the evidence and arguments provided in the present memorandum, the implementation of CoCos in the U.S. market should be considered as a long-term measure; adopted in two-phases.

In the first phase, regulators should allow, not force174, G-SIBs to issue CoCos as part of the usual capital requirements, with determined low caps. The issuance of CoCos should

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174 The UK and Swiss regulators have opt to include the issuance of CoCos as mandatory for the largest banks.
not be considered as a substitute of Tier 1 capital, but as part of an additional loss absorbency requirement mandatory to G-SIBs, such as the surcharge and the special capital account.\textsuperscript{175}

However, there is a high possibility that U.S. banks could be not interested on issuing CoCos yet, as they will want to wait for the regulator to confirm that the interest paid on the instruments will be tax-deductible, one of their key features.

The second phase will depend entirely on the results of the first phase, which could be twofold. If the results of the studies based on the experience from the first phase are favorable to the market, the second phase will be destined on evaluating a new structure of capital requirements under which the issuance of CoCos could be higher or even mandatory for the largest banks. In this case, a tax reform should be evaluated in order to make contingent capital tax deductible in the U.S.

Otherwise, if the experience demonstrates that CoCos are dangerous tools for the market and are not attractive for the U.S. banks, which prefer issuing common equity or other liquid assets instead, the issuance of CoCos as part of capital should be eliminated.

This recommendation is based considering the inclination by the regulators to keep increasing the capital requirements for the largest banks since it is considered as a legitimate mechanism to end the ‘Too Big To Fail’. CoCos could be used to meet these additional loss absorbency requirements, since it would be a better and more costly efficient alternative to raise capital.

Moreover considering that U.S. regulators demand, and U.S. banks generally attempt to maintain, capital levels in excess of those required to be well capitalized\textsuperscript{176}, CoCos could be an alternative for banks to over reach the regulators’ expectations and send sound signals to the market. However, the permission to issue CoCos should be in accordance with some


\textsuperscript{176} Andrew R. Gladin, Joseph A. Hearn and Stephen M. Salley, 61.
requirements, including a maximum amount of CoCos permitted by each institution, in order to avoid any unexpected risks that could affect the entire market.

As mentioned above, contingent capital may be a step towards reducing failures of large banks, while avoiding the so unpopular practice of bail-outs. Specifically due to this feature, there should not be great political opposition to their implementation. On the contrary, it is expected to have a great support from the majority of Americans.

However, in the United States experience with similar instruments is quite limited and, as discussed above, there are a range of potential issues that could be associated with contingent capital instruments.

In particular, problems such as price manipulation, multiplicity of equilibria, and incentive issues must be addressed first before making it mandatory. It remains the case that CoCos’ convertibility has yet to be tested.

No solution to end the ‘Too Big To Fail’, including CoCos, is perfect, and there are many additional reforms worth considering. Other complementary reforms of prudential regulatory standards are as important as high capital requirements, such as resolution authority, risk management and general corporate governance practices. Many of them are also new, and yet to be tested when the next financial crisis arrives (e.g. resolution authority, living wills).

However, considering that these instruments are untested and there is a widely market uncertainty of its performance under a crisis scenario, the implementation of CoCos in the U.S. market should be considered as a measure to be cautiously implemented and meant to work in the long run.

To sum up, the regulation of CoCos will allow firms to decide on the best funding mix of the surcharge, and any other additional capital requirements or an extra margin of safety that regulators seem essential, without altering the most liquid ratio of the capital.

Permitting the issuance of CoCos not as part of the most liquid Tier 1 and having an initial low cap of CoCos will avoid any systemic failure of these instruments and any market manipulation that could affect the solvency of a bank in any future financial crisis.
But more importantly, it will allow the private sector to innovate in CoCos, which was one the recommendations of the FSOC. The study of CoCos in a practical and real scenario could provide policy makers with new evidence of its effectiveness and tools to avoid market manipulation.

If the evidence proves that the benefits outweigh the disadvantages, CoCos would be a real policy that could finally convince Americans, taxpayers and banking industry, that government’s bailouts are history. And this should be enough to keep vigilantly examining CoCos’ performance in the U.S. market.
Curriculum Vitae

Jill Khoury was born in Lima, Peru in November 1986. She holds a Law degree from Pontificia Universidad Catolica del Peru (Lima, Peru), graduating with Magna Cum Laude honors in 2011. She has previous professional experience as a corporate and banking attorney of an international Law Firm and as an analyst of financial inclusion policies in a state-owned bank. Jill has a very strong interest in pursuing a career on the economic development sector.