Banks have significant incentives to reduce their required regulatory capital by transferring credit risk to third parties. But public data needed to analyze such activities are scant. One exception is that banks now report the use of credit derivatives for regulatory capital relief. This activity recently totaled $38 billion in notional value for 18 banks. The authors find the median bank engaging in these transactions could have improved its risk-based capital ratio by 8 to 38 basis points, and one by as much as 388 basis points. However, this analysis is incomplete, relying on just one vehicle for measurement, and more data are needed.

Banks invented credit derivatives two decades ago to transfer credit risk on their portfolios to third parties. While the reported use of credit default swaps (CDS) for regulatory capital relief is small compared to the total credit derivatives market, this brief argues that it can be material for some banks’ regulatory capital.

Capital relief transactions may have benefits to banks. But, even if real risk transfer is involved, these transactions can pose financial stability concerns by increasing interconnectedness, transforming credit risk into counterparty risk, and obscuring capital adequacy to investors and counterparties. And while bank supervisors have extensive data about banks, they may have less information about the nonbanks who are selling credit risk to those banks and ultimately bearing the risk of loss.

The financial crisis illustrated the potential dangers. When American International Group, Inc. (AIG) came under stress in 2008, European banks faced losing some of the $290 billion in CDS protection they had purchased from the company for regulatory capital relief. The Federal Reserve Bank of New York considered those exposures in its analysis of the potential systemic impact of an AIG bankruptcy before deciding to assist the company. Despite efforts on the part of industry and the regulatory community since the financial crisis to increase the use of central clearing of OTC derivatives, including credit derivatives, a material share of credit default swaps and other credit derivatives still are not centrally cleared due to their origination pre-crisis, ongoing lack of contract standardization, and other factors. However, even in a world where credit derivatives used to obtain capital relief were all subject to central clearing, interconnectedness concerns would remain.

In the Basel III reforms, international bank regulators sought to restore confidence in regulatory capital measures by penalizing securitizations at the core of the crisis, dramatically increasing the capital requirements associated with some securitization tranches. Basel III also increased banks’ capital requirements for exposures to other financial firms, presumably to reduce interconnectedness. But regulatory capital relief is still allowed for banks that obtain credit protection through CDS, total return swaps, and eligible guarantees. Research on this important topic is limited. Banks do not report enough information about these types of transactions for market participants, most notably

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investors and counterparties, to analyze their impact on banks’ regulatory capital. U.S. bank regulators revised banks’ regulatory reporting forms in 2009 to include more information about the notional value of their credit derivative exposures, including their use for capital relief. However, this information does not include the impact of these transactions on risk-weighted assets or risk-based capital and includes only credit derivatives, not guarantees or synthetic securitizations which can also provide capital relief to banks.

This OFR brief uses these partial data to estimate how much capital relief banks now obtain from credit derivatives. We also note that little can be discerned from confidential CDS transaction data about these transactions. More data are needed about these and other types of regulatory capital relief trades for investors and counterparties to monitor and analyze their potential risks.

**Regulatory Capital Relief**

Regulatory capital is the amount of capital a bank is required to hold to protect it from potential losses. U.S. banking supervisors allow financial institutions to calculate their regulatory capital with a risk-based formula that requires holding more capital for risky assets and loans and less capital for relatively safe assets, such as excess reserves at the central bank or Treasury bills.

One measurement of a bank's regulatory capital cushion is its risk-based capital ratio, which is calculated by dividing a bank's regulatory capital by its risk-weighted assets. A bank can improve that ratio by purchasing credit protection to reduce its risk-weighted assets.

To see how a bank can structure regulatory capital relief, let’s look at a hypothetical bank required to hold capital equal to 8 percent of its total risk-weighted assets. A relatively safe asset held by a bank might be assigned a 100 percent risk weight, requiring 8 cents of capital for every dollar of the asset. A more risky loan is assigned a 750 percent risk weight, requiring 60 cents of capital for every dollar of the asset. A bank’s riskiest assets are assigned a 1,250 percent risk weight, requiring one dollar of capital to back every dollar of the asset (8 percent times 1,250 percent = 100 percent).

The same bank can reduce its regulatory capital by purchasing credit protection. For example, suppose that the bank wants to reduce the $60 of regulatory capital it must hold against a specific $100 loan that has a 750 percent risk weight. The bank buys CDS protection from a hedge fund for the full value of the $100 loan. That transaction allows the bank to substitute the 750 percent risk weight on the loan with a lower 100 percent risk weight assigned to the counterparty credit risk of the hedge fund that sold the credit protection. The difference in the risk weighting means the bank now must hold only $8 in regulatory capital against the same $100 loan.

In a more complex example, the same bank reduces its risk-weighted assets by buying first-loss credit protection on a pool of loans. A private equity fund sells the bank CDS protection on first-loss credit risk, which means the CDS seller starts to bear loan losses as they accrue up to a contracted cut-off point. Under this example, the bank can reduce its risk-weighted assets more than the notional size of the CDS would suggest. Specifically, the notional amount of first-loss CDS protection covers a loan pool of a much larger notional size.

**Credit risk shifting under Basel III**

The Basel III accord was finalized by the Basel Committee on Banking Supervision (BCBS) in 2011 and is now being implemented in the United States. Basel III increases capital requirements, significantly boosts risk weightings on securitizations, and makes capital requirements for all securitizations more risk-sensitive.

However, the BCBS has expressed concerns that higher capital requirements on some securitizations may have strengthened incentives for banks to engage in regulatory capital relief transactions with nonbanks, similar to the regulatory relief trades that non-U.S. banks entered into with AIG before the crisis. In a 2013 consultative paper, the BCBS noted that “arbitrage opportunities are more likely to occur when credit risk mitigation techniques are used for securitization [emphasis added], where the difference in risk weight before and after buying the protection can be very large.” The BCBS also noted the high cost of these transactions could result in lower earnings for banks in the long run because the cost of protection over time is equal to or greater than the asset exposure.

Capital rules can incentivize credit risk transfer in other ways. The final U.S. capital rule allows smaller, less complex banks to use a set of standardized risk weights for assets defined by regulators to simplify compliance. Larger banks may determine their own capital requirements based on internal ratings-based (IRB) models that are reviewed by regulators, which is known as the advanced approach. The Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) requires the standardized approach to serve as the floor for all U.S.
banks’ risk-based capital requirements. \(^{11}\) The difference between the standardized and advanced calculations of banks’ capital requirements could create different motivations among banks with respect to capital relief. For example, a large bank using the IRB approach might have an incentive to use credit risk mitigation if its internal models suggest a higher risk weight for a specific exposure than the floor set by the standardized approach. \(^{12}\)

The final U.S. capital rule implementing Basel III maintains the original risk-weight substitution approach that allows eligible credit derivatives to be used for capital relief. \(^{13}\) The rule defines eligible credit derivatives to include CDS, total return swaps, and Nth-to-default swaps. Guarantees remain eligible for credit risk mitigation as well. The rule expands the range of eligible guarantors or counterparties (see Figure 1). Eligible guarantors cannot be a special purpose vehicle or monoline insurer and must have issued investment-grade unsecured debt without credit enhancement.

Other forms of capital relief, such as synthetic securitization, are also permissible under the capital rule but are not explored due to the absence of public data. Synthetic securitizations refer to the transfer of trancheted credit risk to an underlying credit exposure by means of a derivative or a guarantee from a special purpose vehicle that has sold notes to investors. Unfortunately, there are no public data to quantify the amount of capital relief banks receive from synthetic securitizations. Survey data from a 2012 industry comment letter on a Securities and Exchange Commission rule-making suggest that such transactions are large, at $183 billion notional outstanding, and that 20 of the 35 respondents to the survey are likely to execute further synthetic securitizations during the next three years. \(^{14}\) These transactions are also commonly referred to as capital relief trades but are not the subject of this brief.

Despite limited public data, post crisis, there is reason to believe banks continue to use credit derivatives for capital relief. JPMorgan Chase & Co.’s losses in the 2012 London Whale case were the result of CDS usage which was undertaken to obtain regulatory capital relief on positions in the trading book. \(^{15}\) SEC staff said in early 2015 they were evaluating potential transactions at other banks akin to those that resulted in JPMorgan’s losses. Additionally, banking regulators have observed that banks’ use of high-cost credit protection could only be economically viable if the cost of the risk weights on the asset in question were high. Specifically, the Federal Reserve said in a 2011 supervisory letter that regulators would scrutinize high-cost transactions and could disallow favorable regulatory capital treatment in some cases. \(^{16}\)

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**Figure 1: Mechanisms and Counterparties Eligible to Provide Regulatory Capital Relief to Banks**

- **Private sector entities not subject to capital requirements**
- **Source:** OFR analysis of regulatory capital rule published October 11, 2013, by the Office of the Comptroller of the Currency and the Board of Governors of the Federal Reserve System.
Estimating the Impact on Banks’ Risk-Weighted Assets

U.S. bank holding companies and foreign banking organizations with banking subsidiaries domiciled in the United States submit to the Federal Reserve a quarterly Form Y-9C with detailed information about their balance sheets, income statements, capital positions, and regulatory requirements. Schedule HC-L of Form Y-9C focuses on derivatives and other off-balance sheet items.

On Schedule HC-L, banks are now required to report the notional amount of credit derivatives that can be characterized as “purchased [credit] protection that is recognized … for regulatory capital purposes.” This reflects the degree to which banks are using credit derivatives for regulatory relief, but does not reveal the impact of those activities on regulatory capital. In the fourth quarter of 2014, 18 banks reported a non-zero amount for this item.

To be clear, without knowing the initial risk weights of the underlying exposures and the risk weight of the counterparty, it is not possible to know exactly how much capital relief a bank is achieving by reducing its risk-weighted assets. Additionally, banks can obtain regulatory capital relief through the use of guarantees, which banks do not report.

In this section, we seek to estimate the capital relief that banks achieved through credit derivatives. We make assumptions about initial and final risk weightings for the assets on which a bank bought credit protection. In the interest of being conservative, we assume the bank did not obtain more complex tranched credit protection on a pool of loans which could result in even greater reduction in risk-weighted assets. Over the entire sample period, 31 unique banks obtained capital relief through their use of credit derivatives.

We assume:

- The reported amount on Schedule HC-L represents the face value of the underlying assets in each capital relief trade (i.e., our calculations assume that the bank didn’t obtain tranched credit protection from the seller).

- A bank applies a 100 percent risk weight to the position after obtaining capital relief, reflecting the risk weight for any financial counterparty under the standardized approach in the U.S. final capital rule.

- The risk weight of the underlying assets prior to the regulatory capital relief transaction was between 300
percent and 1,000 percent; presumably, banks would only enter into these transactions (which entail a cost equivalent to the CDS spread) if they were able to obtain material capital relief.

We used these assumptions to estimate each bank’s reduction in risk-weighted assets as a result of its regulatory capital relief trades. We then added back the estimated reduction in risk-weighted assets to re-estimate each bank’s risk-based capital ratio.

The results suggest that credit protection can result in a meaningful reduction in these banks’ risk-weighted assets and improvement in reported regulatory capital ratios (see Figure 2).

In Figure 2, the upper bound of the shaded range represents the percent reduction in risk-weighted assets if the underlying exposures have an initial risk weighting of 1,000 percent, while the lower bound assumes a 300 percent initial risk weight. In Q2 2009, the first quarter for which data are available, 13 banks purchased approximately $70 billion in notional credit protection. Those banks together reported approximately $5.5 trillion in risk-weighted assets. Depending on the initial risk weights of the underlying exposures, the aggregate risk-weighted assets could have been $140 billion to $630 billion higher without the use of that credit protection which translates into an estimated reduction in total risk-weighted assets of 2.5 to 10.3 percent for these banks.

In Q2 2012, 14 banks reported using credit protection to obtain capital relief. Although the notional amount of credit protection was lower than in 2009, at $50 billion, the aggregate risk-weighted assets of those banks was also lower, at about $3 trillion. The risk-weighted asset reduction achieved through capital relief trades using credit derivatives for this period is estimated at 3.2 to 13.1 percent.

Not all banks participate in capital relief equally, however. Large banks with at least $250 billion in total assets — which represented six of the 18 banks in Q4 2014 in Figure 2 — have generally had a higher estimated range of risk-weighted assets reduction from credit protection, although the differential has narrowed in the past two years (see Figure 3).

Indeed, the number of banks with total assets under $250 billion seeking risk-weighted assets reduction via credit derivatives has grown rapidly in the past several years (see Figure 4). Although no banks with less than $50 billion in assets used this form of capital relief in Q4 2010, there...
are now a greater number of banks with assets less than $50 billion engaging in capital relief than either medium or large banks.

**Figure 5** shows the estimated range of improvement in reported risk-based capital ratios for the median and 75th percentile banks.

In the fourth quarter of 2014, the median bank’s risk-based estimated capital ratio improvement was between 8 and 38 basis points under our assumptions. The bank that made greatest use of capital relief could have improved its risk-based capital ratio by as much as 388 basis points.

**Data Gaps**

Relatively little data are available about U.S. banks’ regulatory capital relief transactions, the financial strength of nonbank counterparties selling the credit protection, and the impact of those trades. As noted previously, a material share of credit default swaps and other credit derivatives still are not centrally cleared due to their origination pre-crisis, ongoing lack of contract standardization, and other factors. Guarantees which also can be used to obtain regulatory capital relief are not subject to central clearing.

Although banks are required to report their use of some forms of credit protection to obtain capital relief, even instances where they do report, banks do not have to disclose the effect of these transactions on their risk-weighted assets and capital ratios. Without that information, it is difficult for investors and counterparties to know the effect of these transactions on a bank’s risk. This could reduce market discipline on banks as it erodes the information content of banks’ risk-based capital ratios.

A second data gap with regards to these transactions is the limited counterparty information available to bank supervisors when a bank turns to a hedge fund, private equity firm, or other nonbank to buy credit protection, since those companies are outside the jurisdiction of bank supervisors. The Federal Reserve in 2013 issued guidance instructing its supervisors to evaluate large banks’ counterparties in capital relief transactions. It is not clear how a bank supervisor can do this when a nonbank sells credit protection to a bank. Such counterparties may not be subject to capital or other prudential regulation, so bank supervisors have limited ways of knowing if these nonbanks have sufficient capital and liquidity to make good on protection sold to a bank. Because these forms of capital relief are not fully funded, the ability of protection sellers to deliver on their commitments to banks if the asset defaults is critical.
The OFR — through the Depository Trust & Clearing Corporation (DTCC), the dominant trade repository in the credit derivatives market — has access to data on all standardized confirmed CDS transactions involving U.S. entities since 2010. Some U.S. banks that reported obtaining regulatory capital relief in Form Y-9C filings do not appear in the DTCC data. There are several possible explanations for this data gap. First, those banks may not be captured in DTCC’s data because they are using intermediaries to acquire the CDS protection. Second, some additional Y9-C data fields allow us to discern for some banks the type of credit derivatives being used. These data suggest that some banks receive substantial credit protection for regulatory capital purposes from total return swaps, not CDS. Finally, the CDS in question may be bespoke and thus not captured in the DTCC data. At any rate, the DTCC data do not shed light on the motivations of market participants, so it is not possible to confirm which CDS transactions banks undertake for regulatory capital relief rather than for other purposes. For that reason, it is not possible to fully understand how a credit shock or a counterparty failure might impact the capital of the banks engaging in capital relief transactions.

Pillar 3 disclosures

Currently U.S. banks with assets greater than $50 billion are required to provide additional public disclosures under Pillar 3 of the Basel capital standards and the U.S. capital rule with regards to the risk weights of their securitization exposures. The aim of Pillar 3 requirements is to promote market discipline by requiring institutions to disclose details on capital, risk exposures, risk assessment processes and capital adequacy. Based on a review of recent large U.S. banks’ Pillar 3 disclosures, it is not possible to discern the impact of credit derivatives and guarantees on banks’ risk-based capital ratios nor banks’ use of synthetic securitization. Neither is this information currently contained in the Y-9C.

Early in 2015, the BCBS adopted enhanced Pillar 3 disclosures requiring banks to increase transparency by disclosing more information about their capital adequacy and risk exposures. While the BCBS recommended new disclosures that would provide the public with greater granularity on banks’ use of credit risk mitigation, they still would not allow investors or counterparties to assess the total amount of risk-weighted assets reduction or risk-based capital improvement achieved using publicly available data.

Specifically, while BCBS template CR-7 does require banks using internal ratings-based (IRB) models to report semiannually risk-weighted assets on a pre- and post-credit risk mitigation basis, these disclosures would only apply to IRB banks and would not require IRB banks to report the impact of eligible guarantees used for capital relief. Banks using the standardized approach would be exempt from this public reporting and U.S. implementation of Pillar 3 disclosures have generally exempted banks with assets less than $50 billion. As shown in Figure 4, the number of banks with assets less than $50 billion that are making use of capital relief has grown in recent years.

Conclusions

Even as the BCBS and U.S. regulators have sought to improve the quantity and quality of bank capital, capital standards allow relief for credit risk mitigation from guarantees, CDS, total return swaps, and synthetic securitizations. Regulatory capital relief trades described in this OFR brief, which involve credit derivatives, can increase banks’ interconnectedness with nonbanks and, in the absence of more detailed reporting requirements, reduce transparency for investors and counterparties about a bank’s capital adequacy and transform credit risk into counterparty risk. For some banks, the use of credit risk mitigation may meaningfully enhance their reported risk-based capital ratios.

U.S. supervisory stress tests do not explore possible shocks to banks’ capital from the failure of key nonbank entities providing capital relief, and instead focus on macroeconomic shocks as the main mechanism through which banks’ risk-based capital ratios can face stress. The limited public data available make it difficult to effectively determine the full extent of regulatory capital relief, ensure effective market discipline, and evaluate potential systemic risks that may arise from credit risk mitigation.

More information to evaluate the impact of credit risk mitigation on U.S. banks’ risk-weighted capital ratios would be beneficial. Concretely, U.S. Pillar 3 implementation could require adoption of more expansive public reporting which would quantify the impact of all forms of credit risk mitigation (CDS, total return swaps, guarantees, synthetic securitizations) on U.S. banks’ risk-weighted assets (and thus, capital ratios), irrespective of their asset size or method of capital calculation.
Endnotes

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2 A note from Federal Reserve Bank of New York staff to Tim Geithner, then the bank's president, listed impacts on financial counterparties that could result from an AIG bankruptcy; including: “AIG… fails to perform on balance sheet CDO swaps, which provide reg capital relief to European banks; failure would lead to increase in European bank capital requirements…Swaps allow banks to hold 1.6 percent in regulatory capital as opposed to 8 percent.” See Federal Reserve Bank of New York, ”Systemic Impact of AIG Bankruptcy,” attachment to an internal email, September 16, 2008 (available at http://fcic-static.law.stanford.edu/cdn_media/fcic-docs/2008-09-16%20Systemic%20impact%20 of%20AIG%20Bankruptcy%20attachment%20 to%20FRBNY%20internal%20email%20from%20Alejandro%20%20Torre%20%20%20%20%20%20Geithner.pdf, accessed February 6, 2015).


5 The relevant item is reported in Item 7(c)(2)(b) on Schedule HC-L of the current Y-9C form (available at www.federalreserve.gov/reportforms/forms/FR_Y9C20141231_f.pdf, accessed May 11, 2015).


8 While the BCBS proposed a modification to the credit risk mitigation framework to require banks to calculate the present value of the premia for credit protection purchased that has not yet been recognized in earnings and where the original risk weight exceeded 150 percent, this proposal has not moved beyond the comment phase. See OCC and Federal Reserve (2013), pp. 62179-62182.


11 It is also possible that both IRB and standardized approach banks could find that the regulatory floor of the standardized approach of 100 percent risk weights for their loan book exceeds the risk they estimate under their own economic capital models. They could seek to reduce their capital requirements through entering into transactions with other depository institutions that receive a 20 percent risk weight under the standardized approach. For such a transaction to be economic, the depository institution would need to have excess capital or a lower cost of equity capital than the bank obtaining capital relief. The swaps push-out provision of the Dodd-Frank Act would have prohibited depository institutions from engaging in over-the-counter credit derivatives, but centrally cleared credit derivatives would have been permitted. See OCC and Federal Reserve (2013).


14 See Federal Reserve Board of Governors, “Impact of High-Cost Credit Protection Transactions on the Assessment of Capital Adequacy,” Supervisory Letter SR 11-1, January 25, 2011 (available at www.federalreserve.gov/bankinfo/srletters/sr101.htm, accessed May 11, 2015). The letter noted that in some instances “the high premiums or fees paid for certain credit protection, combined with other terms and conditions, call into question the degree of risk transfer of the transaction and may be inconsistent with safety and soundness. Rather than contributing to a prudent risk-management strategy, the primary effect of these high-cost credit protection transactions is to embed a high percentage of expected losses into the premiums and fees paid, under the premise that the transaction would receive favorable risk-based capital treatment in the short term and defer recognition of losses over an extended period.”

15 As of July 1, 2015, foreign banking organizations (FBOs) with consolidated non-branch assets in excess of $50 billion and greater than $10 billion in the United States will need to create an intermediate holding company and begin to file the Y-9C, but unless they already have a U.S. holding company presently, are not required to do so. Thus, the use of capital relief by FBOs’ U.S. operations currently cannot be comparably assessed relative to U.S. banks.

16 To serve as a counterparty in a regulatory relief transaction, a firm would also need to meet the requirements for an eligible guarantor set out in the U.S. capital rule (OCC and Federal Reserve, 2013).

17 Based on these assumptions, on a 1,000 percent risk-weighted asset, a bank would achieve capital relief of 90 percent (from 1,000 to 100 percent), which is the top of the range reported in press accounts of certain 2013 bank capital relief transactions. We use a 300 percent risk-weight as a lower bound because small reductions in an asset's risk weight are unlikely to be sufficient to motivate the bank to buy credit protection from a counterparty. We can calculate the impact on risk-weighted assets in that example as follows:

\[
\text{reduction in RWA} = \frac{\text{CDS used for capital relief}}{\text{risk weighting on underlying assets (100%)}} \times \left(1 - \frac{\text{risk weighting on counterparty}}{100}\right)
\]