

Coping with Inconsistencies in Bank Risk Weighted Assets

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Abstract

Industry participants, regulators, and investors have raised concerns with the consistency of Basel Risk-Weighted Asset (RWA) assessments across banks that are critical to the determination of capital ratios. These issues have created misgivings as to whether capital adequacy measures constructed by Advanced Internal Rating Based (AIRB) banks create level-playing field problems and whether they can be relied upon. Solutions to narrow the differences among banks have been proposed, ranging from imposing floors on certain parameters and calculations all the way to reverting to non-risk differentiated measures, such as leverage ratios. In this paper the evidence associated with RWA consistency will be examined. Some of the underlying reasons and sources of inconsistency will be evaluated along with the solutions proposed. The risks of moving away from risk-sensitive regulatory capital will be described and recommendations for coping with these inconsistencies will be made.

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Coping with Inconsistencies in Bank Risk Weighted Assets

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Introduction

It has been observed that measures of Risk Weighted Assets (RWA) and thus the ratios of RWA to capital vary considerably across banks subject to the Advanced Internal Rating-Based (AIRB) treatment of the Basel rules. Industry participants have raised objections to what they perceive is a non-level playing field. Regulators have also become concerned with the impact of these differences. Solutions to narrow the differences among banks have been proposed, ranging from imposing floors on certain parameters and calculations all the way to reverting to non-risk differentiated measures, such as leverage ratios.

The original idea behind Basel II was to replace the simple Basel I regulatory risk measures with more risk-differentiated economic capital measures. Significant advances had been made in economic capital parameter estimation and models by banks that were using risk adjusted returns on economic capital to make transaction and portfolio decisions. As regulators and supervisors examined economic capital across firms they realized that there were wide variations in economic capital approaches and these need to be constrained when applied to regulatory capital. Prescriptive methodology directives emphasizing empirical evidence and minimizing the use of judgment along with the introduction of haircuts, add-ons and floors became part of the new and revised Basel II and III. With several years of European banks producing Basel II AIRB estimates and some US banks operating Basel II in parallel with Basel I, the concern with consistency of RWA estimates has now become elevated.

In this paper we will examine the evidence associated with RWA consistency, some of the underlying reasons and sources of inconsistency and the solutions proposed. While, there are some recommendations that should be considered, caution must be exercised lest the benefits of risk-sensitive regulatory capital are diluted to the point where they are lost or where new sources of systemic risk are unconsciously introduced.

The Evidence for Inconsistencies

Carey¹ evaluated the consistencies of rating assignments across lenders using the Loan Pricing Corporation's Loan Loss Data Base which had commercial loan ratings from more than 24 banks during 1994-1998. By evaluating the pooled sample, he observed that the ratings were effectively the same in 45% of the cases and within two grades in about 95% of the cases. When mapped to probabilities of default (PDs) and to capital allocations using the then-proposed capital formula, implied capital allocations differed by less than one percentage point for about half the borrowers, by less than two points for about 70 percent of borrowers, and by less than 10 percentage points for over 95 percent of borrowers.

The International Association of Credit Portfolio Managers (IACPM) conducted benchmark surveys in 2006 and in 2011². They created a portfolio of 150 actual syndicated corporate loans and collected estimates of PD, Loss Given Default (LGD), Exposure at Default (EAD), and Capital from 50 participants. Significant dispersions were also reported, with coefficient of variations of 100% and 33% for PDs and LGDs, respectively.

¹ JPMorgan Chase. Opinions expressed in this paper are those of the author, and do not necessarily reflect the views of JPMorgan Chase.

The Financial Services Authority³ constructed a hypothetical portfolio for benchmarking PD estimates for 50 sovereign obligors, 100 banks and 200 corporations as of June 30 2009 with 13 banks participating. Since relatively few banks had exposures to all obligors within a segment the available data the data set had to be distilled down to a smaller set of jointly rated obligors. For example, only seven participants and 13 obligors constituted an evaluation data set for the corporate exposures although a somewhat larger data sample was obtained for exposures to banks and sovereigns. The variation in PDs for corporate obligors across survey participants was large; the highest mean PD was from 3 to 6 times as large as the lowest mean PD. The FSA recognized the limitations not only in the data collected but also observed that variations in PDs for given obligors across firms was undoubtedly due to the fact that some rating systems were based on point-in-time (PIT) and others on through-the-cycle (TTC) philosophies.

The FSA also segmented PD assessments by rating agency grades. While the median of firms' PDs for obligors at each S&P rating grade was broadly similar to the S&P long-run default rate, there was considerable variability across firms and there were instances where some participant PDs were significantly below the medians.

Firestone and Rezenede⁴ examined the consistency of PDs and LGDs used for Basel II capital that were assigned by nine banks to a set of 659 syndicated loans. They found that while there was a significant amount of dispersion in estimates of PDs, there was no individual bank that estimated significantly higher or lower PDs than the others. However, with regard to LGDs, significant systematic differences were observed among the banks, with differences ranging from one bank assigning 12 percentage points lower than the median bank and another bank assigning 18 percentage points higher than the median bank.

The Basel Committee has set up a Basel III Implementation Review Program⁵ that, in addition to examining timely adoption of Basel III and regulatory consistency across jurisdictions, has a mandate to examine consistency of risk-weighted asset assessments. They are in the process of applying both a bottom up and a top down approach using supervisory data collected by the Committee as part of its ongoing capital monitoring responsibilities. Their analysis covers 56 large, internationally active banking organizations and 44 non-internationally active banking organizations in 15 jurisdictions. Preliminary top down findings indicated that corporate and retail exposures are the largest contributors to credit RWA and have the greatest variability in portfolio risk-weights across banks and countries. While risk-weights for bank and sovereign exposures varied significantly across banks, these asset classes are less significant contributors to credit RWA variations because of their low absolute risk-weights. PDs appear to be a significant source of RWA variability for the corporate, bank and sovereign asset classes. LGD appears to be the more important risk parameter for the retail asset class, although it also is an important contributor to RWA variability for corporates.

The Committee has also conducting a bottom-up portfolio benchmarking exercise using a test portfolio of common exposures to supplement its top-down analysis. Thirty-three banks from 13 jurisdictions have participated in the exercise by reporting PD and LGD estimates for a set of sovereign, bank, and corporate exposures. The data submitted by the banks is being reviewed to assess the variability of PD and LGD estimates across banks for common obligors and exposures.

Vikram Pandit, former chairman of Citibank, proposed⁶ the development of a standard hypothetical benchmark portfolio. Financial institutions would run this collection of assets through their risk models

and publicly disclose the resulting loan loss requirements, value-at-risk, stress test results, and RWAs. The objective would be to enable investors and regulators to compare how aggressively different firms measure risk. However, as seen in the FSA and FRB benchmark portfolio exercises, some banks would have actual exposure to some of the borrowers but not to all. Those banks that did have the actual exposures on their books would have more information than other banks and the quality of the aggregate benchmark measures would be uneven. Without the normal information that enables a bank to make sound risk parameter estimates, when confronted with hypothetical exposures a bank might be unduly influenced by rating agency grades and their historical PDs. LGDs for unsecured loans might also be based on some overall industry average. This would provide a false sense of convergence and would also not achieve the objective of providing benchmark results that could facilitate investor and regulator understanding of the relative liberalism or conservatism built into the banks' actual RWAs.

It is clear from the surveys cited above that examined variations in RWAs and capital ratios and efforts to make assessments comparable across banks, that there is room for concern regarding consistency of RWA measures. Prior to identifying ways to reduce variations in assessments, it is important to understand the sources of these differences and determine under what circumstances it is desirable or practical to do so.

Sources of Inconsistency

Ledo⁷ identified three main determinants of RWA differences: risk profiles (including business models), risk management, and supervisory practices. He states that differences across firms for these reasons are justifiable but the main issue is whether current divergences may be too broad and concludes that there is room for improvement in some factors. He examined US and European institutions' RWA density (RWA/ Total Assets) both across time and on a cross sectional basis. After considering accounting divergence and examining business model differences, he found that overall risk weights in the wholesale business are roughly comparable between the US and Europe, though that did not appear to be the case for retail exposures. Most of the differences were due to mortgages and credit cards. Rollout of the requirements for determining Basel II is highly diverse across institutions and in particular for US firms. Ledo noted that different policies across banks in terms of credit analysis, monitoring and recovery, and tools for discriminating client according to risk appetite have an impact on main risk parameters, and, in particular on PD and LGD.

Ledo also attributes differences to the use of through-the-cycle vs point-in time PD models, varying supervisory criteria for acceptance of IRB models, definition of downturn periods, and data availability that can enhance granularity of risk segments. Recognizing that differences in risk profiles and risk management are legitimate bases for differences in RWAs he suggests enhancing more comparable disclosure. With respect to supervisory practices he suggests information sharing among supervisors, validation of standards implementation, possibly through benchmark portfolios, and creating validation teams from different jurisdictions.

Le Lesle⁸ has reviewed the evidence of differences in risk weights and notes that North American Banks have, on average, higher risk weights in most credit risk categories. This is largely due to US banks still operating under Basel I where risk weights for OECD Sovereigns, OECD banks, and mortgages are substantially different than under Basel II under which most of Europe operates. With respect to market risk, convergence is still limited. Basel 2.5 and Basel III are expected to strengthen the risk capital framework in the trading book for incremental risk and securitization products. Although trading book capital will increase substantially, it is still unclear as to whether there will be greater or lesser convergence in RWAs between European and US banks.

Regulations by themselves may cause variations in RWAs. For example, in the US, section 939A of the Dodd-Frank Act requires that regulatory agencies remove any reference to credit ratings issued by Nationally Recognized Statistical Ratings Organizations (NRSROs) with respect to standards of credit worthiness. NRSRO ratings were previously acceptable determinants of whether securities or companies were of investment quality or not. RWA calculations for repos are a function of haircuts based on investment quality determinations. US banks can no longer rely on investment quality classifications issued by rating agencies and have to come up with alternative approaches. As yet, European regulators have not imposed similar restrictions on firms in their jurisdictions.

Setting aside supervisory implementation differences and business risk profiles, Araten⁹ has identified a set of fundamental differences associated with forensic analysis of defaults. These emanate from both risk measurement and risk management processes and can account for sources of inconsistencies in wholesale credit risk RWA determinations among AIRB banks. To illustrate the potential differences, two hypothetical banks are imagined; one with a liberal risk measurement approach and the other with a conservative risk measurement approach. For each case example a different PD, LGD, or EAD can be derived based on each bank's risk philosophy or measurement methodology. Examples cited include the following:

- If one bank has a more conservative non-accrual policy compared to the other it will record higher PDs and lower LGDs. On a comparative basis, since PDs contribute to RWAs in a non-linear manner, compared to LGDs, the RWA for the conservative bank will be lower¹⁰.
- Care must be taken in the analysis of PDs associated with borrowers which have no assigned risk ratings. "Fall-back" ratings are often assigned to these borrowers who post cash and marketable securities as collateral in lieu of providing financial statements.
- EAD differences can arise when there are several facilities under a single revolving line of credit such that a borrower can draw down on one facility and pay back another facility. Depending on whether the EAD analysis is conducted at the individual facility level or at the aggregate level one can obtain significant differences in EAD estimates.
- LGD differences can arise from the use of different discount rates for recoveries. Discount rates should incorporate premiums for systemic risk, i.e., when LGDs are systemically correlated. Basel requires estimates of LGDs to reflect downturn conditions, since LGDs are generally worse during recessions. While both banks found correlations between LGDs and economic downturns and use the same downturn LGDs, one bank decides to employ a lower discount rate than the other since using downturn LGDs already incorporates the systemic risk component.
- Cohort formation for calculating LGDs can yield inconsistencies. Some defaults take years to work out. Recognizing that early resolution of defaults usually lead to lower LGDs, some banks will appropriately allow several years to pass before including such defaults in their LGD data set.

Risk management differences can also lead to diverse outcomes and can result in banks developing dissimilar risk parameters. Due to the dynamic relationship between a bank and its borrower, a bank may be able to improve its recovery prospects through better risk management. When a bank with strong risk management practices recognizes that a borrower may be in trouble, it can take early action to improve its position.

- A bank may refuse to renew a loan, causing a weak borrower to seek refinancing elsewhere. The measurement of PD is based on the number of similarly rated borrowers at the beginning of the

year and observing how many defaulted by year end. The PD calculation will be affected by the absence of a rating state for a borrower at the end of a year though the bank knows that it had not defaulted at anytime during the year. Including these “withdrawn” ratings in the denominator of the PD calculation will lower the PD estimate. In contrast, another bank may not have been as proactive in forcing the borrower to seek financing elsewhere and the borrower may have defaulted. The PD will be higher.

- In return for waiving technical defaults one bank may be able to obtain collateral even though the loan was initially unsecured. Compared to another bank which did not obtain collateral, the first bank will have different LGDs for its secured and unsecured credits.
- In other circumstances one bank may be able to obtain a reduction in exposure prior to default. This can yield a higher LGD when measured against the resulting lower EAD.
- Different approaches to workouts of defaults can also result in dissimilar LGDs. For example, a bank may not have an experienced special credits group and may choose to sell defaulted exposures on the secondary market shortly after default. Another bank with expertise in turnarounds could work the credit through resolution and experience a better recovery.

Some banks may also have more sophisticated data capture systems than others. They may be able to

- Record receipt of past due interest and properly credit it to a defaulted loan.
- Associate equity received with respect to a borrower in bankruptcy.
- Better estimate residual recoveries from defaulted loans that have not yet been resolved.
- Create more granular segmentation of risk exposures.

Possible solutions

Le Lesle suggests that varying degrees of regulatory stringency in model approvals, scope of securitizations, imposition of different surcharges, and different rules relating to reliance on external ratings could well cloud efforts to measure and achieve consistency. On the continuum of regulatory capital determination from most flexible to least, AIRB is relatively flexible and most risk sensitive at one end and the leverage ratio is the most rigid and least risk sensitive at the other end. In between, the options include setting floors on individual inputs to RWA formulas, standardized approaches for Basel II, and reimposition of Basel I. Le Lesle recommends full use of Pillar II to enable supervisors to adjust risk weights and enhance disclosure through Pillar III. A multipronged approach including some changes to the RWA regime, enhanced supervision, and increased market disclosure seem the most effective path of reform to achieve consistency.

Regulators convey mixed message regarding consistency. Deputy Secretary General of the Basel committee Bill Coen¹¹ observed that regulatory consistency promotes a level playing field and supervisory coordination and helps prevent the build-up of systemic risk. But the global rules are flexible in that standards have no legal standing and can produce a wide dispersion of outcomes. Moreover, he believes that full consistency is neither achievable nor desirable.

Haldane¹² would remove the emphasis on complex RWA models. “Because complexity generates uncertainty, not risk, it requires a regulatory response grounded in simplicity...The leverage ratio could be placed on an equal footing with capital ratios, with market-based indicators of capital adequacy added to regulators’ and investors’ indicator set.” Goodhart¹³ believes that both leverage limits and RWA-based capital requirements are needed since all risk measures fail to pick up dynamics in that the riskiness of an asset is not constant over time, but context dependent. While he would prefer to shift the regulatory balance more towards the simpler overall leverage ratio, he notes that “Simple leverage

ratios can be overcome by taking on riskier assets...[Rather than] rely on a single approach use both risk-weighted and simple leverage ratios, belts and braces.”

Romano¹⁴ notes that one of the important lessons of the financial crisis, which is not fully appreciated, is that harmonization is not without its own distinct perils. It can drive firms in the same direction in an effort to avoid regulatory charges. When the common set of business strategies employed prior to the last crisis failed catastrophically, the crisis was not restricted to one nation and a few institutions, but was instead felt worldwide. The absence of meaningful regulatory diversity resulted in banks’ converging their strategies, which exacerbated their financial difficulties as many institutions simultaneously sought to sell similar assets to shore up their capital, and institutional investors panicked, seeing little to distinguish among vulnerable financial institutions. “The bottom line is this: when regulators make an error in a globally harmonized framework, they, in fact, can dramatically increase systemic risk.”

Romano believes that there is considerable uncertainty regarding how best to measure institutions’ and instruments’ risk and contribution to systemic risk, particularly because such risk dynamically changes over time as the business environment changes. The uncertainty exacerbates the risk that regulators will get things badly wrong, and with only one regime, regulatory error is much more costly, as it will ripple across the global financial system. Romano states that with numerous regulatory regimes, there is at least a chance that not all regulators will make the same mistake, and accordingly, thereby not incentivize all financial institutions to follow the same flawed strategy.

While having multiple regulatory schemes could introduce diversification, it may be more likely to render comparisons of banks’ risk taking and capital adequacy impractical and hinder effective regulation. The rules should be the same for all participants but greater acceptance of flexibility and diversity in models and approaches should be promoted.

Rather than throw up one’s hands at perceived inconsistencies and revert to non-risk differentiated measures, further efforts need to be made to better understand the different risk measurement approaches. Where appropriate, supervisors should provide guidance as to best practice. Model limitations should be understood and respected. Minimum standards for data capture systems should be encouraged. Where little data is available, consortium studies that pool the limited historical experience across groups of banks should be encouraged. Where there is limited historical experience, expert credit judgment should not be discouraged. Most importantly, inconsistencies due to superior or inferior risk management should not be viewed as problematic. Given that differences in RWAs will continue to exist, efforts should be made to understand the sources of these differences and as a result provide confidence to stakeholders that such differences may well be appropriate.

For many banks regulatory capital has become the binding constraint on transactional and portfolio decisions. While at one time banks evaluated risk adjusted returns on economic capital, too many banks now use risk adjusted returns on regulatory capital as the metric for evaluating these decisions. The convergence of risk measurements to a common standard mandated by regulation may create the danger of too many firms perceiving risks through the same regulatory lens. This may create common business strategies that are based on a regulatory-constrained view of risks. If these risks turn out to be greater than assessed and if large numbers of firms have concentrated their investments in these strategies, the result could well be an increase in systemic risk. Diversity in risk assessment may help prevent the next financial crisis.

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