

Special Report

Demystifying Basel II: A Closer Look at the IRB Measures and Disclosure Framework

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■ Summary

The publication of “International Convergence of Capital Measurement and Capital Standards, a Revised Framework” (Basel II) in late June 2004 represented a critical milestone in the path the Basel Committee on Banking Supervision (the Committee) started down six years ago to establish a new framework for assessing bank risk-based capital. In this report, Fitch Ratings provides a road map for navigating the Basel II treatment of credit risk, namely the internal ratings-based (IRB) approach, which harnesses many cutting-edge concepts in risk measurement and modeling. This report provides an easily digestible understanding of the technical underpinnings of the IRB approach, explains the ramifications of recent policy decisions and changes to the framework, illustrates how rating enhancement levels for particular asset portfolios would compare to the IRB charges, and explores some important analytical issues for market analysts and investors to think about when evaluating the new credit risk disclosures under the market discipline pillar of Basel II (Pillar 3). This report focuses on the IRB treatment of corporate and retail exposures but does not cover the treatment of securitization and credit risk mitigation.

■ Key Findings

Overall Highlights

- By harnessing advanced risk measurement techniques and internal bank credit ratings, the IRB framework will help to promote stronger risk management practices for more sophisticated banks worldwide, and its adoption by banks will generally be considered a positive rating factor. Fitch believes that, as compared with current standards, the Basel II ratios are an improved yardstick for assessing capital adequacy relative to risk.
- Fitch supports the more risk-sensitive Basel II capital requirements and, more broadly, the move by banks to a more systematic measure of credit risk and capital allocation, including the use of internal economic risk assessments. One outcome of more risk-based capital allocation is that a bank’s capital ratios tend to improve during a strong credit environment, potentially motivating bank management to shed capital. To temper the potential for over-exuberance and aggressive capital reductions, it will be critical for banks to perform rigorous stress testing and to hold sufficient capital to weather the range of possible risks that can occur over the market cycle.
- Fitch will be looking closely at how a bank forecasts credit risk, uses stress analysis to assess the impact of more severe potential credit problems, and allocates capital over the course of an economic cycle. Banks will need to show that they retain sufficient capital buffers and have appropriate capital strategies to navigate potential downturns.

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Evaluating the IRB Measures

- Fitch will leverage the Basel II ratios as part of its analysis of bank capital adequacy in the institutions it rates. However, there are several key areas that Fitch will analyze closely, as assumptions and practical considerations embedded in the IRB ratios could, in certain instances, lead to understating risk exposure.
- A key area Fitch will evaluate is the IRB assumption that the bank's portfolio is reasonably well diversified. Analysts will assess how the bank identifies, aggregates, and manages concentration risk and allocates capital against it. Concentration risk is a fundamental part of Fitch's capital analysis, particularly in evaluating more regionally focused institutions.
- Fitch also will look closely at historical data the bank uses to generate its risk estimates. Fitch believes that for certain asset classes with longer market cycles, a longer data history than the minimum requirements established under Basel II might help to reflect a more complete range of loss events and show that more capital is needed to cover the risk.

Key Changes to the IRB Framework

- One significant change introduced in the final Basel II agreement was the decision (first announced in October 2003) to base the capital charges for all asset classes on unexpected loss (UL) only and not on both UL and expected loss (EL). In Fitch's view, the decision that banks must hold sufficient reserves to cover EL (or else face a capital penalty) should have a positive impact on better linking reserving practices to a quantitative, rigorous estimate of economic loss. However, it is unclear how this incentive will tie into the complex interplay of accounting and other regulatory considerations.
- For credit card assets, Fitch supports Basel II's recent reduction in the capital charges (achieved through fixing the asset correlation assumption at 4%) on very high-quality credit card exposures, which reflects the historically low loss volatility and generally stable, predictable loss patterns for prime borrowers.
- The adjustment to the correlation assumption on the credit card curve results in higher capital for lower quality borrowers. Fitch finds that this is more appropriate than the previous calibration. Nonetheless, in evaluating bank credit card portfolios with a heavy mix of subprime activity, Fitch believes it is important to take into account

the greater loss volatility and higher risk profile of these borrowers and look carefully to ensure that the Basel II minima are adequate.

IRB Charges and Fitch Enhancement Levels

- For high-volatility commercial real estate (HVCRE) lending, Fitch believes that the move to a formula-based approach (as an alternative to supervisory slotting) enhances risk sensitivity. However, the regulatory capital charge generated using the formula-based HVCRE curve could be low in some instances and correspond, for a given set of assumptions, to the enhancement level Fitch would assign to a 'BBB-' rated portfolio of less volatile, higher quality income-producing real estate (IPRE) exposures.
- The IRB charges on residential mortgages seem prudent generally and acknowledge that global banks engage in a mix of mortgage activities with differing payment features, maturity, and leverage. Fitch enhancement levels at the 'BBB' rating category for well-diversified residential mortgage-backed securities (RMBS) pools that have certain risk-reducing structural features generally are lower than the corresponding IRB charges. However, if a mortgage portfolio has concentrations of high-risk attributes or includes subprime borrowers, the Fitch enhancement levels increase.
- While residential mortgage lending generally has performed well historically, Fitch believes it is important to look carefully at asset mix, geographic concentration risk, the impact of the economic cycle, and new products, such as hybrid adjustable-rate mortgages (ARMs), when evaluating bank capital allocation against these activities.

Market Disclosure (Pillar 3)

- Pillar 3 is a groundbreaking aspect of Basel II. Fitch believes that the enhanced disclosure framework will facilitate greater transparency and promote a more common language around risk. The requirements provide some standardization while appropriately allowing different approaches to risk rating and measurement.
- Fitch expects that the depth and quality of disclosure will become a key factor in the ultimate reliance of the investment community on the Basel II capital measures. In addition, understanding certain key components within banks' risk measurement processes, particularly the use of stress testing and how their internal economic estimates compare to the Basel II measures, will weigh heavily in the rating process.

■ Conceptual Underpinnings of the IRB Approach

The IRB approach is a cornerstone in the Basel II capital framework and a critical innovation in the regulatory capital treatment of credit risk. Indeed, much of the work of the Committee over the past six years has focused on building and refining the IRB framework, including the form and calibration of the capital formulas, the operational standards and risk management practices that IRB banks must follow, and the treatment of different types of assets and business activities. However, while this represents a new path in banking regulation, the concepts and elements underlying the IRB approach are based largely on the credit risk measurement techniques that are used increasingly by larger, more sophisticated banks in their economic models. The IRB approach is, at heart, a credit risk model — but one that is designed by regulators to meet their prudential objectives.

Building Blocks

The building blocks of the IRB capital requirements are the statistical measures of an individual asset that reflect its credit risk, including:

- Probability of default (PD), or the likelihood that the borrower defaults over a specified time horizon.
- Loss-given default (LGD), or the amount of losses the bank expects to incur on each defaulted asset.
- Remaining maturity (M), given that an instrument with a longer tenor has a greater likelihood of experiencing an adverse credit event.
- Exposure at default (EAD), which, for example, reflects the forecast amount that a borrower will draw on a commitment or other type of credit facility.

Under the most sophisticated or advanced version of the IRB approach, banks are permitted to calculate their capital requirements using their own internal estimates of these variables (PD, LGD, M, and EAD), derived from both historical data and specific information about each asset. More specifically, these internal bank estimates are converted or translated into a capital charge for each asset through a predetermined supervisory formula. Essentially, banks provide the inputs, and Basel II provides the math.

Modeling Minimum Capital

As a credit risk model, the IRB formula has been designed to generate the minimum amount of capital that, in the minds of regulators, is needed to cover the economic losses for a portfolio of assets. Therefore, the amount of required capital is based on a statistical

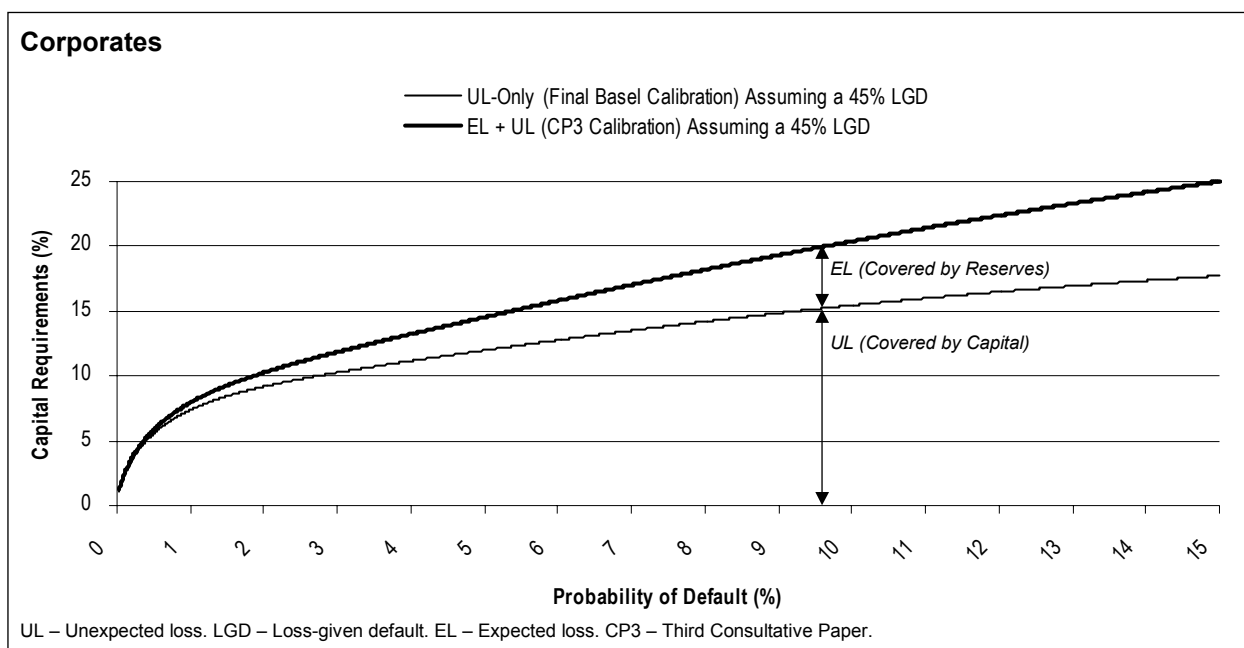
distribution of potential losses for a credit portfolio and is measured over a given period and within a specified confidence level. The IRB formula is calculated based on a 99.9% confidence level and a one-year horizon, which essentially means that there is a 99.9% probability that the minimum amount of regulatory capital held by the bank will cover its economic losses over the next year. In other words, there is a one in 1,000 chance that the bank's losses would wipe out its capital base, if equal to the regulatory minimum.

The economic losses covered by the final IRB capital charges represent the bank's UL, as distinguished from losses that the bank can reasonably anticipate will occur, or EL. Banks that are able to estimate EL typically cover this exposure through either reserves or pricing. In statistical terms, the EL is represented by the amount of loss equal to the mean of the distribution, while UL can be thought of as the difference between this mean loss and the potential loss represented by the assumed confidence interval of 99.9%. As seen in the chart on page 4, the credit risk on an asset, reflected both in the UL and the EL, increases as the default probability increases. Likewise, the level of credit risk also increases with higher loss severities, longer maturities, and larger exposures at default.

Additionally, as seen in the chart on page 4, EL contributes a relatively small proportion of the capital charge for high-quality (or low-PD) borrowers and an increasingly greater proportion as an asset moves down the credit quality spectrum. For example, for a loan to a very strong (or low-PD) borrower, the bank anticipates that the asset will perform well and is unlikely to experience credit-related problems. Therefore, any severe credit deterioration or loss that might occur on the loan to the borrower would differ from the bank's expectation and, thus, be explained primarily by UL.

By contrast, for a loan to a weaker (or high-PD) borrower, the probability of some credit loss is much greater, enabling the bank to build this expectation of loss into its pricing and reserving strategies. Therefore, at the lower end of the credit quality spectrum, EL is a larger component of the credit risk facing the bank than at the higher end of the quality spectrum.

Of course, the amount of economic loss that an asset might incur depends on the type or structure of the asset. For example, is the exposure to a major corporation or to an individual borrower? Is it secured by collateral? How does the borrower generate funds for repaying the bank? What is the



typical life or tenor of the asset? How is its value affected by market downturns?

Different credit products can behave quite differently, given, for example, their contractual features, cash flow patterns, and sensitivity to economic conditions. Basel II recognizes the importance of product type in explaining an asset's credit profile and provides a unique regulatory capital formula for each of the major asset classes — corporates, commercial real estate (CRE), and retail.

Correlation and Diversification

A critical element of the IRB framework and a key driver of the capital charges are the assumptions around correlation and the correlation values used in the formulas. Basel II does not recognize full credit risk modeling and does not permit banks to generate their own internal estimates of correlation in light of both the technical challenges involved in reliably deriving and validating these estimates for specific asset classes and the desire for tractability.

In generating a portfolio view of the amount of capital needed to cover a bank's credit risk, Basel II captures correlation through a single systematic risk factor. More specifically, the IRB framework is based on an asymptotic single-risk factor model, with the assumption that asset values all are correlated with a single systematic risk factor. While not defined under Basel II, this systematic risk factor could represent general economic conditions or other financial

market forces that broadly affect the performance of all companies.

In summary, a low correlation implies that borrowers largely experience credit problems independently of each other due to unique problems a particular borrower is facing. On the other hand, a higher asset correlation would suggest that credit difficulties occur simultaneously among borrowers in response to a systematic risk factor, such as general economic conditions.

Under Basel II, the degree to which an asset is correlated to broader market events depends, in certain cases, on the underlying credit quality of the borrower. Based on empirical study conducted by the Committee, the performance of higher quality assets tends to be more sensitive to, and more correlated with, market events. Although this finding might at first seem counterintuitive, it is consistent with the financial theory that a larger proportion of economic loss on high-quality exposures is driven by systematic risk. By contrast, the economic loss on lower quality exposures is driven mainly by idiosyncratic, or company-specific, factors and relatively less so by systematic risk. This reasoning suggests that the performance of lower quality assets tends to be less correlated with market events, and therefore, the biggest driver of credit risk is the high PD value of the borrower, or more broadly, the lower intrinsic credit quality of the borrower.

Another important assumption is that the bank's portfolio is well diversified and does not contain any significant concentrations of individual borrowers. Given this assumption of portfolio diversification, the Basel II ratios are not designed to be sensitive to variations in concentration risk across banks, including geographic, industry, and single-borrower concentration (although the Committee had proposed but later dropped a granularity adjustment to address single-borrower concentrations).

However, by not allowing banks to internally estimate portfolio correlation (e.g. pair-wise correlation among individual borrowers and across asset categories), the Basel II ratios are not sensitive to variations in concentration risk. For example, in cases where a significant portion of a bank's credit portfolio is concentrated in a particular geographic market, the underlying correlation among these assets is likely higher than the correlation values provided by Basel II. Therefore, in this instance, the underlying risk of the bank's portfolio is not fully reflected in the IRB charges. Basel II's predetermined estimates of correlation are important in assessing regulatory capital ratios, not only to understand differences in the IRB formulas across different asset classes, but also to assess potential concentration risks not captured in the calculations.

Correlation is a key driver in the amount of regulatory capital generated by each of the different product or asset categories under the IRB framework. Basel II provides three different formulas for retail products (residential mortgages, credit cards, and consumer loans), which are identical in all aspects except for the correlation assumption. For example, residential mortgages are assumed to have a 15% asset correlation, while credit cards are subject to a 4% correlation. These correlation assumptions are based partly on empirical work and analysis of industry experience and also on the Committee's broader policy objectives of calibrating the overall capital charges to a desired prudential level. Indeed, correlation is an important policy lever that the Committee uses in adjusting capital requirements.

■ Recalibration of IRB Capital Charges to UL Only

Building on the theoretical and conceptual basis of the IRB framework discussed above, this report next analyzes the most recent changes to Basel II, which was finalized in June 2004, and explores how the IRB framework applies in practice across several key

asset categories — corporate, CRE, credit card, and residential mortgage lending.

One of the most significant changes introduced in the final Basel II agreement was the decision, first announced in October 2003, to recalibrate the IRB capital charges for all asset classes based on UL only, not on losses that the bank can reasonably anticipate will occur or on EL. This change is a response to a major push by the industry, which had long argued that a UL-only calibration is a more appropriate way to allocate capital and that many banks already address their EL exposure within their reserving and pricing strategies.

Previously, the Committee had taken some initial steps toward a more UL-based capital charge for credit cards, allowing banks to offset a portion of their EL exposure with future margin income (FMI). However, this treatment was a small step toward a UL-only framework in that it applied only to one asset class. Additionally, it perpetuated the problem of clouding the definition of regulatory capital by continuing to allow reserves to be included in the capital block. The move to a UL-only capital calibration across all assets under the final IRB framework represents a more fundamental shift, helping both to enhance the conceptual purity of the regulatory definition of capital and to provide important incentives for bank reserving practices.

To better appreciate the implications of this change, it is important to understand the mechanics of how the shift to a UL-only framework is achieved in practice. A UL-only calibration can be calculated by subtracting the EL amount (measured as PD times LGD) from the capital formulas presented in the Committee's "Third Consultative Paper" (CP3), as previously proposed in the Basel II process. The chart on page 4 illustrates this difference, with the EL amount represented by the distance between the CP3 curve and the final Basel II curve based on a UL-only calibration. For any given PD level under the new UL-only construct, a bank's capital requirements on a particular asset decreased in an amount equal to the EL, which is equal graphically to the difference between the two curves.

Basing the capital charges on UL only does not alter the functional form of the IRB equations, nor does it imply that the Basel II measure of credit risk has in any way been diluted. Indeed, as illustrated in the chart on page 4, banks must still estimate EL and

ensure that they allocate sufficient reserves to fully cover this exposure.

In this regard, Basel II appears to provide banks with the incentive to reserve up to, but not much beyond, 100% of EL. On one hand, if the total reserves held by the bank are less than its aggregate EL amount across all asset categories, then the bank must deduct this shortfall in equal amounts from Tier 1 and Tier 2 capital, which is a fairly stiff capital penalty. On the other hand, if a bank's reserves exceed its EL exposure, then Basel II permits the recognition of a limited amount of the surplus reserve in the bank's Tier 2 capital (up to a maximum limit of 0.6% of risk-weighted assets). One possible rationale for Basel II not encouraging banks to reserve beyond the 100% level is that from a supervisory perspective, it might be preferable for banks to charge off or try to restructure assets that are impaired, rather than to continue to provision against them and keep them on the books. (In contrast, for banks using the standardized approach, there is no change in what capital is intended to cover; they will continue to follow an EL plus UL approach, with the same Tier 2 treatment of loan loss reserves permitted under Basel I.)

Fitch's Views on UL-Only Calibration and Its Impact on Reserving Practices

Fitch generally supports the decision to move to a UL-only calibration across all asset types. This move should result in greater alignment between the regulatory measure of credit risk and internal bank economic capital models, which tend to be based primarily on a UL concept. Additionally, the separation of EL enhances the regulatory definition of capital by diminishing the role that reserves play in the IRB capital ratios, particularly for banks that closely match the level of reserves to their EL exposure. This helps to resolve Basel II's balancing act of having to include loan loss reserves in Tier 2 capital as a compensatory measure for including EL in the capital calibration.

In Fitch's view, the Basel II treatment of EL will help to encourage stronger discipline for banks to measure and establish reserves against EL; however, it is unclear how the Basel II incentives to fully reserve against EL will tie into the complex interplay of accounting and regulatory considerations that also factor into reserving practices. Current bank reserving practices are based in large part on accounting rules, which can

vary quite a bit across countries and, in certain instances, involve complicated tax considerations.

Additionally, supervisors often impose their own prudential standards or expectations for the amount of reserves banks should hold as a buffer against potential risks. To complicate matters further, different regulators have a wide variety of views or philosophies on the appropriate amount of reserves an institution should hold. For example, in the U.S., banking regulators typically have preferred that banks follow aggressive reserving practices and build a large protective cushion, whereas securities regulators, in efforts to deter earnings management, have tended to advocate that reserves should be based closely on identifiable losses based on historical estimates.

Ultimately, Fitch believes that Basel II should have a positive impact on linking reserving practices to a quantitative, rigorous estimate of economic loss. Providing this information to the market exerts a discipline on banks to cover their EL exposure through reserves, helping analysts and investors to filter out some of the tax and supervisory considerations involved in the accounting basis of reserves. In addition, not only will market analysts benefit from having a more transparent and objective standard to assess the quality of a bank's disclosed reserves across countries, but Basel II's move to a UL-only capital framework will also place even greater pressure on banks to ensure that their regulatory capital ratios adequately reflect and cover UL.

■ Corporate Lending

Evaluating IRB Charges for Corporate Exposures — Concentration Risk

A critical theoretical assumption underlying the IRB capital framework is that the underlying portfolio of assets held by the bank is highly granular and well diversified. Of course, in practice, some banks will have concentrated exposures to single borrowers or particular markets, geographic regions, or industries that, all else being equal, can increase significantly the economic risk facing the bank. Therefore, in evaluating a bank's corporate lending portfolio, it is important to gain a sense of the various types of concentration risk to which the bank might be exposed.

Indeed, concentration can manifest itself in the portfolio in subtle ways. For example, banks that invest in synthetic collateralized debt obligations (CDOs) that reference portfolios of underlying single-tranche CDOs of corporates (called CDO-squared structures) or funds of funds are exposed to the corporate borrowers underlying these products. If a bank already has other forms of credit exposure to these borrowers, its risk concentrations could significantly increase as a result of such investments. *(For more information, see Fitch Research on “CDO Squared: A Closer Look at Correlation,” dated Feb. 2, 2004, available on Fitch’s web site at www.fitchratings.com.)*

The Basel II capital formulas do not directly capture risk concentrations, meaning that they do not distinguish between a well-diversified bank and one with concentrated exposure to a few individual borrowers, geographic regions, and business sectors. Supervisors view concentration as an important risk and have other tools to address risk concentrations. For example, many supervisors have adopted legal lending limits, which restrict banks from providing credit to an individual borrower beyond a certain defined threshold (often as a percentage of their capital base). Additionally, Basel II identifies concentration risk as one of the critical elements that supervisors are expected to monitor closely in their review of banks’ capital adequacy (under Pillar 2, the Supervisory Review Process [Pillar 2], of the Basel II framework). Basel II notes that “risk concentrations are arguably the single most important cause of major problems in banks.”

To gain a better sense of how single-borrower concentration might affect a bank’s measure of credit risk, Fitch has resurrected and graphed the Basel II granularity adjustment, which was previously proposed but then subsequently dropped by the Committee in response to general industry concerns about the complexity of the capital framework. The granularity adjustment essentially was an overlay to the IRB capital formula, increasing the charges if a bank’s portfolio were to have larger single-borrower concentrations than the industry average (and reducing the charges if a bank’s portfolio were better diversified than average).

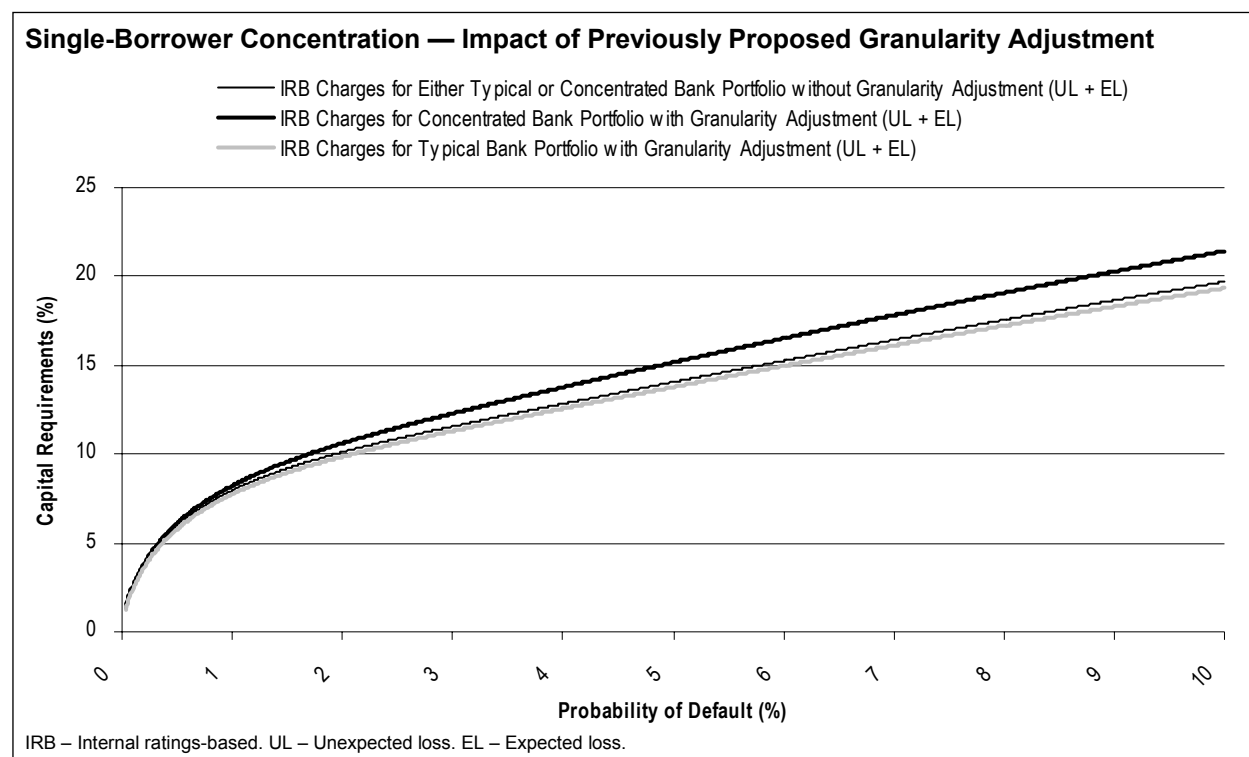
In the granularity analysis, Fitch first composed a typical portfolio of nonretail assets held by a hypothetical bank, consisting of 50% corporate loans (with the 10 largest borrowers contributing 20% of the corporate book), 30% loans to small- and medium-sized enterprises (SMEs; with the 10 largest borrowers contributing 20% of the SME book), and 20% CRE loans (with the five largest borrowers contributing

10% of the CRE book). Additionally, given the role of both legal lending limits and economic capital modeling in limiting borrower concentration, exposures to single borrowers generally do not exceed 2% of a bank’s total assets. Therefore, Fitch assumed that no single exposure within this typical portfolio would exceed 2% of the book for a given asset class.

As seen in the chart on page 8, the previously proposed granularity adjustment for this typical portfolio does not alter the capital requirements materially. This is because the IRB charges have been roughly calibrated to reflect the average degree of borrower concentration typically found in the industry.

In trying to construct a scenario in which the granularity adjustment would have a material impact on the IRB charges, Fitch needed to introduce fairly strong assumptions about the level of borrower concentration within the portfolio. In one such scenario, Fitch now assumes some exposures represent up to 4% of the particular book, or, more generally, 2% of the bank’s total assets, still consistent with lending limit regulations. Therefore, the hypothetical bank’s portfolio has the 20 largest corporate borrowers constituting 80% of the corporate book, the 20 largest SME borrowers constituting 80% of the SME book, and the 20 largest CRE exposures constituting 80% of the CRE book. As illustrated in the chart on page 8, this scenario results in a moderate increase in capital requirements based on the granularity adjustment, suggesting that the final Basel II framework (which does not include a granularity adjustment) might in certain cases lead to an understatement of the capital needed to support a bank’s borrower concentration, although this adjustment appears to have a second order effect on the overall IRB charges.

However, there are other important sources of concentration affecting a bank’s credit risk profile, such as geographic and industry concentrations, that even the granularity adjustment would not have picked up and that are not directly reflected within the IRB framework. While supervisors will monitor credit risk concentration as part of their responsibilities under Pillar 2, it will nonetheless be important for market analysts to differentiate between banks that have more pronounced risk concentrations. For example, regional banks potentially could have higher concentrations in specific markets or sectors relative to larger, well-diversified institutions. Analytically, it is important to determine how well the bank is evaluating and measuring the several



forms of potential concentration it may face (single borrower, geographic, and business sector, among others), how well it is able to aggregate these concentrations, and its strategy for managing and mitigating this risk.

■ Commercial Real Estate

Broad Overview of IRB Treatment

The Basel II treatment of CRE, defined to include financing for the funding, construction, or acquisition of CRE (such as offices and retail space, among others), had been a hot-button issue for the industry. An important feature of CRE is that repayment and recovery of the exposure depends primarily on the cash flows generated by the underlying asset or property. Basel II broadly distinguishes between two types of CRE:

- IPRE, which tends to exhibit relatively stable losses and predictable cash flows.
- HVCRE, which typically is subject to sharper fluctuations in performance and has future cash flows that are more uncertain, such as lending to finance acquisition, development and construction.

Before CP3, banks with CRE exposures would have been allowed to use a formula-based approach only for IPRE. Based on its review of bank economic capital models and some empirical study, the

Committee concluded that the risk profile and asset correlation of IPRE assets are broadly comparable to corporate lending and, therefore, decided to allow banks to use the corporate IRB formula for their IPRE holdings, as well. For HVCRE, banks would have had to slot exposures into fixed risk-weighting buckets, which roughly correspond to different credit ratings categories (e.g. Basel II classifies an HVCRE exposure rated ‘BBB-’ or higher as “strong” and assigns it a 95% risk weight, or 7.6% capital charge).

Under the final Basel II framework, after conducting further analysis of the HVCRE market, the Committee has moved to allow banks that can reliably estimate loss parameters internally (i.e. PD, LGD, EAD, and M) to use the corporate IRB formula for their HVCRE exposures, subject to national discretion. Banks not able to estimate these parameters must use the “slotting approach,” which has been adjusted to separate EL from the capital charges. As illustrated in the chart on page 10, applying the IRB formula to HVCRE has the potential to reduce significantly a bank’s capital requirements relative to the slotting approach, depending on the underlying LGD assumption used.

A defining characteristic of CRE, particularly HVCRE, is that the default experience and loss severity on these assets is highly cyclical. During

market downturns, generally there is a sharp increase in defaults and more pronounced losses, resulting in lower recovery values (or, in Basel II parlance, higher LGD estimates). Given that the role of capital is to provide a cushion to absorb losses in times of stress or adverse conditions, understanding the loss patterns of HVCRE over these cycles is critical.

Therefore, as compared to the treatment of IPRE, Basel II applies a relatively higher correlation assumption to the IRB calculation of capital charges on HVCRE, reflecting the higher loss volatility and some of the uncertainties regarding the historical loss data on these assets. More specifically, HVCRE exposures apply a correlation assumption ranging from 30% for low PD (high-quality) obligors to 12% for high PD (low-quality) obligors, a bit higher than the 24%–12% correlation range used for IPRE (and corporate) assets. As seen in the chart on page 10, this difference in the assumed correlation affects the relative calibration of the HVCRE and IPRE capital charges, as the two curves are identical except for their underlying correlation values.

Fitch's Views on IRB Treatment of CRE

Fitch agrees conceptually with Basel II that it is important to address the unique risks posed by CRE lending, given that losses on these assets can suddenly materialize after many years of stable performance and, when these losses occur, they can potentially be a source of instability for the banking industry. Recent examples of crises in the CRE markets included Sweden and several major metropolitan areas in the Northeastern U.S., both during the early 1990s, and Thailand a few years later, each of which caused ripples in the banking sector. In the U.S., at least one bank failure could be attributed largely to the CRE cycle. Therefore, as a general principle, Fitch supports the application of higher relative charges on HVCRE exposures to help banks weather potentially dramatic and unexpected increases in default rates and loss severity. However, the differences in calibration between the HVCRE and corporate formulas are relatively modest. Thus, given the potential for greater volatility in HVCRE lending, it is important to look closely at how banks think through stress scenarios and allocate capital.

The use of the IRB approach will likely encourage banks in their efforts to measure the credit risk and analyze the historical loss performance of HVCRE, which should ultimately promote more robust risk management of these assets. However, one of the key challenges currently facing banks is that, compared to some other lending activities, there is limited

empirical research and loan data covering multiple cycles of market downturns. Therefore, in practice, the quality of data banks use to derive and support their loss estimates will be critical in ensuring that sufficient capital is allocated against these exposures.

From an analytical perspective, the challenge facing banks, supervisors, and analysts alike is to evaluate how well a bank's loss history captures the full range of events that can occur over a cycle, given that CRE markets have experienced historical episodes of much higher than normal default experience and extreme volatility, manifested in more severe loss events. For example, if only the last five years of data were used, the default estimates might be close to zero for certain portfolios since the recent past has been a period of fairly stable performance in the CRE market. Therefore, risk managers should not allow themselves to be lured into overly optimistic assessments that ignore the important lessons of past crises or that fail to imagine potential risks down the road.

Therefore, Fitch thinks it is important for banks to look beyond the minimum Basel II data requirements (i.e. five years of PD and seven years of LGD data) and to build loss histories that cover a full cycle of the real estate market. Additionally, it will be critical for banks to perform credible stress tests around their PD and LGD estimates, particularly to reflect the potential for low frequency but high severity loss events.

Another potential lever of conservatism within Basel II's treatment of HVCRE is the role of national discretion. Supervisors in each country will be responsible for determining which assets should be classified as HVCRE. In this regard, geographical concentrations could play an important part in this analysis; local and regional market conditions are likely to be similar, and portfolios will be influenced by similar economic conditions, possibly resulting in more highly correlated returns.

Additionally, national supervisors will also decide whether banks will be permitted to use the IRB formula (as opposed to the supervisory slotting approach). Given some of the uncertainties surrounding CRE data histories, supervisors are unlikely to apply the IRB approach if they feel that their banks are not yet in a position to derive loss estimates reliably. However, it is unclear how aggressive all supervisors will be in evaluating a bank's readiness, as it could be politically difficult to say no to domestic banks while international competitors using the IRB formula might benefit from potentially lower capital charges.

Basel II Capital Charges vs. Fitch's Enhancement Levels for U.S. CMBS

To develop a sense of the Basel II charges, Fitch graphed the credit enhancements expected for different target rating grades for U.S. commercial mortgage-backed securities (CMBS) against the IRB capital charges on CRE. However, while this snapshot comparison is helpful, the Fitch enhancement levels (for CMBS, as well as other structured asset classes) and the IRB model are based on different assumptions, drivers, and definitions. For example, regulatory capital and the rating enhancement levels are not defined in exactly the same way. The Basel II IRB charge is designed to cover UL, with EL being addressed primarily through reserves.

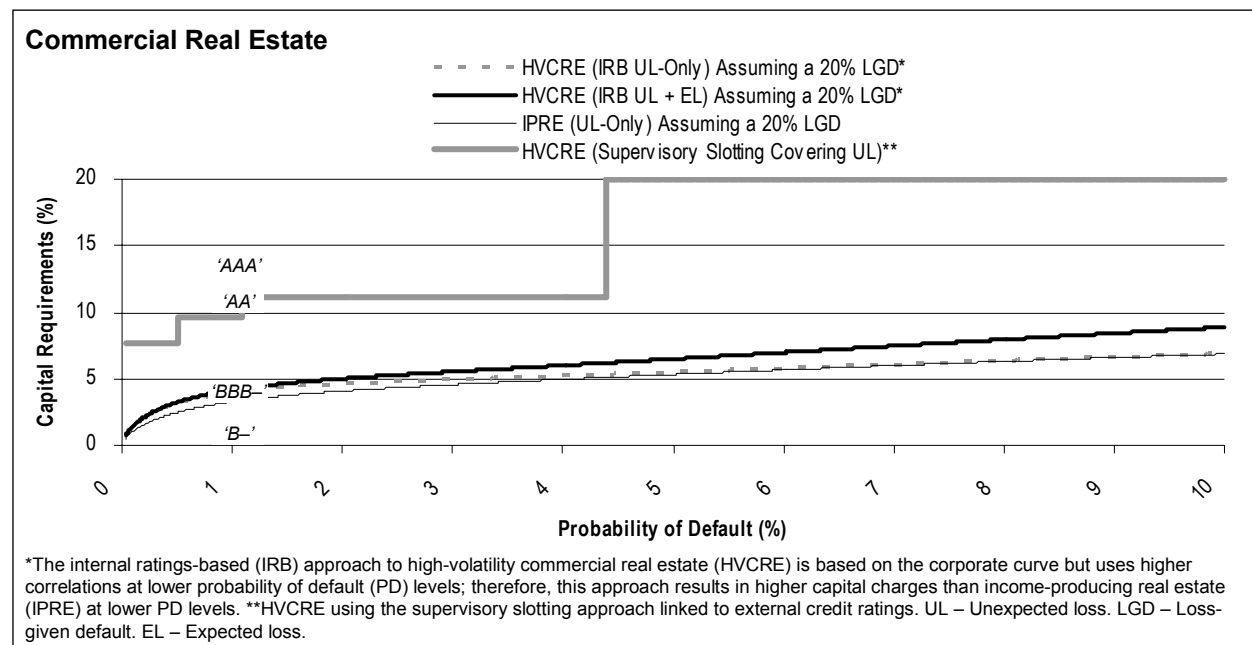
In contrast, Fitch enhancement levels for investment-grade securities address both EL and UL, with a greater proportion of UL covered the higher the rating grade. Fitch looks at losses experienced by assets and sectors during severe historical downturns, stress scenarios, and other potential uncertainties and assigns enhancement levels to cover the potential for wider variations and larger losses. The higher the rating, the more conservative the assigned enhancement and the greater the buffer for absorbing UL.

The results of this comparison are illustrated in the chart below. Since Fitch enhancement levels contain EL, the chart graphs what the charges would look like for HVCRE when including both EL and UL, as well as the UL-only HVCRE curve. Notably, the assets typically included in the CMBS pools rated by Fitch are more

akin to the lower volatility assets defined under Basel II as IPRE (as opposed to HVCRE) because they include properties that are already constructed.

The chart's enhancement levels reflect the assumption that CMBS on average have a 1% PD, based on Fitch's experience of the annualized average default rate for typical pools of loans underlying CMBS over the past 10 years (see *Fitch Research on "CMBS Subordination Levels: Too High, Too Low, or Just Right?"*, dated June 8, 2004, available on Fitch's web site at www.fitchratings.com). As the past 10 years have been relatively stable for CRE markets, the default experience might have been higher if based on a longer history encompassing more severe market downturns. Additionally, the relative calm in these markets also influences Fitch's assumption of a 20% LGD, roughly approximating the loss experience in the commercial mortgage loan market over the past few years (of the loans that default, about one-half wind up paying in full, while the other half experience an average loss of about 40%). Of course, Fitch's rating process and enhancement levels are designed to capture potential fluctuations in default rates and loss severities that might occur during periods of market distress.

From this analysis and noting the assumptions above, Fitch graphed the credit enhancement level for CMBS at different target rating grades relative to the IRB charges for CRE exposures. As shown in the chart below, at the 1% PD level, the Fitch credit enhancement on a 'BBB-' rated asset is typically in the range of 4%–5%.



comparison, the Basel II charge for an IPRE exposure with a 1% PD and a 20% LGD is approximately 3.3% (UL-only) and 3.5% (UL and EL, not shown in the chart on page 10), which is lower than the Fitch enhancement level for a ‘BBB-’ rating. By way of information, the Basel II charge on an HVCRE exposure is about 4.2% (UL and EL), assuming the same PD and LGD estimates; however, this is not as relevant a comparison since the assets in Fitch’s CMBS pools generally are more akin to IPRE.

A complicating factor in making this comparison is that CMBS pools rated by Fitch are composed typically of broadly diversified assets (e.g. by geography), which helps to mitigate concentration risk. While larger banking organizations tend to have well-diversified CRE portfolios, more regional players can be exposed potentially to more pronounced risk concentrations. Indeed, geographical concentrations can increase the volatility and risk profile of a bank’s commercial mortgage exposure, a risk factor not addressed in the Basel II charges.

Basel II could underestimate the economic risk facing those banks with more concentrated commercial mortgage portfolios, particularly as compared to the Fitch rating process, which already embeds the risk-mitigating impact of diversification. When evaluating banks that are active in HVCRE and/or higher risk IPRE, Fitch believes sufficient capital must be held against these assets. Therefore, to get a better understanding of the risk profile of these assets, analysts

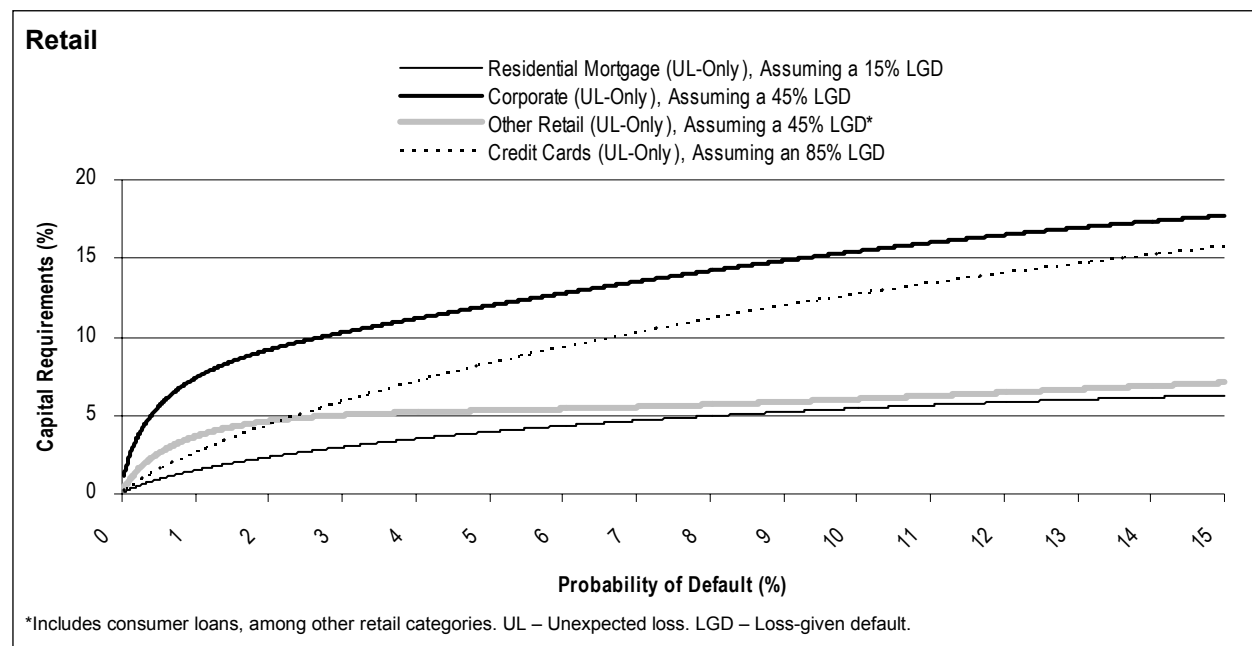
and investors will want to think carefully about the amount of diversification within the bank’s CRE portfolio and its processes for incorporating these potential risk concentrations into its risk management processes (e.g. the length and quality of data history used, the use of stresses or scenario analysis in deriving loss estimates, and the bank’s capital planning and allocation strategy, among other factors).

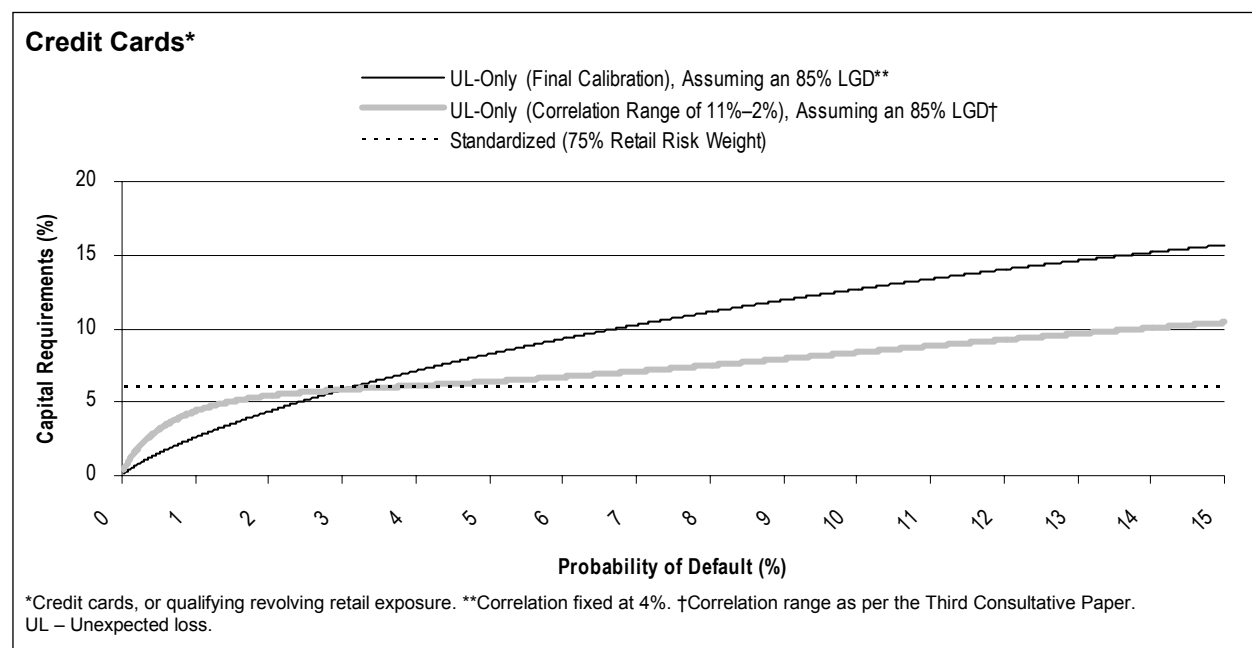
■ Retail Exposures

The IRB approach distinguishes between three types of retail assets — credits cards (known formally as qualifying revolving retail exposures [QRRE]), residential mortgages, and consumer lending (classified under other retail). Basel II has calibrated the three retail capital curves to reflect the unique loss attributes of each of these different products, as seen in the chart below. The IRB formulas for the three retail product types are identical except for the underlying correlation assumption, a key driver of the shape and structure of the capital requirements. Additionally, the Basel II charges are sensitive to the underlying LGD estimate, which in practice can vary quite a bit across the different types of retail assets. For example, loss severities tend to be much higher for credit card assets than for residential mortgage lending.

■ Qualifying Revolving Credits (Credit Cards)

The decision, first announced in July 2002, to treat credit cards as a separate asset class under Basel II





was an important step in recognizing the typically lower risk profile of general-purpose credit cards, particularly to prime borrowers. Since that decision, the Committee has continued to refine its treatment of credit cards to reflect the unique loss attributes of this asset class.

Movement to a UL-Only Charge and the Removal of FMI

The move under Basel II to a UL-only capital charge implicitly acknowledges the sophistication and reliability of banks to measure and manage their EL exposure. For retail products — and credit cards in particular — the development of sophisticated risk measurement models has enabled many banks to estimate EL and incorporate it into risk-based pricing and reserving practices. For banks with less sophisticated internal models, the discipline of preparing for the IRB approach will help them to develop more refined EL-based pricing and reserving.

The move to a UL-only framework included eliminating FMI from the capital calculations. Fitch supports this change, having previously expressed concern with the inclusion of FMI as an offset to regulatory capital charges (*for more information, see Fitch Research on “Basel II: Refinements to the Framework,” dated Feb. 6, 2003, available on Fitch’s web site at www.fitchratings.com*). The recognition of FMI would have unnecessarily clouded the regulatory capital base, as in Fitch’s view, the loss absorption of FMI is not sufficiently reliable to warrant treatment as

capital. Since FMI is a statistical generation of potential future income ability that fluctuates with interest rates, as well as the economic cycle, FMI could be affected by market dynamics. Competitive pricing could also negatively affect the ability of banks to fully realize their estimates of FMI. Fitch takes a conservative view of FMI within the credit rating process, allowing no capital recognition in rating financial institutions and permitting limited recognition in rating certain more junior classes of credit card asset-backed securities (ABS).

Correlation Assumption Fixed at 4%

Another critical change to the Basel II framework and a flashpoint for the industry has been the level of the correlation estimate used in the IRB formula for credit cards. More specifically, Basel II applies a fixed 4% correlation across all PD levels, rather than calibrating correlation as a function of borrower quality (correlation was previously set to range from 11% for high-quality borrowers to 2% for low-quality borrowers).

The intuition behind the previous treatment of setting the correlation higher for high-quality (or low-PD) assets than for low-quality (or high-PD) assets was the assumption that a larger proportion of the economic risk on high-quality exposures is driven by systematic (as opposed to idiosyncratic or borrower-specific) risk factors. While this conceptual reasoning is sound, the higher correlations applied to assets at the lower PD levels appeared to result in fairly

onerous capital charges on these assets, at least according to industry estimates.

While correlation could theoretically vary within a credit score band, the adoption of the 4% correlation factor is significantly lower than the 11% peak and results in lower capital charges on high-quality credit card assets. For example, as illustrated in the chart on page 12, a pool of credit cards with a PD of 2% and an assumed LGD of 85% would have required regulatory capital of 5.5% based on the ranging correlation of 11%–2% (assuming a UL-only calibration). Using instead the fixed correlation of 4%, the regulatory capital requirements on this same pool would decline to about 4.5%, or a 100-basis-point reduction in the charge at the 2% PD level. The fixed 4% correlation only provides a capital break on higher quality assets (i.e. those with PDs of 3% or below). Therefore, banks holding lower quality credit card assets do not appear to benefit from the new 4% correlation assumption.

Fitch's View on the Change in Correlations

In evaluating Basel II's changes to the credit card correlation assumptions, the broader issue to explore is whether the new correlation value results in more appropriate regulatory capital charges that better reflect the underlying economic risk of the assets. Given the parameters of the credit model created under Basel II, adjusting the correlation value is one of the primary policy levers that the Committee has at its disposal to alter and modify the shape and structure of the IRB capital curves. The decision to move to a 4% correlation assumption reflects not just an effort to identify a correlation estimate more reflective of industry experience, but also the Committee's wider mission of calibrating the overall charges on credit cards to be more reflective of the economic risk of these assets (particularly for higher quality borrowers) and achieving other prudential and regulatory objectives.

In this regard, Basel II's adoption of a fixed 4% correlation estimate appears, on balance, to be a positive change that will move the overall charges more generally in line with the underlying economic risk on credit cards. Lowering the correlation assumption from a peak value of 11% to a fixed 4% on higher quality credit card exposures seems to be more consistent with the typical loss characteristics and risk profile of these assets, which have experienced low loss volatility and generally stable, predictable loss patterns for prime borrowers historically. Likewise, the increase in correlation values from a low value of 2%

to a fixed 4% for lower quality credit card assets (and the resultant higher capital charges) is also more appropriate, given the more volatile performance of the subprime market. Nonetheless, banks with a heavy mix of subprime credit card activity will need to ensure that the capital charges rendered by Basel II cover the greater volatility and higher risk profile of these borrowers.

■ Residential Mortgages

Broad Overview of IRB Treatment

Other than the move to a UL-only calibration, the IRB treatment of residential mortgages has not changed since CP3. The fixed correlation assumption remains at 15%, which is somewhat higher than the Basel II correlations for the credit card and other retail portfolios. The higher correlation for residential mortgage lending reflects in part the typically longer maturities and the cyclical nature of residential mortgage performance. During periods of economic distress, the incidence of defaults could increase, particularly if rising unemployment is coupled with falling housing prices.

However, given the historically low default experience and loss severity on mortgages, banks will probably be able to substantiate fairly low PDs (most banks participating in the Committee's third quantitative impact study [QIS 3] appear to estimate average PDs of less than 1%) and low LGDs (for example, about 15%). Therefore, despite the higher assumed correlation, the Basel II capital charges on residential mortgages tend to be lower than on all other asset classes. As seen in the chart on page 11, for the range of PD levels highlighted (0%–15%) and assuming a 15% LGD, the capital requirements on residential mortgages are lower than the requirements for each of the corporate, credit card, and other retail curves.

That Basel II regards residential mortgage lending as a fairly safe asset is also evidenced by the new 35% risk weight (or 2.8% capital charge) applied under the standardized approach, less than one-half the 75% risk weight (or 6% capital charge) for other retail assets. Indeed, as reflected in the results from QIS 3, Fitch anticipates that the Basel II capital charges for residential mortgages will fall rather significantly relative to those in Basel I. Therefore, a projected outcome of Basel II is that banks with large exposures to residential mortgages will likely see their regulatory capital requirements decrease, all else being equal.

Evaluating the Risk of Residential Mortgages

Fitch agrees that residential mortgage lending has performed well as an asset class historically and that Basel II, in providing a more risk-sensitive capital framework, should reflect this in its calibration. The bulk of empirical evidence internationally shows that, as a sector, residential mortgage lending (without any new development) is low risk.

Although the risk profile of residential mortgages generally is low, the risks should not be underestimated. Banks need to manage their residential lending portfolios in a way that addresses the attributes and features that might increase or potentially mitigate the credit risk on these exposures.

Analysts need to consider the impact of broader macroeconomic trends and cyclical patterns. This type of analysis is particularly important for residential mortgages since their longer maturity exposes them to a broader range of cyclical fluctuations and adverse economic conditions than some of the other Basel II asset classes. The loss history used to assess a bank's risk on its mortgage lending exposures should capture a full economic cycle, including periods of economic distress. This could entail using a longer history than the minimum of five years of PD data and five years of LGD data required for retail exposures under Basel II or performing stress scenarios that capture potential downturns in the cycle.

Concentration risk is another important factor to consider. The degree of concentration can vary across banks and affects the economic risk posed by the bank's mortgage activity. Indeed, analysts should carefully assess any bank whose mortgage book is heavily concentrated in a particular geographic or borrower market and examine how the bank aggregates and manages this exposure. Basel II's use of the 15% correlation for residential mortgages is to some extent designed to capture longer maturities and possibly also to address the potential for concentration risk. However, banks also need to perform more nuanced internal assessments of how potential geographic concentration, heavy exposure to high-risk product attributes or low-quality borrowers, and cyclicalities might affect the level of risk within their mortgage portfolios.

Basel II Capital Charges vs. Fitch's Enhancement Levels on U.S. Prime RMBS Portfolios

In trying to gauge the overall level of the Basel II capital charges for residential mortgage lending,

Fitch compared the IRB capital charges with Fitch's approach for setting credit enhancements on a well-diversified portfolio of prime U.S. RMBS. Fitch's RMBS rating process embeds a number of risk-mitigating structural features, which complicates this comparison. Without these features, Fitch would require a higher enhancement level.

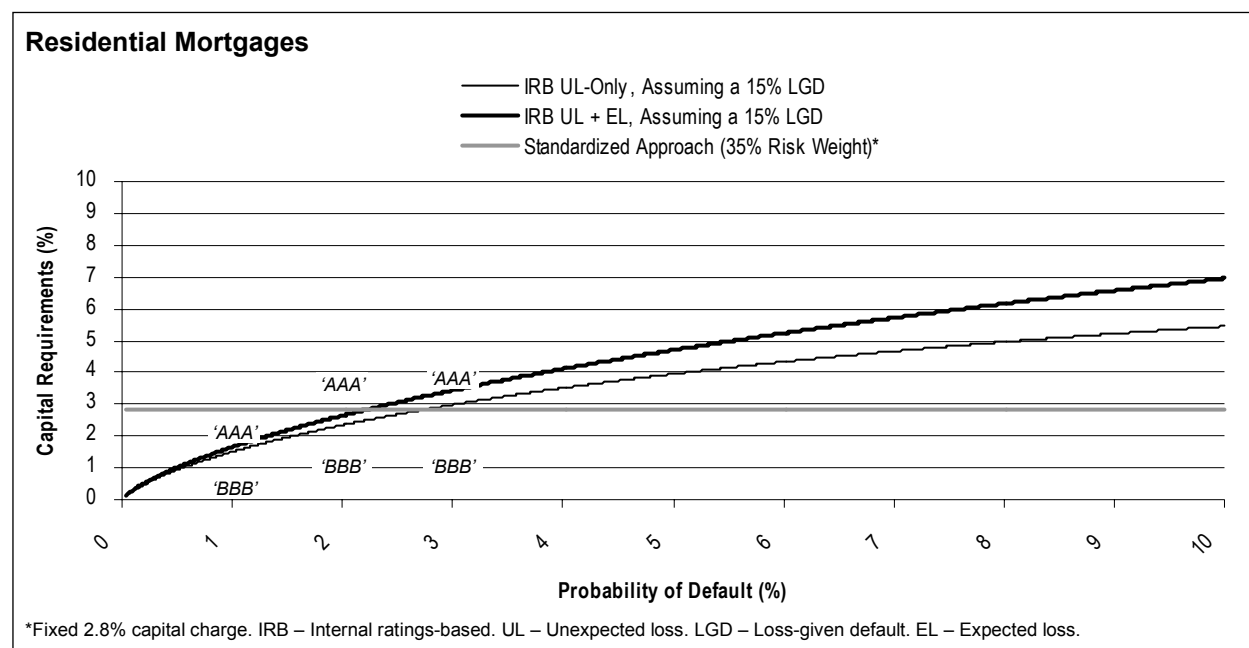
As seen in the chart on page 15, Fitch looked at three sample portfolios of mortgage assets, each with different underlying default experience (with 1%, 2%, and 3% annualized default rates, respectively) and calculated the enhancement levels corresponding to each rating grade, generated through Fitch's U.S. RMBS rating model. The enhancement levels for the three portfolios were then compared with the Basel capital charges for residential mortgages at the respective 1%, 2%, and 3% PD levels and using a 15% LGD.

In Fitch's approach to RMBS, given the typically stable financial performance of U.S. residential mortgage lending, there is not as large a gap between enhancement levels at the various rating categories as there are for other asset classes (such as CRE lending). All else being equal, this small gap between enhancement levels made the comparison with the IRB charges a bit more difficult, so the results should be viewed as a general approximation only.

In the chart on page 15, the Basel II charges appear to reflect approximately a high 'AA' enhancement level. For example, at the 3% PD level, the Fitch credit enhancement on an 'AA' rated asset is approximately 2.5%. By comparison, the Basel II charge for a mortgage asset with a 3% PD and a 15% LGD is approximately 3.4% (UL and EL) and 3.0% (UL-only), both higher than the Fitch enhancement level for an 'AA' rating on a portfolio with this estimated default rate.

However, Basel II is designed to broadly cover the risks of mortgage lending across different markets and bank portfolios within a single risk measurement framework. By comparison, Fitch's RMBS rating models are designed to capture the nuances of the particular mortgage portfolio, including the following:

- **Borrower Quality:** The RMBS enhancement levels shown in the chart on page 15 represent a prime portfolio of assets. The loss experience and enhancement levels would differ for a lower quality portfolio; some of the risk characteristics that are inherent in lending to an Alt-A or subprime market are captured with additional



adjustments to Fitch’s default and loss probability assumptions contained in its RMBS model, which makes it difficult to map the enhancements to a specific PD level.

- Geographic Market:** The comparison to Basel II is based on Fitch’s U.S. model for RMBS, which varies across geographic regions based on the unique attributes of the particular residential market. In evaluating markets with more volatile residential markets or a less robust legal framework, Fitch’s model would apply higher enhancement levels.
- Portfolio Diversification:** In rating a well-diversified RMBS structure, Fitch expects the portfolio to meet certain criteria that help to mitigate risk, including a geographically diverse pool of mortgages with no concentration of high-risk borrower or mortgage product attributes. If a pool is not well diversified and there are risk concentrations, the economic risk and, in turn, the enhancement levels would be higher than for a pool without these additional risk factors. By comparison, the Basel II charges do not specifically take into account the possibility for risk concentration, although supervisors will review portfolio concentration through Pillar 2. When such concentrations are present, the Basel II charges might more appropriately reflect less than the ‘AA’ level of enhancement, as Fitch would address such concentrations through higher enhancement levels.

If a bank holds assets consistent with the features in the above portfolio (i.e. well-diversified portfolios of prime borrowers within well-developed mortgage markets), its internal economic capital models might reflect a lower risk measure than under Basel II. In cases where the Basel II charges are binding over bank economic capital models, it might be interesting to monitor any incentives banks might face to manage these exposures on an economic basis — for example, through potential capital arbitrage activities.

■ Pillar 3: Market Discipline

Overview

Pillar 3 is, in many ways, one of the most groundbreaking aspects of Basel II. The purpose of this part of the new capital framework is to communicate to the market much of the risk information assembled for capital adequacy purposes. Pillar 3 reflects the Committee’s belief that market participants using this information will reward those that manage risk well and shun those that do not. Nothing is quite as effective as the prospect of the loss of business or investor confidence in getting an errant management team to mend its ways. In this way, Pillar 3 should help to reinforce the type of behavior and the risk management discipline that are envisioned in the other two pillars of the Basel II framework.

To accomplish this goal, Pillar 3 sets out robust disclosure requirements. Relative to current requirements in most countries today, Basel II

mandates much more extensive disclosure about the distribution of risk within banks' various portfolios and businesses. It also requires discussion of the underlying policies and valuation techniques used to measure risk. The quantitative data requirements are broad and are expected to give considerably greater detail of a bank's portfolio and risk appetite than the current required disclosure.

The increased disclosure in and of itself will be extremely useful to market analysts, and Fitch intends to leverage this information in its analysis. To most effectively use the new information and discern the nuances between banks, analysts will need to understand how Basel II works and, more importantly, to appreciate the nature of the internal rating systems that each bank uses and the assumptions that are used in those systems. The Basel II requirements leave sufficient room for banks to disclose information in a way that works well with the bank's own management information systems.

Inherently, common disclosure standards promote greater comparability from one institution to another. However, if not interpreted carefully, they may lull investors into a false sense of uniformity. Behind the numbers produced by the new disclosure standards are still different approaches to risk rating and measurement. This is generally viewed favorably by Fitch, as a system that is too prescriptive will likely inhibit innovation and improvement. Yet it is important to get behind the numbers to appreciate the nuances in risk profiles across various financial institutions.

New Disclosure Framework — Lessons from the World of Market Risk

In assessing the types of challenges Fitch believes analysts will face, it is helpful to look at the evolution of value-at-risk (VaR) modeling as an analytical and regulatory tool, as its use in measuring market risk over the past decade provides some broad parallels to the implementation of Pillar 3 for credit risk.

An important lesson of the evolution of VaR is that by providing a common methodological and disclosure framework, regulation can help to enable the broad assessment and comparison of risk exposure across institutions. Initially, disclosure on VaR reflected a variety of approaches and implementation, making it difficult for both analysts and supervisors to differentiate the level of market risk that each institution faced. The Committee, under

the 1996 Market Risk Amendment, promoted greater harmonization in methodology and disclosure by establishing a common framework for calculating VaR and market risk reporting. Banks were required to use a minimum 99% confidence level, derive loss estimates based on at least a one-year observation of market data, cover losses over a 10-day period (or a one-day VaR scaled up to 10 days), and encompass the different forms of market risk (e.g. equity, interest rate, and foreign exchange, among others). Currently, thanks in part to the Basel II regulatory parameters, most of the large banks base their VaR measures around these standards.

At the same time, banks have continued to push forward in their measurement approach as they manage risk on an economic basis and as market pressures encourage further innovation in practices. For example, a bank's internal market risk model might place greater weight on more recent market movements to better capture the relative importance of these events. By comparison, the market risk regulatory measure is based on equally weighted data points over the given observation period. Therefore, to understand a bank's market risk profile, it is important to understand the differences in assumptions between its internal economic models and the calculated regulatory measures, in particular any adjustments or innovations that the bank makes when looking at risk internally.

In modeling risk, the role of stress analysis is critical. In a period of low historical volatility, a bank could generate a lower VaR measure that might lead to understatement of the potential risks. However, risk managers should not assume that the future is a perfect reflection of the recent past. If a bank increases its exposure primarily on the basis of generating lower VaR estimates, then the bank's plans for or anticipation of potential market disruptions need to be assessed, based either on specific historical (and perhaps forgotten) episodes of pronounced volatility or on plausibly constructed forecasts of market movements. This type of scenario analysis provides greater insight into the bank's risk exposure under more extreme market conditions.

There are important factors and assumptions underlying the calculation of VaR that are critical to understanding the bank's market risk exposure that require analysts to dig beneath the disclosure's data and ask penetrating questions that truly assess the market risk profile of the institution. Piercing through disclosure data to differentiate among bank practices

is critical given the variation in banks' risk measurement methodologies and how they portray their risk profiles. Much of the meaning comes not just from the final regulatory or economic capital measures, but from understanding how banks think about and manage their risk profiles.

Challenges in Using Pillar 3's Enhanced Disclosure

As with the evolution of VaR models for market risk, Basel II pushes the boundaries of credit risk measurement and disclosure and provides new opportunities, as well as new challenges, for analysts and investors to better understand a bank's risk profile and capital allocation approach. In leveraging these new disclosures, some critical issues for analysts to explore include: the bank's use of historical data and statistical information; the underlying ratings philosophy and approach to internal ratings; the bank's capital allocation strategy over the course of the business cycle, particularly if during a volatile market; important differences across different countries and markets and how these can affect risk estimates; and for more sophisticated organizations, how the Basel II measures compare to the bank's economic capital models.

Banks' Use of Historical Data and Statistical Information

To understand a bank's internal risk-rating systems and credit risk measurement approach, the bank's use of underlying data analysis to derive loss estimates for each rating grade needs to be assessed. Comparing loss estimates from one bank to another will require an appreciation for the similarities and differences between companies' use of historical data.

The economic period covered by the data history is a crucial factor in evaluating the robustness of the bank's loss estimates. If the data cover a period of relative calm in markets, the bank's estimation of PD or LGD might not capture the potential for future volatility in the asset's performance. For example, assuming a bank is using its own internal rating system on CRE loans, incorporating both a derived PD and loss severity based on its own historical experience, and the historical data span seven years (between 1997 and 2004), the amount of capital dictated by the model for these CRE loans is likely to be very different, and less conservative, than in another bank's model that spans a longer horizon and incorporates the more pronounced loss experience in these markets in 1990–1992.

Another consideration is whether the historical data used is relevant to the bank's current business strategy and asset mix. For example, under Basel II, banks entering a new business activity will need to obtain data that are appropriate to that product; however, how the data are deemed to be relevant, particularly for a relatively untested or new product, becomes an issue. In other cases, banks exiting a particularly troublesome type of lending might determine that historical loss data from that activity should be excluded from the calculation of its reserves or capital. Therefore, cases where management is pursuing new business activities or taking a deliberate departure from historical data are of note.

Banks' Rating Philosophy

Another critical factor in understanding a bank's measure of credit risk under Basel II is a bank's internal rating philosophy. Banks' rating philosophies vary considerably and play a crucial role in credit risk measurement. Some banks choose to rate by taking into consideration possible stresses through a business cycle (a through-the-cycle approach). Others tend to take more of a point-in-time approach, recognizing the business cycle through frequent and aggressive rating changes.

A bank's rating philosophy affects the volatility of ratings, how credits are distributed among rating grades at a given time, and what the underlying PD estimates are for those grades. A bank that follows a point-in-time philosophy will have considerably more rating volatility incorporated into its internal rating systems; the bank's equivalent of a 'BBB' rated credit today could fall to a 'BB' or 'B' if that particular obligor or segment of the economy weakens, even slightly. Therefore, the PDs for that bank's portfolio may be very different than those for a bank that rates the same credit a 'BB-' right from the beginning and holds the rating through the business cycle.

Banks using more of a point-in-time approach will reflect market shocks more quickly and are much more likely to move ratings more than one notch at a time. However, these ratings might also pick up short-term noise that can lead to overstatement of the risk during periods of market stress. If a move, particularly a downward move, leads to overstatement of the risk, banks typically just reverse the rating action. Analysts also need remember that rating philosophies can change over time. Ratings that were assigned much farther in the past might not be comparable to those assigned today. For example,

is a particular bank's 'BBB' equivalent today exactly comparable to its 'BBB' in 1998 or 2000, or has management become more conservative or more liberal in its rating approach?

Basel II appears to offer room for banks to follow either type of rating approach. On one hand, banks are expected to estimate the default risk over a one-year horizon, which would encompass only a portion of an economic cycle and thus suggest more of a point-in-time approach. On the other hand, banks must use longer data histories (i.e. five years of PD and either five or seven years of LGD, depending on the asset) and, according to Basel II, reflect long-term experience in generating risk estimates, which suggests more of a through-the-cycle approach. How this plays out in practice will become clearer during the implementation process and as regulators further develop their views on banks' rating approaches.

Pro-Cyclicality and the Importance of Stress Testing

Closely related to banks' rating philosophies is the tendency of the Basel II capital ratios, in more closely reflecting the underlying credit risk exposure of banks, to move pro-cyclically. In a strong economic environment, a bank's credit risk measures will tend to decline and, in turn, its capital ratios will improve and potentially lead to the bank shedding capital. However, if the economy deteriorates, the bank's risk measures will likely worsen, resulting in weaker Basel II ratios.

Analysts and investors should look for signs that a bank is thinking carefully about the amount of capital it needs to hold to weather future market distress. In this regard, as with the evolution of VaR modeling, the role of stress testing is critical. Banks need to assess carefully both historical examples of more severe credit problems and possible future scenarios of credit disruption. Therefore, how banks incorporate such stress assessments into their capital allocation process will be an important area for analysts to review and one that Fitch considers in its rating process.

Robust stress testing is particularly relevant during stronger economic times, when the more recent underlying data used to generate the Basel II risk estimates (i.e. PD and LGD) might not appropriately reflect potential risks ahead. During a market boom, some banks might respond to their improving Basel II ratios by repurchasing shares or otherwise lowering

their capital base. To the extent that a reduction in the level of a bank's capital is driven principally by an improvement in its Basel II ratios, Fitch will be looking closely at the bank's capital strategy, in particular how stress testing is used to assess the impact of more severe credit problems.

Transparency in the bank's evaluation of stress scenarios and management of capital based on them is critical. Although Fitch recognizes that certain aspects of a bank's capital allocation strategy and process are proprietary, it is important for the bank to communicate the rationale and analysis behind moves to reduce its level of capitalization. Fitch supports the more risk-sensitive Basel II capital requirements and, more generally, the movement by several banks to manage their capital levels based on internal economic risk assessments. At the same time, from a rating perspective, Fitch believes that banks should seek to explain how well their capital base allows them to navigate the full array of risks that can arise over the course of an economic cycle.

Differences Across International Markets and Jurisdictions

In comparing the Basel II ratios and Pillar 3 disclosures across banks globally, an understanding of the differences across markets that can affect banks' loss estimates is essential. For example, two banks operating in different countries might have markedly different LGD estimates for the same type of asset. This difference does not necessarily mean that one bank is wrong and the other is right, nor that the bank with the higher LGD estimate has a more conservative risk measurement approach than the other. Rather, analysts and investors need to explore the root causes of this difference. For example, different bankruptcy regimes or collateral practices affect a bank's ability to obtain and liquidate collateral on a defaulted exposure. In some countries, the laws lean more or less favorably toward banks when a borrower defaults.

Real estate lending is a good illustration of these issues. For instance, in the U.K., it is often possible for a bank to obtain possession of real estate collateral quite quickly following a borrower default, which allows the bank subsequently to liquidate the collateral and to achieve recovery in a fairly short time. This tends to help preserve the value of the property, since bankrupt property owners generally do not have the resources to properly maintain a property. In contrast, a U.S. bank lending on property

in the State of New Jersey, for example, will encounter a very complicated legal process that leans heavily toward the borrower. It can take years for a bank to obtain legal possession of a property once a borrower defaults. Therefore, the cost of carry is higher, and the value of the property may be considerably lower once the bank obtains possession, increasing the bank's LGD.

Differences in market structure or legal practices can result in legitimate differences in a bank's risk estimates and do not necessarily mean that a bank with, for example, a higher LGD estimate is either more conservative in its risk measurement or has a higher risk appetite.

Basel II vs. Economic Capital Models

The Basel II capital framework is based on some of the same risk measurement concepts as in the economic capital models that more sophisticated banks use internally. However, Basel II, in its goal of achieving tractability and uniformity, embeds a number of supervisory parameters and simplifying assumptions — for example, regarding portfolio diversification levels — which will inevitably differ from the internal structure of banks' economic capital models.

Much like the evolution of VaR modeling, how the Basel II regulatory measure compares with the bank's management of credit risk on an internal economic basis needs to be examined. In making such a comparison, key areas of departure between the two and how they affect the risk measures should be assessed. It is also important to look for cases in which the Basel II measures are more conservative than, and hence are binding over, the bank's economic model, which might create potential incentives for banks to engage in new forms of regulatory capital arbitrage.

Also important to explore are the bank's assumptions around correlation within and across different portfolios, given that these can be a key driver in the amount of capital generated. For example, what is the impact of recognizing the risk-reducing benefits of portfolio diversification on the bank's overall capital levels, and does the size of the reduction seem reasonable? What kinds of empirical work has the bank done to validate these estimates? A related issue to consider is the bank's approach to reflecting potential risks posed by concentrations in risk exposure. For example, what types of processes does the bank use to identify, measure, and aggregate

different forms of concentrations across its various portfolios? How well does the bank capture more subtle forms of concentration risk, as through exposures to CDOs of CDOs?

To make this comparison, data and information are critical. Basel II pushes the frontier in the types of risk-related disclosures banks will need to provide around their credit risk-rating systems and measurement of regulatory capital. Some banks currently provide high-quality disclosure about their credit risk exposure and approach to economic capital, which, coupled with the heightened risk transparency under Basel II, hopefully could motivate an increasing number of banks to provide more meaningful information about their economic capital models. Such information will be particularly useful given the valuable insights that can be generated by a comparison between a bank's Basel II and economic capital measures.

■ Looking Ahead

Fitch has reviewed the existing level of credit risk-related disclosures across a sample of banks internationally and has found varying degrees of disclosure quality across different markets. Quality can vary quite a bit, even within markets, with a very small number of banks having emerged to date as clear thought leaders in providing robust and insightful risk disclosure. Pillar 3 certainly will put more information in the hands of analysts and investors than they ever had.

Looking ahead, Fitch will leverage both the enhanced disclosure framework and the greater risk sensitivity of the Basel II capital ratios, which are helpful tools in broadly comparing the risk profile of banks. In assessing a bank's capital, one of several factors included in the rating process, Fitch looks to the level of capital relative to the bank's risk exposure, its approach to capital planning, and the quality of the bank's risk management practices. For example, Fitch's analysis addresses a wide range of issues, including how well the institution is positioned to withstand adverse market events, how its capital planning ties into its overall business strategy (e.g. future acquisition plans or new product development), and the bank's ability to access new capital or grow its capital base. Additionally, as banks continue to develop better and more robust internal measures of economic risk, an even greater portion of Fitch's analysis will focus on the rigor and assumptions behind its economic capital modeling

and the bank's use of stress testing or scenario analysis to forecast the capital impact of potential risks. All of these factors help to shape Fitch's

overall view on the capital strength and, more broadly, the credit quality of the bank.

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