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The effect of Basel II on project finance

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When the sequel to Basel comes into effect next year it will have important ramifications for project finance desks at the banking giants and boutique project financiers alike.

Moreover, lower capital quotas on 'low-risk' projects could drive pricing margins even tighter than at the present low watermark.

Chris Marrison, founder and chief executive of financial consultancy Risk Integrated, discusses the implications.

The importance and relevance of Basel II should be obvious to any business that considers profitability to be linked to cost of funds provided by banks.

This new government regulation will come into effect in both the Europe (January 2007) and United States (2008) and primarily concerns the amount of capital that banks must hold in their reserves. Under Basel I, banks were required to hold capital equal to 8 per cent of the balance of all assets.

Under Basel II the capital percentage for low risk assets will be evaluated on a case by case basis and greatly reduced.

This affects the cost of funds and pricing as capital typically costs banks 10 per cent more than debt, so a reduction of capital from 8 per cent to 4 per cent would mean a reduction of 40 basis points.

The Structure of Basel II for Project Finance

Under Basel II there are three main approaches for estimating the minimum required regulatory capital: Slotting, Foundation IRB (Internal Ratings Based) and Advanced IRB.

Slotting requires the bank to simply 'slot' assets into ranges according to their perceived credit quality. Each range has its own capital percentage, which tends to be relatively high when compared with the IRB approaches.

Foundation IRB bases the amount of capital on the banks' in-house risk models. The two main risk factors that are considered in the calculation of capital for the IRB approach are the probability of default (PD) and the loss given default (LGD).

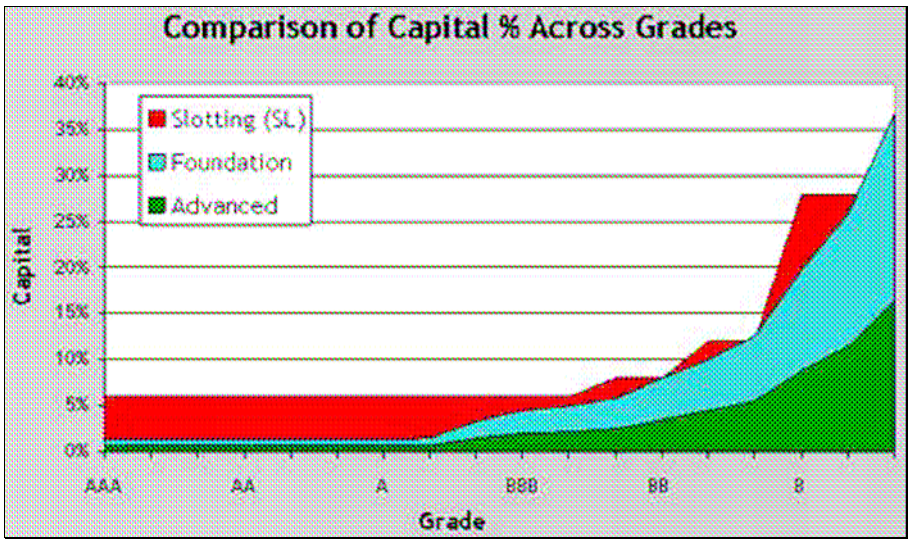
The Basel equation allows capital to vary approximately as the square root of PD and linearly with LGD. For example, a four-fold reduction in PD halves capital, or a two-fold reduction of LGD halves capital. For the Foundation IRB approach, LGD is fixed at 45 per cent.

In the Advanced approach the bank uses its own models to estimate LGD. For assets with an LGD less than 45 per cent there will be a saving in capital.

For example, under the advanced approach, an asset with an LGD of 15 per cent would require one third of the capital that would be required if the bank had only adopted the Foundation approach.

Figure 1: Basel capital for a range of assets with different credit grades.

The table below uses the results for BBB assets and shows the amount of capital to be held under each approach.



In general, if a bank qualifies for a more sophisticated approach, its minimum regulatory capital will be less. This is because the regulators have greater faith in the soundness of the bank's controls.

The reduced minimum capital leads to a savings either due to a reduction in the capital held, or a reduction in the cost of debt. Overall, a bank with US$1 Billion of BBB assets would save around US$4-5 Million for every year that it can use the Advanced approach. This is quite a substantial cost saving.

With such a dramatic change in the cost of funds, you would expect that every bank would pursue the Advanced approach. This has happened in general, but less so for project finance.

There are two reasons for this delay. One reason is that it is more difficult to quantify PD and LGD for project finance assets than it is for assets such as corporate loans or credit cards.

The other reason for the delay is that when a bank's "Basel Implementation Group" has been tasked with making the bank Basel-compliant, the natural and sensible starting point is to put the effort into the largest of the bank's asset classes and the easiest models, leaving the other, more difficult asset classes to remain under the Slotting approach until the rest of the bank is sorted.

For niche banks dedicated to project finance, their largest asset class will be project finance and many niche banks began the process two to three years ago in order to get efficient risk measurement tools in place allowing them to quickly qualify for the Advanced treatment.

For large diversified banks, Basel implementation is yet to trickle down to the project finance group. The result is that for the same deal, the qualified banks could get funding at 20-50 basis points less than their unqualified cousins who are using the less advanced approaches.

As bankers are starting to see this prospect, it is the Head of Project Finance rather than the Head of Basel Implementation who is pushing for new risk models for their sector.

Figure II: Capital to be held for 1Billion of BBB assets according to the different approaches of Basel II

Basel II Approach	Capital	Reduction in COF
Slotting	60 M	--
Foundation (45 percent LGD)	45 M	1.5 M (15 bps)
Advanced (20 percent LGD)	20 M	4.0 M (40 bps)
Advanced (5 percent LGD)	5 M	5.5 M (55 bps)

Risk Measurement for Project Finance

To qualify for the Advanced Approach, the bank must satisfy the regulators that they have sound risk models with a strong quantitative basis.

Project finance assets are different from more vanilla assets such as commercial, middle market and retail loans. From a risk measurement perspective, the most important features are that the deals are almost unique, as deal structures are constantly evolving and the terms are very long.

The net effect is that there is very little applicable historical default data. This means that the usual regression models are not applicable.

However, project finance assets have a large amount of structure within each deal. The structures are complex and there is a complex interaction between different features of a deal.

This complexity means that simulation is the most useful way to structure all the available information to quantify risk. Risk Integrated's Specialized Finance System (SFS) is based on cashflow simulation, which can be seen as being equivalent to real-option pricing.

This gives all the risk statistics required for Basel II, along with deep insights into the source of risk so that the project can be structured to minimize the required capital.

The Long Term Impact on the Market

Inevitably Basel II is going to increase the pace of adopting risk quantification models as aids in structuring new deals and monitoring portfolios. In some ways this is just the natural progression of the increasing use of models first adopted by options traders.

It will make the players structure deals to explicitly minimize PD and LGD, whilst achieving the project's goals. It will also increase the differentiation of pricing between safe and risky deals.

However, there is a certain minimum cost to maintaining and running the complex models needed to assess project finance deals, so over time it will not be efficient for banks to hold small portfolios of project finance assets and some banks will drop out of the market.

In the long term, the market will rearrange itself to be a step more economically efficient and rational, but for a few years after January 2007, there will be wide disparities in the cost of funds that different project finance groups are being charged, giving opportunities for the nimble.