

Swiss National Bank

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Systemic Stability: Research and Policy  
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## **Discussion of "Banks, Internal Models, and the Problem of Adverse Selection "**

I will focus my discussion on a comparison between the modelling framework in this paper, the main features of the market risk amendment and the main features of the IRB approach. This comparison is key, if we want to assess the prudential implications of this paper.

### **1. Summary of the paper**

In the model, the capital requirement is the result of a strategic interaction between the supervisor and banks.

The supervisor is facing two types of banks that differ in their short-term risk attitude. Ex ante, the supervisor can observe neither bank type nor bank portfolio risk. But ex post, he obtains a noisy signal about portfolio risk through back-testing.

The supervisor responds to the information asymmetry problem by setting a capital requirement derived from the VaR announced by the bank. To ensure incentive compatibility, the regulator penalises ex post the banks that have been too optimistic in their VaR announcement.

Using this framework, the author finds that the presence of less prudent banks implies an information externality for more prudent banks. This induces prudent banks to announce conservative risk estimates, while they indeed choose low risk investments. As a result, prudent banks make an incomplete use of their capital. And because capital is costly, prudent banks may prefer to leave the industry. Note that all the formal results in this paper are derived under the assumption that banks are well capitalised.

### **2. Comparing the model and the market risk amendment**

The starting point of the paper is the empirical observation that under the market risk amendment (MRA), banks tend to be too conservative when reporting var to their supervisor. So it seems natural to begin with a comparison between the model and the main features of the MRA.

#### **2.1 Two similarities**

There are two essential similarities between the model and the MRA. Both frameworks specify that (i) ex ante, the capital requirement is derived from the bank's risk announcement and (ii) ex post, there is a back-testing process combined to a penalty mechanism.

## 2.2 One difference

I should also mention one difference. Under the MRA, the supervisor has to approve the model that will generate the VaR estimate. This means that the scope for the bank to announce a biased VaR is constrained ex ante. In the paper, by contrast, the bank's scope for distorting the VaR announcement is unrestricted.

I think that in the absence of any restrictions on the VaR announcement, the assumption that the bank is well capitalized becomes essential if we want the penalty mechanism to have a disciplining effect on the bank. An undercapitalized bank would probably not be deterred by ex post penalties, and it would prefer to maximize portfolio risk and to announce an underestimated VaR.

But how can we a priori assume that a bank is well capitalized in a model were it can choose portfolio risk and determine its capital requirement through the VaR announcement? In the context of market risk, this assumption can be legitimated by the fact that the capital base of a universal bank is mainly driven by the credit risk requirement. This means that a bank cannot really influence its overall capital adequacy by distorting the VaR announcement.

This brings me to my first conclusion. When the bank is well capitalized, which can be a reasonable assumption in the context of the MRA, the modelling framework in this paper and the MRA are equivalent in terms of incentives. To me, this means that the story imagined by the author is a plausible explanation, among others, for a conservative bias in VaR reporting.

## 3. Comparing the model and the IRB framework

But this conference is about Basel II and not about the MRA. And the author writes that his arguments apply with minor modifications to the IRB approach. Let's now try to assess whether this is really the case.

### 3.1 One similarity

There is one similarity between the paper and the IRB. This similarity is that the IRB specifies that the capital requirement is derived from risk parameters announced by the bank, such as PD and LGD.

### 3.2 Two essential differences

But for the rest of the comparison, I am more sceptical. In my view, there are at least two essential differences between the model and the IRB.

First, the IRB framework does not specify a formal penalty mechanism based on back-testing. One reason is that in the context of credit risk, you need a long loss history to assess the quality of an internal rating system. This may prevent a timely back-testing, and impair the effectiveness of an ex post penalty mechanism. Note that I am not saying that banks that underestimate credit risk will never be punished under the new accord. Pillar 2, for example, could be used to penalize such banks. But I think that it is fair to say that within the IRB framework, penalties will not be enforced in a way that is as mechanical as under the MRA.

31 May 2002

3

Another difference between the IRB and the model is that the IRB puts more emphasis on ex ante intervention by the supervisor. In particular, the new accord defines a number of eligibility requirements for banks wanting to use IRB.

Most requirements are designed to ensure that the credit risk estimates that will serve as a basis for the calculation of the capital charge are derived from a rigorous methodology. For example, the bank will have to demonstrate that (i) its rating system provides for a meaningful differentiation of borrowers and risk characteristics, (ii) the factors and criteria used to differentiate risk have sufficient predictive and discriminatory power and (iii) that PD and LGD estimates are grounded in historical and empirical evidence.

A number of requirements are also designed to mitigate banks' incentives to announce biased risk estimates. For example, the bank will have to demonstrate that the credit risk estimates used for the calculation of the capital requirement are an integral part of its internal management, which includes loan pricing and loan approval.

The above mentioned eligibility requirements significantly reduce banks' scope and incentive for announcing biased credit risk estimates and they imply much more ex ante intervention by the regulator than what assumed in the paper.

Besides the back-testing difficulties, there is another good reason explaining why the IRB approach relies more on ex ante than on ex post intervention. This reason is that for a universal bank, the core of the capital requirement will be affected by the credit risk announcement. In this context, it becomes questionable to assume a priori that a bank is well-capitalized, and risk-loving strategies cannot be excluded anymore. In particular, banks could be tempted to choose a high risk lending strategy and to announce a low credit risk to maximize the leverage effect of the lending strategy. I think that if the IRB regime relied essentially on ex post intervention, as is assumed by the author, our main problem with the IRB would be an excess of optimism in bank's credit risk reporting, rather than an excess of conservatism.

This brings me to my second conclusion. In my view, the incentive mechanisms in this paper and in the IRB framework are not equivalent.

## 4. Summary

To summarise my discussion, I would say that

- the paper provides an interesting explanation for banks tendency to report too conservative market risk estimates,
- but that this result cannot be transposed to the IRB framework.