

## **Internal Credit Ratings—Industry Norms and How to Get There with SAS®**

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My presentation addresses two main topics: The first one focuses on industry norms and the best practices to build internal credit ratings (PD,EAD, LGD). Although there isn't any capital relief to local US banks using internal credit ratings (except for the top 10 banks, the US hasn't adopted the Internal Rating Based approach of Basel 2), there has been an increase in responsiveness to credit ratings modeling over the last two years in the US banking industry.

The main reason is the added value a bank can achieve from this ratings and that's what I focus on in the second part of my presentation. It describes our journey in getting there introducing the SAS project, and even more important; how we use credit ratings to accomplish effective credit risk management and get real added value out of that investment.

The key factor for success in achieving this is to effectively implement ratings within the credit process and throughout decision-making. Only then, ratings can be used to improve Risk Adjusted Return on Capital which is the high end objective of us all.

### **Abstract**

Lending is the core business of most banks. One of the key success factors in credit is to be able to differentiate between the good borrowers and the bad ones by using credit ratings you can trust. I'll focus more on the corporate and high-end commercial portfolio which typically is considerably more complex than the credit retail portfolio. These portfolios are less homogenous, with a rich variety of business needs, credits and collateral, and are usually exposed to significant concentration risks (single and group borrower, sectoral , geographic etc.) and therefore require development of a specific methodology and IT tools.

### **Industry Norms**

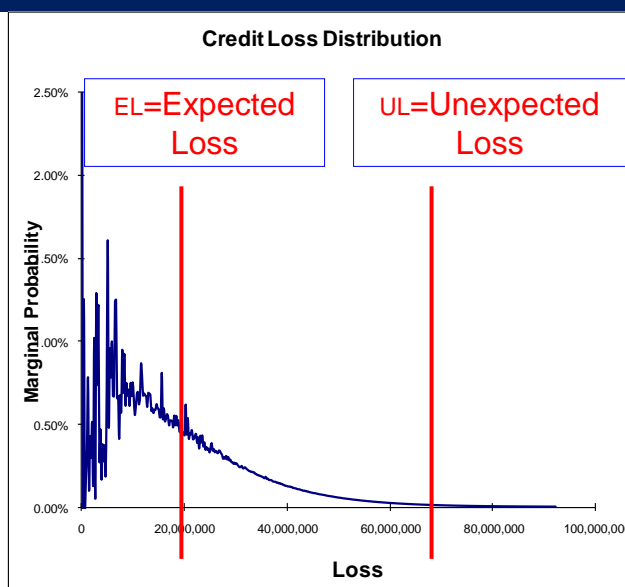
The best known credit rating is risk from the borrower. It provides a way to differentiate between “good” and bad credit.

But, the whole picture is much more than the risk level, since when a borrower defaults, he might owe us much more than what he is utilizing now and the bank will usually exercise collateral held in order to reduce the loss. This is why EAD and recovery rates are important as well.

If you have these 3 elements then you are able to speak about *Expected Loss* and *Unexpected Loss*.

In practice, the credit loss distribution of a typical credit portfolio is right handed skewed (as seen in graph1) as a result of concentration risk. That's why unexpected loss may differ dramatically from expected loss. Once you have it you can apply it to all of the credit decisions on all management levels. One example on the BoD level is the ability to shift credit limits from volume terms into loss terms. In my presentation, I'll demonstrate how we use it on a daily basis and how heavily it is implemented in all levels of credit decision making, including strategy, what if scenarios, stress testing, pricing, managing capital and achieving the required return for shareholders.

## Graph 1: Credit Loss Distribution



### How to get there with SAS?

The expected loss is computed by the product of the risk parameters of the obligor:  $PD \cdot LGD$

Remark: Developing PD, LGD, EAD models is done by SAS® CSfB application.

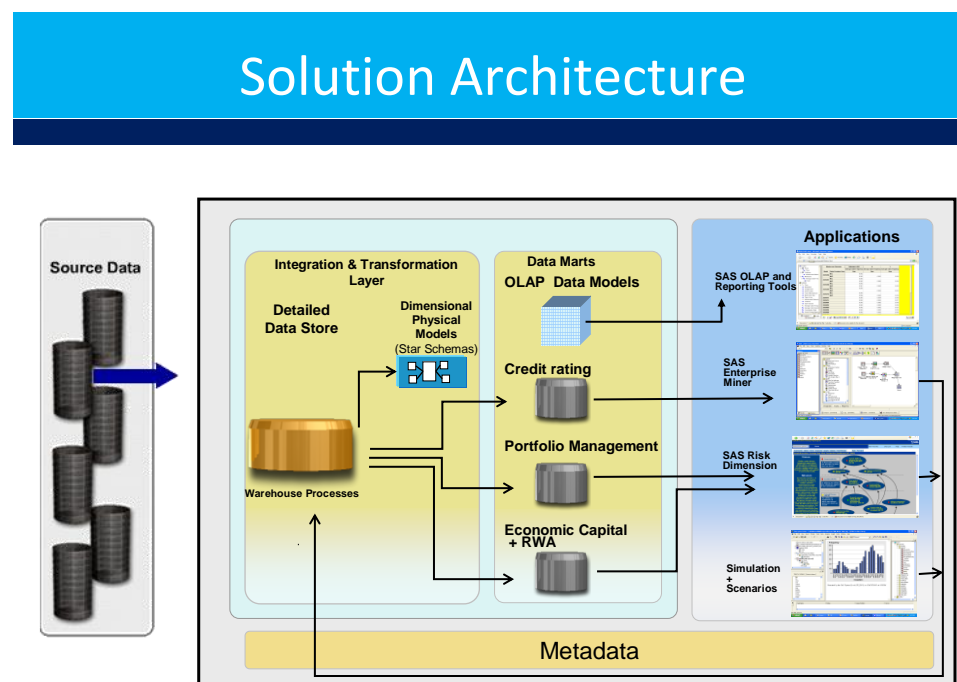
SAS is also used to calculate the borrower rating based on credit officer responses and the PD model (for our project architecture see chart 1).

The unexpected loss is computed with the Credit Portfolio CRMS module of SAS (for our project architecture see chart 1), based on the risk parameters of the obligor and Monte Carlo simulation that takes into account concentration risk (by large obligor, by group of obligors, by economic sectors, by geography) as well.

From the IT perspective, we have defined a project that includes different systems to support all of those needs. Consistency and interconnectivity among the different systems were crucial to support our vision for effective credit risk management, since the business needs we discussed previously can't be answered by one system, but by a flow of input and output from all of them.

Let me share with you our Project Architecture in a nutshell:

Chart 1:



## **CONCLUSION:**

After the financial credit crisis, financial institutions generally addressed the gaps between the current credit practices and the best practice of credit risk management. Narrowing the gaps begins with a consistent and complete credit risk data base supporting different IT systems and follows with implementing effective credit risk practices within the credit process and throughout decision making.

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### **Recommended Reading**

1. GARP Webinar "Leveraging Risk Analytics to Drive Competitive Advantage" ,September 17, 2013 presented by Boaz Galinson (Head of Group Credit Risk Modelling and measurement) and Tom Kimner (Head of Americas Risk Practice & Global Risk).
2. John B. Caouette,Edward I. Altman,Paul Narayanan. 1998. "[Managing credit risk: the next great financial challenge](#)." John Wiley & Sons, Inc.
3. Darrell Duffi and Kenneth J.Singleton.2003. "[Credit risk: pricing, measurement, and management](#)." Princeton University Press.
4. Bessis Joel. 2010. "[Risk management in banking](#)". John Wiley & Sons, Inc.

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