



**Olaf Musch**  
Head of I-SEM Controlling  
Systems

# Shining the Light into a Black Box

Volkswagen Financial Services uses SAS® to create transparent, reproducible scoring models for credit risk management.

## Industry

Banking

## Business Issue

The financial institution was looking for a high-performance software solution that could be used to develop reproducible and meaningful scoring models.

## Solution

SAS® Credit Scoring,  
SAS® Data Surveyor for SAP

## Key Benefits

Basel II-compliant, stable, auditable and cost-effective modeling processes.

## SAS Partner

Deloitte

## The client

Volkswagen Financial Services AG, headquartered in Braunschweig, Germany, is a wholly owned subsidiary of Volkswagen AG. The company is responsible for coordinating the global financial services activities of the Volkswagen group. Its product portfolio includes auto loans, auto insurance and auto leasing. Volkswagen Financial Services AG is the largest provider of automotive financial services in Europe. As of Dec. 31, 2007, it reported balance sheet assets of over 52 billion euros (about US\$65 billion).

Volkswagen Financial Services AG has over 6,000 employees throughout the world, with about 3,800 in Germany alone. Volkswagen Business Services GmbH is a wholly owned subsidiary and is responsible for all operational and IT services of Volkswagen Financial Services AG.

## The task at hand

What is the probability that a creditor will repay a loan? This was the question that risk managers at Banca Monte dei Paschi di Siena, the world's first bank, asked themselves back in the 15th century. So it is no wonder that since then banks have been putting top priority on continuously improving their risk management. They do so out of self-interest, of course, but also because regulators keep setting new risk management standards that banks must meet, such as Basel II, which forced financial institutions to set up internal procedures for evaluating credit risks using the internal-ratings-based (IRB) approach.

For these reasons, Volkswagen Financial Services decided in 2005 to develop its own scoring models for evaluating credit risks. There were two goals. The first was that the firm naturally wanted to meet the Basel II requirements and thereby improve its rating. Ultimately, the quality of a financial institution's scoring methods has a direct impact on its refinancing costs. These costs depend on ratings issued by agencies like Moody's or Standard & Poor's, which also assess whether IRB systems are recognized by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin – the German Federal Financial Supervisory Authority) and therefore whether they comply with Basel II. The second goal was to reduce the costs for financial services providers that had previously developed credit scoring methods for the firm. For these reasons, the financial institution was looking for a high-performance software solution that could be used to develop reproducible and meaningful scoring models and that could then also be used to validate them.

## The solution

SAS Credit Scoring now gives Volkswagen Financial Services an objective, reproducible and meaningful classification of loan applicants and existing customers. This solution from SAS, the leader in the business intelligence market, allows the financial services provider's risk management experts to create stable models for credit risk analysis that meet regulatory requirements. Volkswagen Financial Services places particular emphasis on making scoring easy to comprehend



“BaFin demands that scoring processes be absolutely transparent and controllable. SAS Credit Scoring guarantees this for us.”

**Karl Teille, PhD**  
Head of I-SEM Controlling Systems at  
Volkswagen Business Services in VW FS AG

and reconstruct: “BaFin demands that banks have absolutely transparent and controllable scoring processes. SAS guarantees that we can do this: We supply our internal customers with 100 percent reproducible, stringent, reliable data,” explains Karl Teille, PhD, head of I-SEM controlling systems at Volkswagen Business Services. “In the past we had to manually compile data from the SAP Business Information Warehouse (BW) and prepare it in the form of spreadsheets.”

“Today, SAS ensures that the processes are not only efficient but that they are above all reliable and reproducible,” adds Olaf Musch, who is responsible on the IT side for managing the SAS Credit Scoring solution as well as IRB parameter estimation and validation at Volkswagen Business Services.

The data comes from SAP BW. SAS Credit Scoring accesses the SAP system smoothly, as Musch confirms: “The interface works great!” This linking together of SAS and SAP also ensures the increased quality of the data in the SAP system. In this way, independent of the scoring model development, it is possible to use SAS to answer questions such as those regarding the consistency or source of SAP BW data. To do this, the SAS Data Surveyor for SAP encodes the complex data structures used by the ERP specialist, thus ensuring the necessary transparency.

The mathematical capabilities of the SAS platform made a strong impression when the software was being evaluated. “If we wanted to achieve the quality of the analytical mathematics that SAS gives us with other sys-

tems, we would have had to do far too much in-house adaptation work,” explains Musch.

Today, about 45,000 loan applications per month are evaluated using models based on SAS. Likewise, risk managers also review about 1.6 million existing contracts every month with the solution. With this performance scoring function the SAS solution is integrated directly into operating processes, providing a high degree of efficiency.

Thus far BaFin IRB certification has not yet been obtained since the financial institution is still compiling the required data history. The BaFin review is scheduled for 2009. Once this happens, the new score modeling solution will start to pay off directly in euros and cents: “Rating agencies base their assessments in part on BaFin certification. In turn, good ratings reduce refinancing costs,” according to Musch.

However, Volkswagen Financial Services is already saving real money today because the institution no longer needs to contract with service providers for risk modeling. These outside experts now only provide additional support during the annual validation of the models – although they, too, use the SAS solution.

In addition, the system is also very easy to maintain, which also keeps costs low.

#### The benefits

- Stable, stringent, Basel II-compliant in-house modeling of scores for credit risk analyses

- Complete transparency and reproducibility of the score modeling process – no more “black boxes”
- BaFin certification expected in 2009
- Efficient, reliable processes
- Better data quality in the SAP Business Information Warehouse
- Significantly lower costs for service providers
- Low maintenance costs

#### The project

The project was launched in mid-2005 with the decision to implement Basel II requirements via an in-house IRB system. Then, with support from the outside, a number of credit scoring products from various providers were evaluated in addition to an in-house development based on SAP. Three solutions made it to the short list, and SAS Credit Scoring made the strongest impression, mainly due to the transparency and reproducibility of the scorings obtained with SAS and the certified and optimized interfaces to the existing SAP BW data warehouse.

Implementation began at the start of 2006 with Volkswagen Business Services receiving support from SAS partner Deloitte. “We decided to use small, iterative releases, so that users in our line departments could use the modeling system for initial tasks early on and thereby gain familiarity with it. This approach proved to be a real success factor in the high acceptance of the solution,” notes Musch. The entire system became operational for the retail business in a larger release in March 2007; the corporate business will follow in 2008.



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SAS Institute Inc. World Headquarters +1 919 677 8000

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