

## *FIH used HUGIN software for Loss Stress Testing*

**Finance for Danish Industry A/S (FIH Erhvervsbank A/S) has used HUGIN software to solve a complex and challenging exercise under the Financial Sector Assessment Program of the International Monetary Fund (IMF).**

### *Company Background*

FIH was established in 1958 by the Danish government and five major commercial banks to address corporate needs for medium-term capital. Half a century later FIH has grown into a strong player in the banking field - specialising in lending to Danish corporate clients.

In 2004 Kaupthing Bank, the 8th largest Nordic bank, acquired the bank. FIH is a commercial bank, holding a Danish Banking License and is subject to supervision of The Danish Financial Supervision Authority.

### *The IMF Exercise*

In late 2005, FIH was selected to solve a complex and challenging exercise under the Financial Sector Assessment Program of IMF. One objective of the exercise was to perform a stress test on the financial accounts of FIH in order to quantify the expected variation in the accounts given different macro-economic stress scenarios. The stress scenarios were given as values of macro-economic variables defined by Danmarks Nationalbank. The stress test involved predicting future loss of FIH given different scenarios for year 2006, 2007, and 2008. The HUGIN technology was used to validate stress loss estimates from the internal credit risk model of FIH.

### *Loss Models*

The IMF stress test was performed using a set of models predicting the loss of FIH based on the macro-economic variables and by subsequently performing inference in the models using the values of the macro-economic variables for each scenario.

The input values of the macro-economic variables were supplied by Danmarks Nationalbank and generated from their quarterly model of Danish economy (MONA). The macro-economic variables were used with a lack of one year versus the FIH historical loss data.

“The HUGIN technology and software proved to be very flexible in the model construction phase,” says Mads Thinggaard, analyst, FIH, and he continues “We used the HUGIN Graphical User Interface to identify variables and estimate models, while an API to the HUGIN Decision Engine was used to automate the inference process. The entire exercise was solved efficiently within a relatively short period of time”.

### *Corporation With HUGIN Expert A/S*

A HUGIN consultant assisted analysts of the Credit and Risk Management departments of FIH in solving the IMF exercise using HUGIN software. The corporation between the HUGIN consultant and FIH employees was very efficient and productive.

*Benefits From the Using HUGIN as Tool and Service Provider*

- ✓ **Information Fusion** The technology combines expert knowledge and data in the model construction phase. This is a clear advantage when expert knowledge is available while only limited or no data is available.
- ✓ **Easy to Comprehend Technology** Following a one-day workshop, we were able to understand the tool and technology enabling an efficient corporation between bank analysts and HUGIN consultants.
- ✓ **Efficient Service** Through a combined effort FIH analysts and HUGIN consultants were able to develop the necessary models and to perform the IMF stress tests within a relatively short period of time.

*Choice of Software and Service Provider*

*“Inspired by an interesting seminar on the use of HUGIN software in the financial sector, HUGIN was a natural choice for us as a tool and service provider to assist FIH in solving the IMF exercise,” says Finn Kock Nielsen, Executive Director of the Credit Department at FIH.*

*“The exercise proved that using HUGIN software and services was the right choice. Using the tool and the excellent service provided by HUGIN, we were able to construct a supplementary model to predict future FIH loss given the scenarios in order to solve the IMF exercise. Without the HUGIN tool and service, we would not have been able to solve the supplementary part of the exercise to the same level of satisfaction,” says Lars Christian Silau, Executive Director of the Risk Management department at FIH.*

*“HUGIN tools and services are highly recommended and FIH will consider using HUGIN tools and services in future projects of this kind” says Finn Kock Nielsen and Lars Christian Silau.*

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