

## DIRECTED RISK RESEARCH PROBLEM STATEMENT

<b>Risk Theme</b>	Operational risk (analysis)	<b>Project Nr.</b>	PS15002
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**PROJECT TITLE:** Practical approaches to perform Macro-Economic Stress Testing for Operational Risk

### PROJECT GOAL

Determine if quantitative techniques can be used to perform Macro-Economic Stress testing in respect of Operational Risk, for example whether there exists a causal link between macro-economic factors and operational losses that can be used to construct a model. Determine if expert-based approaches are justifiable including the practical implementation thereof.

### HIGH LEVEL DESCRIPTION OF PROBLEM

For the requirements such as the regulatory-mandated Internal Capital Adequacy Assessment Process (ICAAP) and financial budgeting, banks perform periodic macro-economic stress tests. This entails the evaluation of the impact on operational risk (OR) capital and expected losses due to a number of macro-economic stress scenarios for different forecasting horizons. A typical approach used for credit risk is to assume a causal relationship between the macro economy and credit losses. Statistical regression models are then used to determine the relationship between historical losses and key macro-economic factors such as GDP, inflation and interest rates. Due to an apparent tenuous causal link between operational risk and the economy, can the above approach be extended to operational risk in a valid way, or are there other approaches that are more appropriate, including expert-based approaches? .

### PROJECT OBJECTIVES

Provide a practical approach to perform macro-economic stress testing for operational risk.

### OUTPUTS REQUIRED

- A documented specification of a modelling approach to use for operational-risk macro-economic stress testing.
- Publication of the outcome in a perceived credible publication in order to influence other banks and the regulator in order to improve consistency of approaches

### STRATEGIC VALUE TO DIRECTED RISK RESEARCH

To be completed

### POTENTIAL PITFALLS

To find quality operational loss data might pose a challenge.

## REFERENCES

[1] “*The Determinants of Operational Losses*”, A. Chernobai *et al.*, Algorithmics research document RA1108, January 2008.

[2] “*Operational Risk: A Review of the Literature*”, E. Cope *et al.*, ORX Research, January 2011.

[3] “*Operational Risk: A Review of the Literature*”, J. Esterhuysen *et al.*, South African Journal of Economic and Management Sciences 13(4). 2010.

[4] “*Cyclicalities in Catastrophic and Operational Risk Measurements*”, L. Allen and T. Bali., Georgetown University, Working paper, February 2005.

[5] “*The impact of the financial crisis on operational risk in the financial services industry: empirical evidence*”, C. Hess. Journal of Operational Risk 6(1), Spring 2011.

[6] “*Economic capital for operational risk applying the loss distribution approach*”, EJJ. Rodriguez, JM. Fera-Dominguez and JL. Martin-Marin. Working paper.

[7] “*Effects of the Financial Crisis on Banking Operational Losses*”, EW. Cope and L. Carrivick. Working paper, February 4 2013.

[8] “*Incorporating Systemic Influences Into Risk Measurements A Survey of the Literature*”, L. Allen and A. Saunders. Forthcoming: Journal of Financial Services Research, February 2004.