DIRECTED RISK RESEARCH PROBLEM STATEMENT

Risk Theme	Credit Risk	**Problem Nr.**	PS16015

Client Name	Frederik van der Walt			**Client Org.**	BAG
Designation	Senior Corporate Credit Modeller				
E-mail	Frederik.VanDerWalt@absa.co.za	**Tel (w)**	011 846 6549	**Mobile**	082 579 7528

PROJECT TITLE: Determining an appropriate discount rate in LGD modelling

PROJECT GOAL:

The goal of the project is to determine an appropriate discount rate at which cash flows are discounted in the quantification of the loss given default (LGD).

HIGH LEVEL DESCRIPTION OF PROBLEM

The LGD is mostly quantified by, either implicitly or explicitly, discounting the streams of recoveries received after a facility goes into default in order to compare the net present value of the recovery streams at the default date with the exposure at default. The rate used, at which these cash flows are discounted, can have a significant impact on the regulatory capital demand of a specific bank portfolio. Therefore, it is important to astutely calculate the appropriate rate.

For the estimation of LGDs, measures of recovery rates should reflect the costs of holding defaulted assets over the workout period, including an appropriate risk premium.

When recovery streams are uncertain and involve risk that cannot be diversified away, net present value calculations must reflect the time value of money and a risk premium appropriate to the un-diversifiable risk. In establishing appropriate risk premiums for the estimation of LGDs consistent with economic downturn conditions, the bank should focus on the uncertainties in recovery cash flows associated with defaults that arise during the economic downturn conditions identified under Principle 1. When there is no uncertainty in recovery streams (e.g., recoveries derived from cash collateral), net present value calculations need only reflect the time value of money, and a risk free discount rate is appropriate.

These measures of recovery rates can be computed in several ways, for example:

- *By discounting the stream of recoveries and the stream of workout costs by a risk-adjusted discount rate which is the sum of the risk free rate and a spread appropriate for the risk of the recovery and cost cash flows,*
- *By converting the stream of recoveries and the stream of workout costs to certainty equivalent cash flows and discounting these by the risk free rate, or*
- *By a combination of adjustments to the discount rate and the stream of recoveries and the stream of workout costs that are consistent with this principle.*

(Basel Committee on Banking Supervision, 2005)

Banks internationally have various ways of determining or selecting the discount rate used in LGD modeling for regulatory capital, for example the contractual rate, cost of equity or the risk adjusted risk free rate (risk free rate with a risk premium or spread) are some of the rates that can be used. The disadvantage of using the contractual rate or the cost of equity is that it is not necessarily representative of the specific defaulted portfolio while a risk adjusted risk free rate is difficult to determine. There is a great deal of uncertainty in the industry around when is it appropriate to use a specific rate such as the contractual rate and also when using a risk adjusted risk free rate, what risk free rate to use and what methodology to follow to calculate the risk premium which should also be in line with the Basel requirements.

PROJECT OBJECTIVES

The objectives of this project are:

- To determine the appropriateness of the various rates that can be used as the discount rate for cash flows in LGD modelling in line with the Basel requirements (for example the contractual rate, cost of capital or risk adjusted risk free rate).
- When using a risk adjusted risk free rate:
    - What risk free rate is appropriate which also takes the Basel requirements into account for example, is it necessary to take the downturn period into account when selecting the risk free rate
    - Determine a methodology to calculate or derive the risk premium or spread
    - The methodology used to calculate the risk premium should either be adaptable to a wholesale and retail portfolio or separate methodologies should be determined for wholesale and retail, as the portfolios differ in the amount of data and available information, as well as their risk profile, maturity, assets, timing and uncertainty of recoveries, etc.

OUTPUTS REQUIRED

- A paper in the academic financial literature
- Practical Guidance to the industry reading the calculation of the risk-adjusted discount rate.

STRATEGIC VALUE TO BMI RISK RESEARCH

This research will contribute conceptually and possibly also materially in many of BMI's fields of competency, namely credit risk analysis in the banking industry.