

## DIRECTED RISK RESEARCH PROPOSAL

<b>Risk Theme</b>	Operational Risk
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**Client Info:** *(only applicable if proposal is in response to a client problem statement)*

<b>Problem Title</b>	Modelling and pricing political violence risk				
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<b>University</b>		<b>Classification</b>			
<b>Problem Nr.</b>	PS16010	<b>Type</b>			
<b>Proposal Nr.</b>	RP16013	<b>Date</b>	29 July 2016		

**PROJECT TITLE:** Modelling and pricing political violence risks.

**PROJECT GOAL:**

To derive a framework that can be used to estimate the risk of political violence events occurring and to study the natural progression of these types of risks.

**PROJECT SCOPE:**

Losses arising from political violence is complex to model, as it depends on a large number of social, economic and other factors. The potential losses due to such violence is significant and need to be assessed by the relevant insurance providers. Various quantitative aspects of such violence, as observed in South Africa, is unknown and little research. This includes questions regarding the incidence as well as severity of these events. The spread of political violence episodes is a further significant aspect where little research exists. In order to assess the probability of occurrence and severity of losses due to political violence, this study will investigate political events that that occurred in South Africa in the past 10-20 years and will consider aspects that may alter (either increase or decrease) the probability of a political violence event in South Africa. It will continue to determine possible trends of political violence escalation in the historic data. Furthermore, the spread of political violence will be modelled through a contagion model that can be used to assess the potential escalation of political violence.

**PROJECT OBJECTIVES:**

To derive a modelling framework that can establish a baseline of the estimated risk of a political violence event occurring in any given year. A contagion model will also be set up to study political violence escalation scenarios in a South African context.

## RESEARCH OUTPUTS / DELIVERABLES

<b>PUBLICATIONS:</b>	<b>Name(s) / Title(s)</b>
Articles	1
<b>STUDENTS:</b>	<b>Name(s) of Student(s)</b>
M.Sc (Dissertation)	Sally-Anne Smart

## APPROACH TO BE FOLLOWED

- 1) Study relevant literature about political violence and the possible modelling approaches that can be used to model it.
- 2) Construct a comprehensive breakdown of political violence its definition, main features and aspects and what it is comprised of.
- 3) Set up a top-down modelling approach that will be used to model political violence; making use of the various modelling approaches that were identified in the literature study.
- 4) Collect relevant available data pertaining to political violence events and economic variables which are known to change a population's perspective, which may increase or decrease the probability of a political violence event occurring; the data relating to South Africa for the past 10-20 years will be collected.
- 5) Set up a contagion model which accounts for the cause of political violence event, the natural trends that were identified and the linear regression model.
- 6) Study the progression of political violence by running the contagion model under a range of simulated scenarios.

## STRATEGIC VALUE TO DIRECTED RISK RESEARCH

This study aims to find a method that can be used to model political violence risks. This may then make it possible to better account for these types of risks and enable pricing of products that cover these risks. The model can be used for scenario testing, including stress scenarios, that is useful for pricing as well a regulatory requirements.