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RISK EVALUATION TECHNIQUES

IN A

GENERAL INSURANCE ENVIRONMENT

by

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Abstract

This dissertation considers the management of risks in a general insurance environment.

This dissertation first aims to set a framework whereby business strategies can be evaluated in order to ensure that the business enterprise functions optimally. The process is set in motion through the use of a control cycle:
Understand the risk framework
Specify the problem. These problems will vary.
Develop a solution for the problem. Test the solution and implement the optimal solution.
Monitor the experience to ensure that the solution is indeed optimal.

As all business strategies function in a framework of risk and eventually lead to a balance between risk and return, this study concerns itself with risk evaluation techniques.

The results can give managers and regulators alike additional insight how to optimise business procedures. An example of this would be to optimise the return on shareholders' capital given the contraints laid down by regulators.

As a starting point the general economic and commercial environment in which a general insurance company operates is considered. This is done from the basis of a model insurance company. The business procedures within an insurance company are replicated in the model insurance company. Certain key risk areas relating to such a company are then emphasised and methods appropriate to evaluate risks pertaining to these areas are considered.

A collective risk model is considered whereby the performance of the model insurance company can be compared to benchmarks set within the general economic and commercial environment. Subsequently, the model office can be applied to solve the problem of maximising shareholders' return. This is an iterative process which involves the evaluation of a change in business procedures. Optimal business procedures are identified to meet the criteria specified.

Due to the ever changing nature of insurance business, the general insurer would need to be monitored on a continuing basis in order to ensure that the business procedures remain optimal. The emphasis is on risk evaluation and quantification rather than audit procedures though these two disciplines do overlap.

Once this framework has been set up to ensure proper risk evaluation techniques, the framework can be made available to the relevant stakeholders.

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"*We are striving for a framework whose underlying goals and broad strategies can remain relatively fixed, but within which changes in application can be made as both bankers and supervisors learn more. It is the framework we must get right. The application might initially be bare-boned but over time can become more sophisticated.*" – Alan Greenspan, October 1999

Though not the banking industry, this drive is the basis for this study.

Keywords
Optimisation, Return on Capital, General Insurance, Model office

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0. Preface

In an effort to ensure a causal understanding of this dissertation, the following diagram has been included together with an explanation pertaining to the content of each chapter.

Consider the general economic and commercial business environment.

All business strategies are founded in this environment.

An appraisal of the areas of risk and uncertainty is required.

The risks must be evaluated and quantified.

Specify the problem.

A framework for testing business strategies is required.

A methodology to test business strategies is required.

An understanding of the boundaries is required.

Develop the solution.

The framework is developed.

The methodology to test business strategies is developed.

The practical application of the methodology is considered.

Monitor the experience

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The arrows indicate the interdependence between the different processes.

The introductory chapter considers the interaction of all the sections. The control cycle is considered, a specific control cycle is proposed and aspects pertaining to each section are considered. In particular the different elements of risk and uncertainty are considered.

In the second chapter the model office framework required to apply the control cycle is considered. This framework is based on three sections namely:

1. The business structure. The business structure is derived from the departmental structure of the company.
2. The business result. The business result following from the departmental structure is reflected in the income statement.
3. Consolidation of the business result. The consolidation over time is reflected in the balance sheet. The balance sheet provides an indication of the value of the company.

An algorithm proposed by other practitioners is also considered.

In the third chapter the methodology required to apply to the framework is considered. This is done by considering the most important areas of risk and uncertainty and proposing and providing a synthesis of the risks that need to be evaluated and the algorithm that will be appropriate for this purpose.

Note that the evaluations specified in these two chapters focus on both the problem of setting an appropriate framework as well as the solution to setting an appropriate framework. The most important areas of risk and uncertainty, based on empirical studies are then considered namely:

1. Pricing risk
2. Reserving risk
3. Asset risk
4. Credit risk
5. Management risk

Chapter 5 considers both pricing and reserving risk under the heading of liability risk because these elements are intertwined with a proper evaluation of the liabilities being taken on (pricing) or the existing liabilities (reserving)

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Chapter 6 considers asset risk and how this can be quantified.

Chapter 7 considers credit and expense risk.

Chapter 8 considers corporate governance. The intention here is to ensure that if corporate governance is properly enforced, then the risk pertaining to poor management will be reduced.

Chapter 9 consolidates the ideas into one working framework.

Chapter 10 provides a glossary of terms.

Chapter 11 provides references. The references are important because this dissertation cannot provide the full detail of all the research it is founded on.

Chapter 12 is the annexure which provides a practical application of the ideas set out in this dissertation. It is based on a simple example to illustrate the ideas. The annexure is, however, very important in that it provides the reader with a simple example to intuitively grasp the framework and methodology set out in this dissertation.