Chapter II

Data Mining and the Banking Sector: Managing Risk in Lending and Credit Card Activities

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Introduction

Banking has changed rapidly over the last decades due to the ability to capture massive data sets easily and the availability of new tools for analysis. The new, commonly used expressions to describe these phenomena are data warehousing and data mining.

The changes have transformed traditional banking activities such as extending loans and given birth to new businesses. For example, the credit card business would simply not exist today, or not in today’s form, without the use of high powered computers and new statistical methods.

In this chapter, we will discuss a few areas of this vast and important phenomenon, following the outline presented. We will be focusing on corporate lending, although data mining permeates all aspects of today’s banking. Some aspects of the corporate lending
discussion are based on Citigroup’s own practices, and the rest of
the subject will be based on practices generic to the industry.

The chapter outline is as follows:
1. Traditional Lending
   1.1 Corporate Lending
   1.2 Consumer Lending
2. Credit Card Activities

Traditional Lending and Corporations

Introduction to Risk Assessment

One of the key areas in banking is corporate lending, in which
a bank loans money to a company for a set period of time at a given
interest rate. The decision to make a loan is not easy. All
companies are exposed to various situations, such as rising and
falling interest rates, economic/business cycles, industry cycles,
and so forth, which will affect the likelihood that the company may
not repay the loan at the agreed upon terms. Traditionally, banks
have focused their analysis on assessing this risk of non-repayment
— or default — on the loan. Increasingly, however, banks are
realizing (and trying to measure) a second, yet equally important
part of the credit risk that the bank takes on when lending to a
variety of obligors — the losses incurred if there is a default.

The importance of measuring and understanding credit risk —
both the likelihood of default and loss incurred if there is a default
— is vital to the banks’ decision-making processes. Credit risk
factors into a variety of aspects of the banks’ business, such as how
they identify their risk appetite and choose their customer base,
how they market different loan products to different customers
iTrade: A Mobile Data-Driven Stock Trading System with Concept Drift Adaptation
[www.igi-global.com/article/itrade/122516?camid=4v1a](www.igi-global.com/article/itrade/122516?camid=4v1a)

Security of Wireless Devices using Biological-Inspired RF Fingerprinting Technique
Saeed ur Rehman, Shafiq Alam and Iman T. Ardekani (2014). *Biologically-Inspired Techniques for Knowledge Discovery and Data Mining* (pp. 311-330).
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Semi-Automatic Design of Spatial Data Cubes from Simulation Model Results
Hadj Mahboubi, Sandro Bimonte, Guillaume Deffuant, Jean-Pierre Chanet and François Pinet (2013). *International Journal of Data Warehousing and Mining* (pp. 70-95).
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