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:

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

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