

UNIVERSITI TEKNOLOGI MARA

**A DEFAULT PROBABILITY
ESTIMATION ON CREDIT CARD
LOAN USING THE MODIFIED KMV-
MERTON DISTANCE-TO-DEFAULT**

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ABSTRACT

Having and holding a number of credit cards among young Malaysians is a normal scenario right now. They claim that by having a number of credit cards, it reflects their socio economy status. Without realizing the effect of the excess usage of credit card, most young Malaysians declare bankruptcy due to credit card debts. This study intends to estimate the probability of default of credit card debts by modeling the default probabilities for four different scenarios as listed by Central Bank of Malaysia using the KMV-Merton framework. It is suggested that the distance-to-default model could be a helpful measure in estimating the credit card default. The distance to default (DD) model is developed to provide probabilistic assessment of an individual's likelihood to default on credit card debts. The larger the value of the distance-to-default, the greater the distance of an individual from the default and the lower the probability of default. The smaller the distance-to-default, the smaller the distance of an individual from the default and the higher the probability of default. However, in certain circumstances, the DD becomes unavailable due to its structural constraints. Therefore, modified distance to default formula is obtained in this study. The variables involved in calculating the probability of default of the credit card debt are saving and its volatility, outstanding balances of the credit card and its volatility, and the number of late or missed payment over the sample period of time. Since the individual's saving in a month is uncertain and unpredictable, this study aims to derive Geometric Brownian motion on the fluctuating value of the individual's saving. While, the value of the outstanding balances is obtained by simulating the data based on guidelines and informations provided by Credit Counselling and Debt Management Agency (AKPK) and Central Bank of Malaysia regarding credit card default. However, the model also requires a number of assumptions in order to make sure the result is predictable. Based on the results obtained, it shows that the estimated probability of default of the credit card debt for each scenario is reliable in accordance with the nature of the credit card default itself. Thus, it verifies that the modified default probability. In addition, this study serves as a guide for researchers to extend the research work covering larger sample size and further conceptual framework.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

This chapter provides an overview of the study. This includes the general description of the problem, motivation to conduct the study, background of the study, the problem statement, objectives, scope and limitations, the significance of the study and the outline of the chapters included in the dissertation. This chapter highlights some important facts that may be useful in understanding the contents of the following chapters.

1.2 GENERAL DESCRIPTION OF THE STUDY

Credit risk is one of the oldest form of risk in the financial markets and has received great attention mainly in the banking institutions. According to Basel Committee on Banking Supervision (2000), credit risk continues to be the leading source of problems in banking institutions all over the world. In the context of Malaysia, Central Bank of Malaysia (2009), had announced that credit risk continues to remain the largest source of risk for banking institution in Malaysia due to the fact that a banking institution's financing portfolio is typically the largest asset and the major source of revenue.

Practically, every bank or non-bank faces the risk of providing loans to a borrower. It is known as a credit risk. This is because the borrower has the possibility to default on their loan by failing to make payments which it is obligated to do. This means the borrowers have not met their obligations when it comes to the terms of repayment. It can mean missing a payment, being late on a payment or avoiding a payment altogether.

The capabilities of borrowers to repay their credit card loan are an important issue that needs attention. Credit cards have become a way of life in Malaysia. Particularly, credit cards play an important role in carrying out day-to-day transactions. Many Malaysian consumers seem to display excessive buying behaviour that is commonly known as 'compulsive buying'. With the passage of time, eligibility criteria for owning credit cards have been changed and become easier. As a result, the number of