BANKING CRISIS IN JAPAN
PREDICTION OF NON-PERFORMING LOANS

By
Saira Sultana White

Thesis submitted to Faculty of the Virginia Polytechnic Institute and State University
In partial fulfillment of the requirements for the degree of

Masters of Arts
In
Economics

Approved:

________________________
Roger N. Waud, Chairman

________________________
Thomas J. Lutton

________________________
Richard P. Theroux

June 2002
Falls Church, Virginia

KEYWORDS: Forecasting, Non-Performing loans, Banking Crisis, Financial Crisis

Copyright 2002, Saira Sultana White
Abstract

Japan is currently suffering its third economic downturn of the past decade. While Japan suffers from a variety of structural problems, the most acute is the crushing burden carried by the banks. They still suffer under the weight of thousands of billions of yen of bad loans resulting from the collapse in asset prices a decade ago. Japan’s still unsolved banking crisis constitutes a threat to a large component of the global financial system.

Some economists believe that these events were avoidable. Better underwriting by Japanese banks and more prudent monetary policies by the Central Bank of Japan could have prevented the subsequent downturn and losses. It may be impossible to prove that sound policies could have avoided the persistent crisis altogether, but it seems unarguable that better professional underwriting by Japanese banks and more prudent monetary policies by the Central Bank could have mitigated the severity of the economic downturns and reduced huge losses.

The model I have constructed analyzes whether the events leading Japan into financial crisis could have been anticipated. The model is a simple multivariate econometric equation estimated monthly data between 1980 and 1990. This model appears to explain much of the variation in non-performing loans during this period. The model simulated during the period 1990 to 2001 indicates that the non-performing loans could have been anticipated.

This model or one like it could have given bank regulators basic tools to anticipate the incidence of non-performing loans during the 1990s. Had regulators done so, it might have been possible for them to take those remedial actions that would have limited the subsequent numbers of poorly underwritten loans during the 1990s.
ACKNOWLEDGEMENTS AND DEDICATION

My gratitude first to Professor Lutton for his constant help and guidance in the development of this thesis. I also thank to Professor Waud and Professor Theroux for their helpful comments.

Aneen Porter gave me much encouragement and moral support.

I am grateful to my father-in-law, Ambassador Robert E. White for his suggestions and improving thesis. And, to my husband Kevin White who was patient and supportive during this period.

I dedicate this thesis to my mother, Aziz Khan and, my son Caleb White.
# Table of Contents

Abstract........................................................................................................................................ii

Acknowledgements and dedication........................................................................ii

Tables of contents.....................................................................................................................iv

List of Tables..............................................................................................................................v

List of Figures.............................................................................................................................vi

Introduction.................................................................................................................................1

Sections

I. Background ...........................................................................................................................3

II. Review of Literature ..........................................................................................................8

III. The Japanese Problem: Asset Deterioration .................................................................11

IV. Hypothesis .........................................................................................................................11

V. Empirical Model and Methodology.................................................................................13

VI. Data Considerations .........................................................................................................15

VII. Discussion on the results of the model .................................................................31

Conclusion...............................................................................................................................37

References...............................................................................................................................38

VITA............................................................................................................................................40
List of Tables

Table-1       Status of Non-Performing Loans for All Banks: Loss on Disposal of Bad Loans----6
Table-2(a)   GDP growth (%), Before the banking crisis (1980-1990)---------------------------17
Table-2(b)   GDP growth (%), During the banking crisis (1991-2001)--------------------------17
Table-3(a)   Long Term Lending Rates (%), Before the banking crisis (1980-1990)----------21
Table-3(b)   Long Term Lending Rates (%), During the banking crisis (1991-2001)------------21
Table-4(a)   Central Bank Discount Rates (%), Before the banking crisis (1980-1990)-------23
Table-4(b)   Central Bank Discount Rates (%), During the banking crisis (1991-2001)--------23
Table-5(a)   Overall Wholesale Price Index (%), Before the banking crisis (1980-1990)------26
Table-5(b)   Overall Wholesale Price Index (%), During the banking crisis (1991-2001)-------26
Table-6(a)   Unemployment Rate (%), Before the banking crisis (1980-1990)-----------------29
Table-6(b)   Unemployment Rate (%), During the banking crisis (1991-2001)-----------------29
Table-7      Regression Results: Hilderth-Lu (HL), 1980:03-1990:12------------------------31
Table-8      Accuracy of Forecast----------------------------------------------------------36
List of Figures

Fig-1 Growth of bad Loans-----------------------------------------------7
Fig-2(a) GDP growth (%), Before the banking crisis (1980-1990)--------------------------18
Fig-2(b) GDP growth (%), During the banking crisis (1991-2001)--------------------------18
Fig-3(a) Long Term Lending Rates (%), Before the banking crisis (1980-1990)-------------22
Fig-3(b) Long Term Lending Rates (%), During the banking crisis (1991-2001)-------------22
Fig-4(a) Central Bank Discount Rates (%), Before the banking crisis (1980-1990)---------24
Fig-4(b) Central Bank Discount Rates (%), During the banking crisis (1991-2001)---------24
Fig-5(a) Overall Wholesale Price Index, Before the banking crisis (1980-1990)----------27
Fig-5(b) Overall Wholesale Price Index, During the banking crisis (1991-2001)----------27
Fig-6(a) Unemployment Rate (%), Before the banking crisis (1980-1990)----------------30
Fig-6(b) Unemployment Rate (%), During the banking crisis (1991-2001)----------------30
Fig-7 Actual Non-Performing Loans Vs Model’s Projection (1980-2001)-------------------33
Fig-8 Actual Non-Performing Loans Vs Model’s Projection -----------------------------34
   Historical Period (1980-1990)
Fig-9 Actual Non-Performing Loans Vs Model’s Projection -----------------------------35
   Forecast Period (1991-2001)