

Florian Manz

Non-Performing Loans

Determinants – Default – Divestiture



Nomos

Nomos Universitätsschriften

Betriebswirtschaftslehre

Volume 7

Florian Manz

Non-Performing Loans

Determinants – Default – Divestiture



Nomos

Unterstützt durch das Promotionsstipendium der Konrad-Adenauer-Stiftung.
This publication was supported by the Doctoral Scholarship from the
Konrad-Adenauer-Stiftung.

The Deutsche Nationalbibliothek lists this publication in the
Deutsche Nationalbibliografie; detailed bibliographic data
are available on the Internet at <http://dnb.d-nb.de>

a.t.: Darmstadt, Univ., Diss., 2019

ISBN 978-3-8487-6506-5 (Print)
978-3-7489-0592-9 (ePDF)

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library.

ISBN 978-3-8487-6506-5 (Print)
978-3-7489-0592-9 (ePDF)

Library of Congress Cataloging-in-Publication Data

Manz, Florian
Non-Performing Loans
Determinants – Default – Divestiture
Florian Manz
150 pp.
Includes bibliographic references.

ISBN 978-3-8487-6506-5 (Print)
978-3-7489-0592-9 (ePDF)

1st Edition 2019

© Nomos Verlagsgesellschaft, Baden-Baden, Germany 2019. Printed and bound in
Germany.

This work is subject to copyright. All rights reserved. No part of this publication may
be reproduced or transmitted in any form or by any means, electronic or mechanical,
including photocopying, recording, or any information storage or retrieval system,
without prior permission in writing from the publishers. Under § 54 of the German
Copyright Law where copies are made for other than private use a fee is payable to
“Verwertungsgesellschaft Wort”, Munich.

No responsibility for loss caused to any individual or organization acting on or
refraining from action as a result of the material in this publication can be accepted
by Nomos or the author.

Vorwort

Die vorliegende Arbeit wurde im Wintersemester 2019 vom Fachbereich Rechts- und Wirtschaftswissenschaften der Technischen Universität Darmstadt als Dissertation angenommen.

Mein herzlicher Dank gilt meinem Doktorvater Herrn Prof. Dr. *Dirk Schiereck* für den steten und uneingeschränkten Zuspruch, für seinen akademischen Rat, sowie das Vertrauen, das er in mich setzte. Herrn Assistant-Prof. Dr. *Florian Kiesel* danke ich für die Erstellung des Zweitgutachtens, sowie die zahlreichen Anmerkungen im Vorfeld der Veröffentlichung. Vorliegende Arbeit hat von der Förderung beider Betreuer bedeutend profitiert.

Ich danke meinen akademischen Lehrern Herrn Prof. Dr. Dres. h.c. *Werner F. Ebke*, LL.M. und Prof. Dr. *Nico B. Rottke*, die in Lehre und persönlicher Förderung das wissenschaftliche Fundament vorliegender Arbeit gestiftet haben. Dank gebührt auch den Kolleginnen und Kollegen am Institut für deutsches und europäisches Gesellschafts- und Wirtschaftsrecht der Ruprecht-Karls-Universität Heidelberg für die angenehme und freundschaftliche Arbeitsatmosphäre. Insbesondere Frau *Simone Slawik* möchte ich für die kollegiale gemeinsame Zeit als wissenschaftliche Mitarbeiterin in Heidelberg danken. Bedanken möchte ich mich zudem bei der Promotionsförderung der *Konrad-Adenauer-Stiftung* für die Unterstützung und lehrreiche Förderseminare.

Verbunden mit meinem Studienabschluss möchte ich die Möglichkeit einer persönlichen Danksagung nutzen. Ohne den moralischen Beistand meiner lieben Freunde Herrn *Fabian Meeb* und Herrn *Matteo Baratta* wären die vergangenen Jahre kaum erfolgreich gewesen. Dank gebührt zudem meinen Mentoren Herrn *Clemens Schäfer* und Herrn *Peter Gaul*, für ihren jahrelangen und wertvollen Rat aus der Praxis.

Mein besonderer, tief empfundener Dank gilt meiner Familie für Ihre lebenslange Unterstützung. Meinen Eltern, meiner Schwester und meiner Großmutter – Ihnen ist diese Arbeit gewidmet.

Heidelberg, im November 2019

Florian Benedict Nikolaus Manz

Kurzbeschreibung

Die Dissertation „Non-Performing Loans: Determinants – Default – Divestiture“ nimmt die aktuellen Leitlinien der Europäischen Aufsichtsbehörden zum Umgang mit notleidenden Krediten (NPL) zum Anlass, die Wirksamkeit der bereits genutzten und darin vorgeschlagenen Mechanismen anhand von vier wissenschaftlichen Studien zu beleuchten. Im Rahmen eines systematischen Literaturüberblicks werden zunächst die Determinanten der mit dem Terminus NPL beschriebenen Situation auf makroökonomischer, Bank- und Kreditebene untersucht. Im Anschluss betrachten drei empirische Analysen die Marktreaktionen auf Abwicklungsankündigungen notleidender Assets im Europäischen Aktien- und Fremdkapitalmarkt. Die Ergebnisse präsentieren der Bankenindustrie sowie dem Leitlieniengeber und seinen Mitgliedstaaten einen nuancierten Impuls, wie in Zeiten sich stetig ändernder ökonomischer Rahmenbedingungen mit einem hohen Bestand an notleidenden Vermögenswerten umgegangen werden kann.

Abstract

Based on the recent European regulatory policies on non-performing loans (NPL), the dissertation “Non-Performing Loans: Determinants – Default – Divestiture” presents four stand-alone research papers on *determinants, default and divestiture* of NPL that explore the effectiveness of the proposed restructuring mechanisms. To begin with, determinants of the situation described by the term NPL are diligently examined, employing a systematic literature review at the macroeconomic, bank and loan level. Subsequently, three empirical research studies are devoted to an analysis of security pricing in reaction to NPL divestiture activity in the European equity and debt capital market. The results offer a nuanced impulse to both the bank’s leadership as well as the supervisor and its member states on how to deal with large amounts of risky assets in times of constantly changing economic circumstances.

Table of Contents

List of Figures	13
List of Tables	15
Abstract	8
List of Abbreviations	17
1 General Introduction	19
1.1 Problem definition and research objectives	20
1.2 Dissertation studies	22
2 Determinants of non-performing loans: What do we know?	26
2.1 Introduction	26
2.2 Structured review methodology	29
2.2.1 Object under investigation	29
2.2.2 Information retrieval	30
2.2.3 Descriptive analysis	32
2.3. Review of research	36
2.3.1 Results on macroeconomic factors	38
2.3.1.1 Economic environment	39
2.3.1.2 Monetary aspects	40
2.3.1.3 Sovereign debt	41
2.3.1.4 Price levels	42
2.3.1.5 Terms of trade	43
2.3.2 Results on bank-specific factors	44
2.3.2.1 Cost efficiency	45
2.3.2.2 Bank capitalization	47
2.3.2.3 Lending policy	49
2.3.2.4 Economics of information	50
2.3.2.5 Corporate governance	53
2.3.3 Results on loan-specific factors	54
2.3.3.1 Terms of credit	55
2.3.3.2 Disaggregated loan aspects	56

Table of Contents

2.3.3.3	Interaction with the real economy	58
2.4.	Conclusion	62
2.4.1	Practical implications of this review	63
2.4.1.1	Macroeconomic considerations	63
2.4.1.2	Bank-specific considerations	64
2.4.1.3	Loan-specific considerations	64
2.4.2	Avenues for future research	65
2.4.2.1	Research activity 1: direct research towards loan-specific events	65
2.4.2.2	Research activity 2: direct research towards interdisciplinary and disaggregate analysis of collateral, assets and borrowers	66
2.4.2.3	Research activity 3: why do some countries perform better than others? Application of existing theories to different regions, political systems and country clusters	67
2.4.2.4	Research activity 4: direct research towards pro-cyclical application of available knowledge for prudent stress testing	67
2.4.2.5	Research activity 5: direct research towards a methodological discussion of possible issues of endogeneity in panel data sets	68
3	The pricing of European non-performing real estate loan portfolios	69
3.1	Introduction	69
3.2	Related literature and hypothesis development	72
3.3	Data and methodology	75
3.3.1	Data	75
3.3.2	Methodology	81
3.4	Empirical results	83
3.4.1	Abnormal returns following NPL divestiture announcements	83
3.4.2	Real estate driven abnormal returns	86
3.4.3	Cross-sectional analysis of abnormal returns	89
3.4.4	Cross-sectional buy-side analysis	93
3.5	Conclusion	97

4	How does CDS trading impact the stock market reaction to banks' distressed asset sales?	100
4.1.	Introduction	100
4.2.	Literature review and hypotheses development	103
4.3.	Data and methodology	105
4.3.1	Sample construction and event study methodology	105
4.3.2	Descriptive statistics	107
4.4.	Results	108
4.4.1	Abnormal returns following NPL divestiture	108
4.4.2	The impact of the introduction of CDS trading on NPL sales	110
4.4.3	NPL sales at TBTF-banks	113
4.5	Conclusion	114
5	Do NPL portfolio sales help reduce banks' financing costs?	116
5.1.	Introduction	116
5.2.	Sample construction and methodology	118
5.3.	Results	119
5.4.	Robustness tests	120
5.5.	Conclusion and economic implications	123
6	Concluding remarks	124
	Appendix	129
	References	139

List of Figures

Figure 1.1	Dissertation research design	24
Figure 2.1	NPL as percent share of total loans in the U.S., China, and the Euro Area during 2006-2015	28
Figure 2.2	Coding of the concept-centric analysis	37
Figure 2.3	Synthesis of macroeconomic second order codes as determinants of NPL	38
Figure 2.4	Synthesis of bank-specific second order codes as determinants of NPL	44
Figure 2.5	Synthesis of loan-specific second order codes as determinants of NPL	54
Figure 3.1	Cumulative average abnormal return performance	86
Figure 4.1	Cumulative average abnormal return performance	112
Figure 6.1	Synthesis of determinants of NPL in a concept-centric analysis	124

List of Tables

Table 2.1	Publication count	33
Table 2.2	Publication count by ABS-rated journals	34
Table 2.3	Top-ten references by citation count from ABS-rated journals	35
Table 2.4	Matrix of analysis	60
Table 3.1	Distribution of collateral types	78
Table 3.2	Key financial characteristics of vendors in the event study sample	80
Table 3.3	Abnormal stock returns following NPL divestiture announcements	84
Table 3.4	Abnormal stock returns per collateral type	88
Table 3.5	Decile sorting of cumulative abnormal returns	90
Table 3.6	Cross-sectional sell-side regression results	92
Table 3.7	Real estate logistic regression results	94
Table 3.8	Buyer type logistic regression results	96
Table 4.1	Key financial characteristics of vendors in the event study sample	108
Table 4.2	Abnormal stock returns for the overall sample	109
Table 4.3	Abnormal stock returns separated for the introduction of CDS trading	111
Table 4.4	NPL sales from SIFIs	113

List of Tables

Table 5.1	Event study results for the CDS spread reaction following NPL divestiture	120
Table 5.2	Robustness check with a larger anticipation event window	121
Table 5.3	Event study results for selected country sub-samples	122
Appendix Table A	Overview of NPL market characteristics	129
Appendix Table B	Distribution of NPL transactions per year	131
Appendix Table C	Visualization of the data cleaning process by type of source	131
Appendix Table D	Variable definitions and computational details	132
Appendix Table E	Collateral mapping procedure	134
Appendix Table F	Descriptive Statistics for European NPL divestiture activity	136
Appendix Table G	Descriptive statistics for European NPL divestiture activity	137

List of Abbreviations

AB-estimator	Arellano-Bond estimator
ABS	Association of Business Schools
AR	Abnormal return
ASC	Abnormal spread change
BMP	Boehmer, Musumeci, Poulsen (1991)
BN	Billion
BPS	Basis points
CAAR	Cumulative average abnormal return
CAPM	Capital asset pricing model
CAR	Capital adequacy ratio
CASC	Cumulative abnormal spread change
CDS	Credit default swap
CEE	Central Eastern Europe
CEO	Chief executive officer
CZ	Corrado and Zivney (1992)
EBA	European Banking Authority
ECB	European Central Bank
ECOFIN	Economic and Financial Affairs Council
EU	European Union
EUR (€)	Euro
FSB	Financial Stability Board
GBP (£)	Great British Pound
GBV	Gross book value
GDP	Gross domestic product
GMM	Generalized method of moments
IMF	International Monetary Fund
LTC	Loan to cost
LTV	Loan to value
MAX	Maximum
MIN	Minimum
N	Number of observations

List of Abbreviations

NPL	Non-performing loan
NSL	Non-strategic loan
OLS	Ordinary least squares
PE	Private Equity
PUI	Percentage use index
REIT	Real estate investment trust
ROA	Return on assets
ROE	Return on equity
SIC	Standard industrial classification
SIFI	Systemically important financial institution
SME	Small and medium-sized enterprise
SPL	Sub-performing loan
T-BILL	Treasury bill
TBTF	Too big to fail
U.S.	United States of America
VAR	Vector autoregressive model
WL	Watchlist loan