



Md Fardous Alom

Volatility and spillover effects of oil and food price shocks

Application of time series econometrics

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LAP LAMBERT Academic Publishing

Impressum/Imprint (nur für Deutschland/only for Germany)

Bibliografische Information der Deutschen Nationalbibliothek: Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über <http://dnb.d-nb.de> abrufbar.

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Coverbild: www.ingimage.com

Verlag: LAP LAMBERT Academic Publishing GmbH & Co. KG
Heinrich-Böcking-Str. 6-8, 66121 Saarbrücken, Deutschland
Telefon +49 681 3720-310, Telefax +49 681 3720-3109
Email: info@lap-publishing.com

Approved by: Lincoln University, PhD Thesis, 2012

Herstellung in Deutschland:
Schaltungsdienst Lange o.H.G., Berlin
Books on Demand GmbH, Norderstedt
Reha GmbH, Saarbrücken
Amazon Distribution GmbH, Leipzig
ISBN: 978-3-8473-4902-0

Imprint (only for USA, GB)

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

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Publisher: LAP LAMBERT Academic Publishing GmbH & Co. KG
Heinrich-Böcking-Str. 6-8, 66121 Saarbrücken, Germany
Phone +49 681 3720-310, Fax +49 681 3720-3109
Email: info@lap-publishing.com

Printed in the U.S.A.
Printed in the U.K. by (see last page)
ISBN: 978-3-8473-4902-0

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Preface

This book comprises five self contained but related essays, written during my doctoral study period at Lincoln University in New Zealand, on the volatility and spillover effects of oil and food price shocks, making contributions to the understanding of food and energy price dynamics and their relationships with macroeconomic variables such as industrial output, inflation, interest rates, exchange rates and stock prices.

The first two essays are concerned with modelling the extent of volatility in oil and food prices within the framework of generalised autoregressive conditional heteroskedasticity (GARCH)-class models. The first essay models and examines the asymmetry and persistency in the volatility of crude oil future price returns along with heating oil, gasoline, natural gas and propane future price returns, in the global context. The second essay models the volatility of food price returns within and across global and selected Asia and Pacific countries; namely Australia, New Zealand, South Korea, Singapore, Hong Kong, Taiwan, India and Thailand. The third essay examines the cross country mean and volatility spillover effects of food prices in the context of the countries mentioned above. This is followed in the fourth essay by an investigation of the mean and volatility spillover effects of world oil prices on food prices in the context of the above listed countries. In the fifth essay, the macroeconomic effects of world oil and food prices are examined in the context of these same countries; within the framework of an empirical structural vector autoregression (SVAR) model.

In the preparation of this monograph I am grateful to my Ph.D supervisors Dr Bert D. Ward and Dr Baiding Hu for their sincere cooperation and constructive criticisms throughout the study period. Cooperation from all other faculty members and staffs of Lincoln University including Dr Gillis Maclean, Professor Ross Cullen, Dr Patrick Aldwell, Dr Nazmun Ratna, Eillen Seymour, and Jane Edwards are sincerely acknowledged. All essays in this book are also presented in different international and national conferences. I am grateful to those conference participants especially Professor Ronald A. Ratti, Dr Vitore Leone, Dr Peter Yannopoulos, Dr Roger Ham, Professor Ross Cullen, Professor Mark Holmes and Professor Arthur Grimes. Finally, during working on this book I have got all supports and love from my family members. I express my sincere gratitudes to my wife Jakia Afrose Hira, daughter Fariha Alom and my son Ahnaf Alom.

Fardous Alom

February, 2012

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List of acronyms and abbreviations

ADF	: Augmented Dickey-Fuller
APARCH	: Asymmetric Power ARCH
ARCH	: Autoregressive Conditional Heteroskedasticity
ARCH(LM)	: Lagrange Multiplier test for ARCH
ASEAN	: Association of South East Asian Nations
BEKK	: Baba, Engle, Kroner and Kraft
CGARCH	: Component GARCH
EGARCH	: Exponential GARCH
EIA	: Energy Information Administration
FAO	: Food and Agricultural Organisation
FIEGARCH	: Fractionally Integrated Exponential GARCH
GARCH	: Generalised ARCH
GED	: Generalised Error Distribution
HYGARCH	: Hyperbolic GARCH
IEA	: International Energy Association
IFAD	: Interantional Fund for Agricultural and Development
IFS	: International Financial Statistics
IGARCH	: Integrated GARCH
IMF	: International Monetary Fund
MLE	: Maximum Likelihood Estimation
NZAE	: New Zealand Association of Economists
NZARES	: New Zealand Agriculture and Resource Economics Society
ODI	: Overseas Development Institute
PP	: Phillips-Perron
SVAR	: Structural VAR
TGARCH	: Threshold GARCH
VAR	: Vector Autoregressions
WB	: World Bank
WEAI	: Western Economic Association International