

CONTENTS

	Page
Acknowledgement	d
Abstract in Thai	e
Abstract in English	g
List of Tables	l
List of Figures	m
Statement of Originality in Thai	n
Statement of Originality in English	o
Chapter 1 Introduction	1
1.1 Statement of the Problem and Significance of the Study	1
1.2 Literature Review	4
1.2.1 The linkages between exchange rate, stock return, bond yield and interest rate	4
1.2.2 Portfolio optimization	6
1.2.3 Speculation trading strategy	7
1.3 Objectives of the Study	9
1.4 Main Contributions of the Research	10
Chapter 2 Methodology	12
2.1 Dynamic Linkages Model	12
2.1.1 Markov-switching vector error correction model	12
2.1.2 Prior distributions and likelihood	13
2.1.3 Posterior estimation	14
2.2 Risk Measurement and Portfolio Optimization	16
2.2.1 Basic concepts of copula	16

2.2.2 GARCH models for univariate distributions	17
2.2.3 Value at Risk	18
2.2.4 Regime switching copula	19
2.2.5 Prior distributions	21
2.3 Pairs Trading Strategy	22
2.3.1 Markov switching regression GARCH	22
2.3.2 Maximum likelihood estimator for MS regression GARCH	24
2.3.3 Pairs trading	26
Chapter 3 On the Linkages between Exchange Rate, Stock Return, Bond Yield and Interest Rate in a Regime-Switching Model: Evidence from ASIAN Countries	28
3.1 Introduction	28
3.2 Methodology	29
3.3 Data	29
3.4 Empirical Results	29
3.4.1 The results of unit roots test	29
3.4.2 Lag length selection	31
3.4.3 Test for number of co-integration	32
3.4.4 Model estimation result	33
3.4.5 Regime probabilities	41
3.5 Conclusion	46
Chapter 4 Multi-Asset Portfolio Returns: A Copula-Based Markov Switching Approach	48
4.1 Introduction	48
4.2 Methodology	50
4.2.1 Specification for ARMA-GARCH models	50
4.2.2 Model estimation	51

4.3 Data	52
4.4 Empirical Results	53
4.5 Conclusion	61
Chapter 5 Pairs Trading Rule with Switching Regression GARCH Model	62
5.1 Introduction	62
5.2 Methodology	65
5.3 Data	65
5.4 Empirical Results	68
5.5 Conclusion	79
Chapter 6 Conclusions and Future Research	81
6.1 Summary of the Study	81
6.2 Future Research	83
References	85
Appendices	90
Appendix A	90
Appendix B	112
Appendix C	131
Curriculum Vitae	145

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
 Copyright© by Chiang Mai University
 All rights reserved

LIST OF TABLES

	Page
Table 3.1 Bayes factor unit root test	30
Table 3.2 VECM Lag length criteria	31
Table 3.3 Co-integration rank selection	33
Table 3.4 Estimated MS(2)-VECM(1): Thailand	33
Table 3.5 Estimated MS(2)-VECM(1): Malaysia	34
Table 3.6 Estimated MS(2)-VECM(1): Singapore	36
Table 3.7 Estimated MS(2)-VECM(1): Japan	37
Table 3.8 Estimated MS(2)-VECM(1): Korea	39
Table 3.9 Estimated MS(2)-VECM(1): China	40
Table 4.1 Data descriptive statistics	52
Table 4.2 Estimates of ARMA-GARCH parameters for raw data returns	53
Table 4.3 Model selection	54
Table 4.4 Empirical copula parameters	55
Table 4.5 Risk measurement	58
Table 4.6 Result of Kupiec and Christoffersen tests for VaR and ES	59
Table 4.7 Optimal portfolio's weight	59
Table 5.1 The descriptive statistics of stock log returns	66
Table 5.2 Pair selection	67
Table 5.3 Model selection	68
Table 5.4 Estimation results of MS-reg-GARCH of pair SCB-KBANK	69
Table 5.5 Estimation results of MS-reg-GARCH of pair CPN-CENTEL	71
Table 5.6 Estimation results of MS-reg-GARCH of pair INTUCH-ADVANCE	72
Table 5.7 Estimation results of MS-reg-GARCH of pair CENTEL-BDMS	74
Table 5.8 Estimation results of MS-reg-GARCH of pair CPN-BDMS	76
Table 5.9 Stock returns in five pairs and pair returns	78

LIST OF FIGURES

	Page
Figure 3.1 Regime 1 probabilities of Thailand's Market	42
Figure 3.2 Regime 1 probabilities of Malaysia's Market	43
Figure 3.3 Regime 1 probabilities of Singapore's Market	44
Figure 3.4 Regime 1 probabilities of Japan's Market	44
Figure 3.5 Regime 1 probabilities of South Korea's Market	45
Figure 3.6 Regime 1 probabilities of China's Market	46
Figure 4.1 The density plots of each parameter in MS t-copula	56
Figure 4.2 Filtered probabilities of market upturn regime	57
Figure 4.3 Efficient frontier for two regimes	60
Figure 5.1 Spread of stock price	64
Figure 5.2 SCB-KBANK pair return spread filtered probabilities	71
Figure 5.3 CPN-CENTEL pair return spread filtered probabilities	72
Figure 5.4 INTUCH-ADVANCE pair return spread filtered probabilities	74
Figure 5.5 CENTEL-BDMS pair return spread filtered probabilities	75
Figure 5.6 CPN-BDMS pair return spread filtered probabilities	77
Figure 5.7 SCB-KBANK pair return spread from December 18,2015 to January 29, 2016	77
Figure 5.8 CPN-CENTEL pair return spread from December 18,2015 to January 29, 2016	77
Figure 5.9 INTUCH-ADVANCE pair return spread from December 18,2015 to January 29, 2016	78
Figure 5.10 CENTEL-BDMS pair return spread from December 18,2015 to January 29, 2016	78
Figure 5.11 CPN-BDMS pair return spread from December 18,2015 to January 29, 2016	78

ข้อความแห่งการริเริ่ม

ผู้วิจัยขอรับรองว่าวิทยานิพนธ์เล่มนี้มิได้ละเมิดลิขสิทธิ์ของผู้ใด รวมถึงมิได้ขัดต่อสิทธิในการเป็นเจ้าของทรัพย์สินใดๆ และขอรับรองด้วยว่าแนวคิด เทคนิค คำกล่าว หรือเนื้อหาอื่นใดจากงานของผู้อื่นที่ได้รวมอยู่ในวิทยานิพนธ์เล่มนี้ ได้รับการยอมรับอย่างครบถ้วนโดยทั่วกันตามหลักมาตรฐานการอ้างอิงแล้ว

ผู้วิจัยขอแจ้งว่าเอกสารเล่มนี้เป็นสำเนาถูกต้องของวิทยานิพนธ์ของผู้วิจัย ซึ่งรวมไปถึงการแก้ไขปรับปรุงล่าสุดตามที่ถูกรับรองจากคณะกรรมการสอบวิทยานิพนธ์และบัณฑิตวิทยาลัย และขอแจ้งด้วยว่าวิทยานิพนธ์นี้มีเคยถูกนำเสนอเพื่อการสำเร็จการศึกษาจากมหาวิทยาลัยหรือสถาบันใดๆ มาก่อน

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved

STATEMENT OF ORIGINALITY

I certify that, to the best of my knowledge, my thesis does not infringe upon anyone's copyright nor violate any proprietary rights and that any ideas, techniques, quotations, or any other material from the work of other people included in my thesis, published or otherwise, are fully acknowledged in accordance with the standard referencing practices.

I declare that this is a true copy of my thesis, including any final revisions, as approved by my thesis committee and the Graduate School, and that this thesis has not been submitted for any degree to any other University or Institution.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
Copyright© by Chiang Mai University
All rights reserved