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Short-Selling Constraints and Assets Pricing

A Dissertation Submitted in Fulfilment of the Requirements for the Degree of Doctor of Philosophy in Finance at Massey University

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Abstract

Short-selling is a strategy in which an investor sells a security that he/she does not own in order to make profits from a falling price. To prevent abusive short-selling and price manipulation, stock exchange regulators sometimes impose restrictions on the short sales of stocks. Debate on whether short sales should be allowed, or restricted, has persisted for years among academics, practitioners and policy makers. In particular, financial economists have long been interested in studying the relation between short-sale constraints and market efficiency (such as stock price overvaluation, stock price discovery/adjustment, stock price volatility and stock liquidity). Despite the growing literature on short-sale constraints, however, some important questions still remain unanswered. These questions are the focus of this study.

This dissertation comprises three essays, and probes into three untouched questions related to short-sale constraints by employing the unique Hong Kong short-selling list. The first essay examines the different price effects on stock characteristics of two alternative short-sale regimes – one under which stocks are shortable and the other under which they are not. My empirical results in this essay show that under the no-short-selling regime, (a) stocks have higher risk-compensation-adjusted returns (i.e., abnormal returns); (b) stocks with a larger size perform slightly better in terms of their returns; (c) contemporaneous (lagged) illiquidity has a weaker negative (stronger positive) effect on returns; (d) the negative relation between dividend yields and future returns weakens; and (f) the presence of both short-sale constraints and opinion dispersion causes contemporaneous returns to rise and future returns to fall by more than the effect of the presence of the opinion dispersion alone.
The second essay investigates two questions: Do asset-pricing models perform differently across where short sales are constrained and where they are not? In which short-selling environment would the models possess more explanatory power? Applying both conventional model-performance analysis and Lewellen, Nagel and Shanken’s (2010) new approach, I find that the CAPM and Fama-French three-factor models fare significantly better in capturing the time-series and cross-section of expected returns on stocks when their short-selling is allowed, than when it is not. The implications of the results are that it would produce biased estimates if applying the CAPM and its empirical models to non-shortable stocks/markets, and that a new asset-pricing model, which takes into account the short-selling status of stocks, is called for.

Following up that call, my third essay constructs what is termed as “a shortability factor” and adds it to the extant assets-pricing models. The empirical results show that not only does the shortability factor itself play a significant role in explaining both time-series and cross-sectional variations in expected portfolio returns, but the overall performances of the extant standard asset-pricing models are also enhanced to various degrees by including the new factor. This implies that the short-selling status of a stock cannot be ignored when estimating its cost of capital based on the asset-pricing models.
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# Table of Contents

Abstract ....................................................................................................................... 0

Acknowledgements ........................................................................................................ 3

Chapter 1 Introduction ................................................................................................. 4
  1.1 Short-Selling Restrictions and Research Questions ............................................. 5
  1.2 Debate on Restricting Short-Sellers: The Motivation of the Research ................. 7
  1.3 Objectives and Contributions of the Research .................................................. 9
  1.4 Structure of the Dissertation ............................................................................. 13

Chapter 2 Hong Kong Short-selling Regulations ......................................................... 14

Chapter 3 Moving between Opposite Short-selling Regimes: Are Stock Characteristics Priced Differently? 20
  3.1 Introduction ........................................................................................................ 20
  3.2 Literature Review ................................................................................................. 25
  3.3 Hypotheses .......................................................................................................... 29
  3.4 Data ......................................................................................................................... 34
  3.5 Methodology ......................................................................................................... 37
  3.6 Empirical results ................................................................................................... 42
  3.7 Summary and conclusions ................................................................................... 52

Chapter 4 The Validity of the CAPM and the Fama-French Three-factor Model where Short Sales Are Restricted .......................................................................................................................... 55
  4.1 Introduction ........................................................................................................... 55
  4.2 Literature Review .................................................................................................. 61
  4.3 Data and Portfolio Construction ........................................................................... 66
  4.4 Conventional Time-series Tests ........................................................................... 71
  4.5 Enhanced Cross-Sectional Tests ......................................................................... 86
  4.6 Summary and Conclusion .................................................................................... 96

Chapter 5 Short-sale constraints: Another Risk Factor for Asset-pricing Models .......... 99
  5.1 Introduction ........................................................................................................... 99
  5.2 Literature Review ................................................................................................ 105
      5.2.1 Evolution of Asset-pricing Factor Models ..................................................... 106
      5.2.2 Short-selling Restriction and Market Quality .............................................. 109
  5.3 Data, Risk Factor Construction and Methodology ............................................. 114
  5.4 Empirical results: Time-series Regression Analysis .......................................... 120
  5.5 Empirical results: Cross-sectional Regression Analysis .................................... 137
  5.5 Conclusion .......................................................................................................... 158

Appendix to Chapter 5 .................................................................................................. 160

Chapter 6 Conclusions of the Thesis ............................................................................ 176

Bibliography ................................................................................................................ 181
List of Tables

Table 2.1   Changes in the official short-selling List.................................................................19
Table 3.1   Description of variables.......................................................................................39
Table 3.2   Selected summary statistics..................................................................................43
Table 3.3   Panel regressions with beta-adjusted excess returns as the dependent variable........46
Table 3.4   Panel regressions with beta-adjusted raw returns as the dependent variable..........47
Table 4.1   Summary statistics for risk factors.................................................................70
Table 4.2   Summary statistics of monthly excess returns for 25 shortable and 25 non-shortable portfolios formed on size and B/M.................................................................73
Table 4.3   Summary statistics for CAPM regressions to explain monthly excess returns on shortable and non-shortable portfolios formed on size and B/M.................................................................75
Table 4.3   Summary statistics for CAPM regressions to explain monthly excess returns on shortable and non-shortable portfolios formed on size and B/M (continued). ..................................................................................................................76
Table 4.4   Summary statistics for Fama-French three-factor regressions to explain monthly excess returns on shortable and non-shortable portfolios formed on size and B/M.................................................................78
Table 4.4   Summary statistics for Fama-French three-factor regressions to explain monthly excess returns on shortable and non-shortable portfolios formed on size and B/M (continued)..................................................................................................................79
Table 4.5   Difference in CAPM regressions between shortable and non-shortable portfolios........82
Table 4.6   Difference in Fama-French three-factor regressions between shortable and non-shortable portfolios..................................................................................................................83
Table 4.7   Summary statistics and intercepts for the CAPM, the Fama-French three-factor model regressions to explain monthly excess returns on shortable portfolios and non-shortable portfolios..................................................84
Table 4.8   Additional empirical tests (Lewellen, Nagel and Shankens’ (2010) approach)................89
Table 5.1   Summary statistics of monthly excess returns for 25 portfolios formed on size and B/M, Jan 1999 – Feb 2012........................................................................................................121
Table 5.2   Summary statistics for risk factors, Jan 1999 – Feb 2012........................................124
Table 5.3   Correlation coefficients matrix of independent variables, sample period is from January 1999 to February 2012........................................................................................................125
Table 5.4   Panel A: Time-series regressions based on the CAPM to explain monthly excess returns of 25 size-B/M portfolios, Jan 1999 – Feb 2012.........................................................127
Table 5.4   Panel B: Time-series regressions based on the CAPM augmented with the no-shorting factor with a 12-month holding period to explain monthly excess returns of 25 size-B/M portfolios, Jan 1999 – Feb 2012.........................................................128
Table 5.5   Panel A: Time-series regressions based on the Fama-French three-factor model to explain monthly excess returns on 25 size-B/M portfolios, Jan 1999 – Feb 2012.........................................................130
Table 5.5  Panel B: Time-series regressions based on the Fama-French three-factor model augmented with the no-shorting factor with a 12-month holding period to explain monthly excess returns on 25 size-B/M portfolios, Jan 1999 – Feb 2012……………………………………………………………………………………………………………………………………..131

Table 5.6  Panel A: Time-series regressions based on the Carhart four-factor model to explain monthly excess returns on 25 size-B/M portfolios, Jan 1999 – Feb 2012…………………………..................................133

Table 5.6  Panel B: Time-series regressions based on the Carhart four-factor model augmented with the no-shorting factor with a 12-month holding period to explain monthly excess returns on 25 size-B/M portfolios, Jan 1999 – Feb 2012…………………………………………………………...........................................................134

Table 5.6  Panel C: Time-series regressions based on the Fama-French four-factor model to explain monthly excess returns on 25 size-B/M portfolios, Jan 1999 – Feb 2012……………………………………………......135

Table 5.6  Panel D: Time-series regressions based on the Fama-French four-factor model augmented with the no-shorting factor with a 12-month holding period to explain monthly excess returns on 25 size-B/M portfolios, Jan 1999 – Feb 2012………………………………………………………………………………...136

Table 5.7  The Fama-MacBeth two-pass regressions of factor models (with NMS12 as the no-shorting factor)……………………………………………………………………………………………………..….....141

Table 5.7  The Fama-MacBeth two-pass regressions of factor models (with NMS12 as the no-shorting factor) (Continued)…………………………………………………………………………………………………..….142

Table 5.8  Additional cross-sectional tests for factor models based on the Lewellen et al. (2010) approach (with NMS12 as the no-shorting factor)……………………………………………………………………………...145

Table 5.8  Additional cross-sectional tests for factor models based on the Lewellen et al. (2010) approach (with NMS12 as the no-shorting factor) (continued)…………………………………………………………………………………………….146

Table A1  The Fama-MacBeth two-pass regressions of factor models (with NMS1 as the no-shorting factor)………………………………………………………………………………………………………..….161

Table A1  The Fama-MacBeth two-pass regressions of factor models (with NMS1 as the no-shorting factor) (continued)…………………………………………………………………………………………….162

Table A2  Additional cross-sectional tests for factor models based on the Lewellen et al. (2010) approach (with NMS1 as the no-shorting factor)…………………………………………………………………………………………….166

Table A2  Additional cross-sectional tests for factor models based on the Lewellen et al. (2010) approach (with NMS1 as the no-shorting factor) (continued)…………………………………………………………………………………………….167
List of Figures

Figure 1.1 The two step process of short selling………………………………………………………….4
Figure 4.1 Sample distribution of the T2 statistic and confidence interval for q……………………………..92
Figure 4.1 Sample distribution of the T2 statistic and confidence interval for q (continued)…………….93
Figure 4.2 Sample distribution of the T2 statistic and confidence interval for q……………………………..94
Figure 4.2 Sample distribution of the T2 statistic and confidence interval for q (continued)…………….95
Figure 5.1 Sample distribution of the T2 statistic and confidence interval for q: The CAPM………………150
Figure 5.1 Sample distribution of the T2 statistic and confidence interval for q: The CAPM
(continued)…………………………………………………………………………………………………………………151
Figure 5.2 Sample distribution of the T2 statistic and confidence interval for q: The Fama-French three-factor
model…………………………………………………………………………………………………………………………152
Figure 5.2 Sample distribution of the T2 statistic and confidence interval for q: The Fama-French three-factor
model (continued)…………………………………………………………………………………………………………153
Figure 5.3 Sample distribution of the T2 statistic and confidence interval for q: The Carhart four-factor
model…………………………………………………………………………………………………………………………154
Figure 5.3 Sample distribution of the T2 statistic and confidence interval for q: The Carhart four-factor
model (continued)…………………………………………………………………………………………………………155
Figure 5.4 Sample distribution of the T2 statistic and confidence interval for q: The Fama-French four-factor
model…………………………………………………………………………………………………………………………156
Figure 5.4 Sample distribution of the T2 statistic and confidence interval for q: The Fama-French four-factor
model (continued)…………………………………………………………………………………………………………157
Figure A1 Sample distribution of the T2 statistic and confidence interval for q: The CAPM………………168
Figure A1 Sample distribution of the T2 statistic and confidence interval for q: The CAPM
(continued)………………………………………………………………………………………………………………169
Figure A2 Sample distribution of the T2 statistic and confidence interval for q: The Fama-French three-factor
model…………………………………………………………………………………………………………………………170
Figure A2 Sample distribution of the T2 statistic and confidence interval for q: The Fama-French three-factor
model (continued)…………………………………………………………………………………………………………171