Essays on Financial Market Anomalies and Investment Strategies

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Mahdi Heidari

STOCKHOLM SCHOOL OF ECONOMICS

Dissertation for the Degree of Doctor of Philosophy, Ph.D.,
in Finance
Stockholm School of Economics, 2016

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ISBN 978-91-7258-993-3 (printed)
ISBN 978-91-7258-994-0 (pdf)

This book was typeset by the author using LaTeX.

Printed by:
Ineko, Göteborg, 2016

Keywords:
Momentum Strategy, Idiosyncratic Volatility, Comovement, Risk Management, Transaction Cost, Overreaction, Investment.

To Zeinab,
My Parents, and My Siblings

Foreword

This volume is the result of a research project carried out at the Department of Finance at the Stockholm School of Economics (SSE).

This volume is submitted as a doctor's thesis at SSE. In keeping with the policies of SSE, the author has been entirely free to conduct and present his research in the manner of his choosing as an expression of his own ideas.

SSE is grateful for the financial support provided by the Jan Wallander and Tom Hedelius Foundation which has made it possible to fulfill the project.

Göran Lindqvist
Director of Research
Stockholm School of Economics

Magnus Dahlquist
Professor and Head of the
Department of Finance
Stockholm School of Economics

Acknowledgements

I would like to express my utmost gratitude to my supervisor, Magnus Dahlquist, for all the guidance, encouragement and support that I received during my PhD studies. Magnus was always a source of inspiration and has always been there to provide guidance and support.

I have also received extremely insightful advice and training from my co-supervisor Michael Halling, and I thank him for his tireless effort during these years. Michael's optimism was always a great source of energy and his office was a good place to sit and talk about all sorts of subjects (although he is optimistic about my future, he was not as optimistic about my ideas regarding the driverless cars and artificial intelligence!). I was lucky enough to be Michael's teaching assistant four times and I learned invaluable lessons from this "Teacher of the Year". My supervisors' positivity and encouragement of my ambitions, as well as their clear and strong academic advice, are the reasons why my PhD years have been successful.

I would like to extend my gratitude to all the faculty at the Department of Finance, who helped me in various ways throughout this journey. Special thanks is also due to Roméo Tédongap for his support and help in making me "disappointment-averse". I thank Mike Burkart for getting me off a flying start at the beginning of the program and showing me that contract theory is not as easy as signal processing and communication circuits! I am also grateful to other current and former faculty members who have always been willing to help: Tomas Björk, Mariassunta Giannetti, Per Strömberg, Peter Englund, Francesco Sangiorgi, Cristina Cella, Paolo Sodini, Jungsuk Han, Laurent Bach, Ramin Baghai, Bo Becker, Dong Yan and Irina Zviadadze. In addition, I thank the administrative team for making my work as smooth as possible: Anki Helmer, Hedvig Mattson, Jenny Wahlberg Andersson, and especially Anneli Sandbladh, who patiently answered my many administrative questions.

I would also like to thank all my friends and fellow PhD students at SSE and Stockholm University who energized my days and nights in the program – in particular, Hamid Boustanifar, who first reached out to me via his blog. Our afternoon tea talks were among the highlights of those days. I thank Tolga Demir and Fatemeh Hoseini for eventually joining the tea parties. I had great times with Ricardo Lopez Aliouchkin, Timotheos Mavropoulos, Egle Karmaziene, Kristoffer Milonas, Paola Di Casola, Spyridon Sichlimiris, Alberto Crosta, Alberto Allegrucci, Erik Fredriksen, Patrick Augustin, Mariana Khapko, Nikita Koptyug, Valeri Sokolovski and Johannes Breckenfelder.

I visited Columbia University in 2013 and I am thankful to Michael Johannes for his sponsorship, and for all the faculty members whose courses and seminars I enjoyed. I also thank Ali Ebrahimnejad and Hamed Ghoddusi who made my stay in the U.S. an unforgettable experience. The journey towards completing this thesis started before I arrived at Stockholm. Special thanks goes to my former teachers, who greatly influenced my decision to pursue an academic career: Marco Pagano, and Tullio Jappelli at the University of Naples, and Ali Naghi Mashayekhi and Masoud Nili at the Sharif University of Technology.

Lastly and most importantly, I want to thank those closest to me – my family. During my doctorate studies, I had both happy and sad days – the latter because I missed my dear sister during these years; the former, because I met my wife, Zeinab, who filled my life with happiness. Thank you, my family, for your patience, prayers, and continuous support during stressful times and for sharing the joy of the good times, and please accept my apologies for not being next to you in your difficult days. I am extremely grateful for your unconditional love. This dissertation is dedicated to you.

Stockholm, May 1, 2016

Mahdi Heidari

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Introduction

The Efficient Market Hypothesis (EMH) is the backbone of asset pricing in financial economics. One version of EMH states that all publicly available information is already reflected in the price. There are, however, a number of documented patterns in the financial markets that are anomalies, given existing asset pricing models. Price momentum, which refers to the tendency of an asset's short-term performance continuation, is one of the most pervasive and long-standing market anomalies. The trading strategy based on the momentum effect – a combination of long position in the previous winners and short position in the previous losers or winner minus loser strategy – historically produces about a 50% higher average return than the market index.

The momentum effect was first introduced to the academia by Jegadeesh and Titman (1993). It has been widely studied for the last two decades and documented in different markets and asset classes. Several studies try to explain the existence of significantly positive excess returns from momentum strategies. But it is not clear whether these violations of market efficiency can be given a behavioral explanation or whether they are due to the rational response of investors to real market constraints. Finding a risk-based explanation for the momentum effects is a tremendously difficult task, as momentum constitutes perhaps the toughest challenge for rational theories of the cross-section of stock returns (Fama and French, 1996). As an alternative, a number of researchers have suggested behavioral theories of momentum effects.

This dissertation consists of three papers on momentum strategy and the comovement of stock returns. In the first paper, "Momentum Crash Management," I study the fat-tailed distribution of momentum return and the predictability of momentum crashes. I suggest a dynamic momentum strategy with better performance than existing methods, while also taking into account the strategy's implantation cost. Momentum strategy has both high average returns and Sharpe ratios, and, even after controlling for regular risk factors, it still produces high alpha. At the same time, however, momentum returns suffer from very negative skewness and sometimes experience crashes. Momentum crashes primarily occur due to the short positions in the previous losers and after down markets, which tend to be followed by rebounds and high ex-ante volatility. In these situations, the previous losers that dropped significantly in the down market experience higher returns during market rebounds compared to previous winners that have had better prior returns (Daniel and Moskowitz, 2013).

In the first paper, I introduce a new momentum predictor, which I compare to the predictors explored in the prior literature. I also investigate whether momentum predictability can be used to manage risk, particularly downside risk or crash management of momentum strategies. Using momentum prediction results from two sub-samples of momentum crash and normal periods, as well as the correlation results in the sorted quintiles of momentum, I introduce an alternative momentum risk management method. I show that the new method is more successful than previous methods, in terms of both returns and implementation costs.

In the second paper of the dissertation, "Over or Under? Momentum, Idiosyncratic Volatility and Overreaction," I try to understand why the momentum effect exist in the equity market and how it can be explained by behavioral models. The models in the behavioral literature can be divided into two camps, depending on whether they characterize price momentum as investor underreaction or investor overreaction to information. While all of these models are based on imperfect revision and the processing of information, their underlying mechanisms are different. Identifying the working mechanism is a challenging yet important part of our understanding of the financial markets.

In this paper, I contribute to this line of research by using a simple model that illustrates the link between idiosyncratic volatility and investors' overreaction. I also use stock turnover as a measure of overreaction and present evidence in support of the overreaction explanation for momentum effects. In addition, I shed some light on the relationship between momentum and idiosyncratic volatility that has been investigated in several studies with conflicting explanations. I also explore the relationship between stock momentum and industry momentum and show that the contribution of the industries to the momentum varies with the level of firm-specific information, which is proxied by idiosyncratic volatility.

In the third paper of the dissertation, "Cyclicality of Price Comovement and Firm Investment," I study the effects of firm investment on the idiosyncratic volatility of the stock and its synchronicity with the market. I first investigate Veldkamp's (2005/2006) explanation of information signals' generation by investment and examine whether, in cross section of stocks, a firm's investment affects the comovement of stock return with the market. I then explore the differential effects of the investment on the stock return synchronicity depending on the state of the aggregate economy to determine whether, as Veldkamp (2005) posits, the countercyclical behavior of stock return comovement can be explained by firm investments during economic booms and busts. I use two forms of firm investment in this study: capital expenditure as a general form of investment and R&D investment as a specific form of investment. Moreover, I use both Fama-MacBeth and fixed effects methods in the analysis of panel data.

My results show that the deviation of a firm's capital and R&D investment from the industry's average level of investment contains information in the cross section of stocks and reduces the stock synchronicity with the market. Furthermore, I provide evidence for differential effects of the investment on the stock synchronicity with the market in economic expansions and recessions. The empirical results suggest that deviation from industry investment (both capital and R&D investment) has negative effect on stocks' comovement and that the effect is stronger in economic expansion periods than in recession periods.

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