Essays in Financial Economics

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To the memory of my dear brother, Fidel.

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.

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Stockholm, July 25, 2016

Ricardo Lopez Aliouchkin

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Introduction

This dissertation consists of three independent papers in Financial Economics. The papers are self-contained and each is written with the purpose of eventually being published as a separate article in academic journals. All three papers share a common theme of exploiting the information content of the cross-section of option prices to investigate core asset pricing relationships. The first two papers are related by using a similar modeling approach, while the third paper consists of a purely empirical approach.

The first paper, *"Option-implied Idiosyncratic and Systematic Risk in the Cross-section of Expected Stock Returns"* explores the relationship between risk and expected returns. The main objective of this paper is twofold. The first objective is to introduce a model-based approach to extract information, specifically on higher order idiosyncratic moments and co-moments, of firms' return distributions exclusively from option prices. The second objective is to investigate the relationship between these ex-ante moments and the cross-section of expected stock returns using traditional cross-sectional asset pricing tests. These tests yield several interesting results. I find that both my ex-ante idiosyncratic moments and co-moments are significantly priced in the cross-section of expected stock returns. Furthermore, my ex-ante moments help explain the cross-section of expected stock returns beyond traditional asset pricing factors, firm characteristics, and ex-post measures of moments. Finally, I find that my ex-ante measures dominate commonly used ex-post measures that are based on historical returns.

In the second paper, *"Option Pricing with Stochastic Conditional Skewness"*, I develop an affine multivariate model for asset returns that can be used for different applications. The model allows for features consistent with many empirical stylized facts such as e.g. time-varying risk premia. I explicitly show that the model is structure preserving using an exponentially affine change of measure. Thus, the model can be used to price derivatives. To illustrate the use-

fulness of the general framework, I apply it to model an equity market. The resulting two-factor market model has several interest features. First, consistent with empirical evidence, it allows for conditional time-varying market betas that are not limited to be positive. The model also allows for a time-varying conditional leverage effect, and stochastic conditional higher order moments. I estimate this model for a relatively large cross-section of firms using exclusively option prices. Using common measures, I find that the model provides a good fit of the cross-section of option prices. In particular, I find that my model outperforms a state-of-the-art model recently introduced in the literature.

The third paper, *"The Cross-section of Bad Variance Risk Premium and Expected Stock Returns"*, investigates the cross-sectional relationship between individual firms variance risk premium (VRP) and expected returns. In particular, I decompose each firms' VRP into a good and bad component, where the components reflect compensation for upside and downside risk, respectively. The main results suggest that individual firms total VRP is only weakly related to the cross-section of expected returns, while the bad variance risk premium has a strong and negative cross-sectional relationship with expected returns. In particular, firms with high bad VRP have extremely low average returns. I find that the good VRP is positively related to the cross-section of expected returns, albeit this relationship is not statistically significant. These opposite relationships may explain why I find only weak evidence for the cross-sectional relationship between the total VRP and expected returns. Altogether, this evidence suggests that when investigating the relationship between the VRP and expected returns, it is crucial to decompose it into its good and bad components.

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