

Discussion: “Levered Returns”

By Gomes and Schmid

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The Value Premium

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ABSTRACT

The value anomaly arises naturally in the neoclassical framework with rational expectations. Costly reversibility and countercyclical price of risk cause assets in place

*William E. Simon Graduate School of Business Administration, University of Rochester. This paper is based on chapter three of my doctoral dissertation at the Wharton School of the University of Pennsylvania. I thank my advisors Andrew Abel, Craig MacKinlay, Amir Yaron, and especially Joao Gomes for their training and inspiration. I also acknowledge helpful comments from Michael Brandt, Domenico Cuoco, Kent Daniel, Gary Gorton, Rick Green (the editor), Skander Van den

Prelude

Working with Joao was the best thing that happened to me as a student

Equilibrium Cross Section of Returns

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We construct a dynamic general equilibrium production economy to explicitly link expected stock returns to firm characteristics such as firm size and the book-to-market ratio. Stock returns in the model are completely characterized by a conditional capital asset pricing model (CAPM). Size and book-to-market are correlated with the true conditional market beta and therefore appear to predict stock returns. The cross-sectional relations between firm characteristics and returns can subsist even after one controls for typical empirical estimates of beta. These findings suggest that the empirical success of size and book-to-market can be consistent with a single-factor conditional CAPM model.

Asset Pricing Implications of Firms' Financing Constraints

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We use a production-based asset pricing model to investigate whether financing constraints are quantitatively important for the cross-section of returns. Specifically, we use GMM to explore the stochastic Euler equation imposed on returns by optimal investment. Our methods can identify the impact of financial frictions on the stochastic discount factor with cyclical variations in cost of external funds. We find that financing frictions provide a common factor that improves the pricing of cross-sectional returns. Moreover, the shadow cost of external funds exhibits strong procyclical variation, so that financial frictions are more important in relatively good economic conditions. (*JEL* E22, E44, G12)

Prelude

Joao taught me new classical way of thinking that permeates my research program

Investment-Based Expected Stock Returns

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Abstract

The neoclassical theory provides a good start to understanding the cross section of returns. Under constant returns to scale stock returns equal levered investment returns, which are tied directly to firm characteristics. This equation predicts the empirical relations of average returns with book-to-market, investment, and earnings surprises. We estimate the model via GMM by minimizing the differences between average stock returns and average levered investment returns. Our model captures the average return patterns in portfolios sorted on capital investment and double-sorted on size and book-to-market, including the small-stock value premium. The model also partially captures post-earnings-announcement drift and its higher magnitude in small firms.

Anomalies

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Abstract

The q -theory implies that investment is a first-order determinant of the cross section of expected returns, and that optimal investment drives the external financing anomalies. Our neoclassical model simultaneously and in many cases quantitatively reproduces: Pro-cyclical equity issuance waves; stock market predictability with the new equity share; the negative relation between investment and average returns; long-term underperformance following equity issuance; the non-reverting operating performance of issuing and cash-distributing firms; and the positive long-term drift following cash distribution and its positive relation with book-to-market. Our model also generates the failures of the CAPM in capturing these anomalies.

The New Issues Puzzle: Testing the Investment-Based Explanation

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An investment factor, long in low-investment stocks and short in high-investment stocks, helps explain the new issues puzzle. Adding the investment factor into standard factor regressions reduces on average about 75% of the SEO underperformance, 80% of the IPO underperformance, 50% of the underperformance following convertible debt offerings, and 40% of Daniel and Titman's (2006) composite issuance effect. The reason is that issuers invest more than nonissuers, and the investment factor earns a significantly positive average return of 0.57% per month.

Outline

- 1 Summary
- 2 Motivation
- 3 Directions

Summary

A simplified formulation of the general model

Taxable corporate income:

$$\Pi(K_{it}, X_t, Z_{it}) - \delta K_{it} - \Psi(I_{it}, K_{it}) - c_{it} B_{it}$$

in which $\Psi(I_{it}, K_{it}) =$ physical adjustment costs plus equity floatation costs

Corporate payout, D_{it} :

$$(1-\tau) [\Pi(K_{it}, X_t, Z_{it}) - \Psi(I_{it}, K_{it})] + \tau \delta K_{it} + \tau c_{it} B_{it} - I_{it} + B_{it+1} - (1+c_{it}) B_{it}$$

Summary

WACC: Weighted-average cost of capital

Optimality conditions from equity-value maximization:

$$R_{it+1}^I = \nu_{it} R_{it+1}^B + (1 - \nu_{it}) R_{it+1}^S$$

in which ν_{it} is the market leverage, and

$$R_{it+1}^I \equiv \frac{(1 - \tau)[\Pi_{K,it+1} - \Psi_{K,it+1}] + \tau\delta + (1 - \delta)[1 + (1 - \tau)\Psi_{I,it+1}]}{1 + (1 - \tau)\Psi_{I,it}}$$

$$R_{it+1}^B \equiv 1 + (1 - \tau)c_{it}$$

Summary

The textbook intuition

Higher market leverage, higher expected stock returns:

$$\partial \left(\underbrace{\frac{E_t[r_{jt+1}^I] - \nu_{jt} E_t[r_{jt+1}^B]}{1 - \nu_{jt}}}_{\text{Levered Expected WACC}} \right) / \partial \nu_{jt} > 0$$

This assumes that changes in ν_{it} do not affect anything else

Summary

Limitation of the textbook intuition

In general, ν_{it} is jointly determined with I_{it}

A central insight from investment-based asset pricing: *Investment is a first-order determinant of expected returns:*

$$\text{Book leverage } \uparrow \Rightarrow I_{it} \uparrow \Rightarrow \Psi_{I,it} \uparrow \Rightarrow E_t[R'_{it+1}] \downarrow \Rightarrow E_t[R^S_{it+1}] \downarrow$$

This **investment** channel: Derived in Cochrane (1991) and applied in my articles on value, equity issues, distributions, momentum, and accruals

Motivation

The bottom line

The paper can benefit from focusing on more important economic questions

Motivation

Lack of empirical motivation: Fama and French (1992)

The insights on the (mechanical?) relation between leverage, value, and average returns are already known from Fama and French (1992, p. 444):

“The FM regressions of returns on the leverage variables (Table III) pose a bit of a puzzle. The two leverage variables are related to average returns, but with opposite signs.”

“The puzzle of the opposite slopes on $\ln(A/ME)$ and $\ln(A/BE)$ has a simple solution. The average slopes for the two leverage variables are opposite in sign but close in absolute value, e.g., 0.50 and -0.57 . Thus it is the difference between market and book leverage that helps explain average returns. But the difference between market and book leverage is book-to-market equity. . .

Motivation

Lack of empirical motivation: Recent development

Fama and French (1993, p. 4) summarize the result as follows:

“Using alone, size, E/P , leverage, and book-to-market equity have explanatory power. In combinations, size (ME) and book-to-market equity (BE/ME) seem to absorb the apparent roles of leverage and E/P in average returns.”

No discussion on leverage in Fama and French (1996, 2006, 2007)

Motivation

Lack of empirical motivation: Evidence from 1963–2006

Mkt lev	Low	5	High	<i>H-L</i>	t_{H-L}
Ave. returns	0.35	0.61	0.93	0.57	2.74
α_{CAPM}	-0.22	0.15	0.42	0.63	3.08
α_{FF}	0.23	0.04	-0.05	-0.27	-2.02

Book lev	Low	5	High	<i>H-L</i>	t_{H-L}
Ave. returns	0.26	0.48	0.45	0.19	0.97
α_{CAPM}	-0.37	-0.02	-0.04	0.33	1.72
α_{FF}	-0.13	-0.03	-0.18	-0.06	-0.33

Book lev. does not predict returns; market lev. does only without *BE/ME*

Motivation

Lack of empirical motivation: Taking stock

Leverage has never been an important return predictor in empirical asset pricing since 1992

Instead, we have moved on to book-to-market, net equity issues, accruals, earnings surprises, prior returns, profitability, and asset growth as return predictors

If there is no pattern to explain, why bother with a complicated model?

Directions

The big picture

More important economic questions for the Gomes-Schmid model:

- 1 The credit spread puzzle
- 2 The distress risk anomaly
- 3 The long-term performance following equity and debt issues
- 4 Long-run risk in production economies

Also leverage regressions on stock returns à la Welch (2004)

Directions

The credit spread puzzle

The credit spread puzzle: Huang and Huang (2003); Chen, Collin-Dufresne, and Goldstein (2007); Chen (2007); Bhamra, Kuehn, and Strebulaev (2007)

The Gomes and Schmid model features endogenous investment, endogenous default, and the cross section of firms:

- Generates countercyclical yield spread and default probability
- Can the model explain the magnitude of the credit spread?

Directions

The distress risk anomaly

The distress discount anomaly: Dichev (1998), Griffin and Lemmon (2002), and Campbell, Hilscher, and Szilagyi (2007)

Chava and Purnanandam (2007); Chen and Zhang (2007)

What's the relation between default probabilities and average stock returns in the Gomes and Schmid model?

If consistent with data (the relation is negative), why do the credit spread and average stock returns vary differently with default probabilities?

Directions

The long-term performance following equity and debt issues

The long-term performance anomaly following financing decisions: Ritter (1991); Loughran and Ritter (1995); Spiess and Affleck-Graves (1995, 1999); Ikenberry, Lakonishok, and Vermaelen (1995)

See Carlson, Fisher, and Giammarino (2006) and Li, Livdan, and Zhang (2007) for recent theoretical explanations

Gomes and Schmid incorporate leverage in an asset pricing framework:

Why is the magnitude of underperformance following equity issues higher than that following debt issues? Why do we observe over-performance following distributions to equity-holders, but not to bondholders?

Directions

Long-run risk in production economies

Explaining the level and dynamics of long-run risk in production economies: Kaltenbrunner and Lochstoer (2007); Campanale, Castro, and Clementi (2007); Kuehn (2007)

Extending the Gomes and Schmid partial equilibrium model to general equilibrium? Helps lower the hurdle of the equity premium; helps explain countercyclical amount of risk and predictability

Conclusion

Discussion on Gomes and Schmid (2007) "Levered returns"

Tackle important questions