Firms' Perceived Cost of Capital

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Introduction

Standard teaching and theory

- Invest if project return $>$ cost of capital (CoC)
- Starting point: firm-level CoC
- To max. market value: firm CoC = r^{exp} = avg. exp. return to debt & equity
- Problem: r^{exp} hard to estimate (Fama and French 1997), firms set r^{perc}

Importance of r^{perc}

- $r^{\text{perc}} = r^{\text{exp}}$: bedrock assumption in standard models
- r^{perc} shapes long-run investment in the data
- Surveys qualitative: 70% use multi-factors, 40% past returns (Graham 2022)

Today

- Measurement of r^{perc}
- Time variation: r^{perc} and r^{exp} co-move
- Cross section: 20% of variation in r^{perc} justified by r^{exp}, 50% by r^{CAPM}
- $r^{\text{perc}} \neq r^{\text{exp}}$ lowers TFP by 5% in standard model

Data from Corporate Conference Calls

Nestlé, Q4-2006: *"We use an average cost of capital of 7.5%."*

Air Canada, Q3-2017: *"... our weighted average cost of capital of 7.6%."*

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Data collection

- Manually read transcripts with RA team
- 110k paragraphs containing keywords, 2002-22 (sample growing)
- Analyze only firm-level CoC; separately collect project-specific numbers

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Data overview

- 3,200 observation of perc. CoC for 1,200 firms in 20 countries
- Representative, except larger firms
- Firms with perc. CoC account for 40% of Compustat assets in advanced economies
- Predicted data under costofcapital.org

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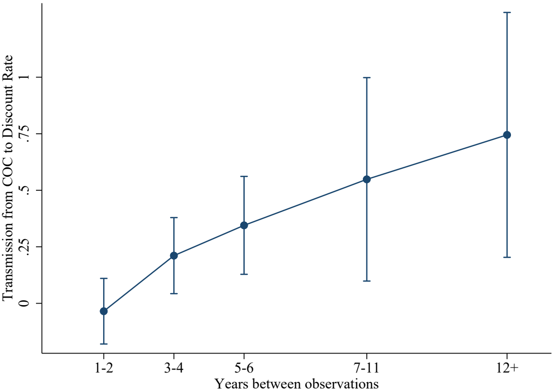
Verifiable data

- Calls are repeated high-stakes interactions (Hassan et al. 2019)
- Information from conference calls used in security lawsuits
- Data validation in paper and next

Why Does r^{perc} Matter?

Investment depends on internal req. return = hurdle/discount rate = $r^{\text{perc}} + \kappa$

Changes in r^{perc} do not affect discount rates in short run, but incorporated in long run



Analysis requires within-firm data, previous surveys inconclusive
(e.g., Poterba and Summers 1995; Meier and Tarhan 2007; Sharpe and Suarez 2021; Graham 2022)

Discount Rate Dynamics Raise New Questions

1. **Secular distortions?**
   Discount rate wedges fluctuate and account for US "missing investment" puzzle (Gormsen and Huber 2025)

2. **Macro policy?**
   Conventional monetary policy weak, but demand shocks and exp. inflation powerful (Fukui et al. 2025)

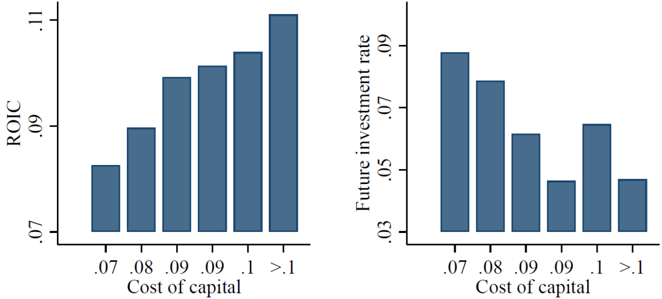
3. **Micro foundations?**
   Organizational, behavioral, or financing frictions (Barry et al. 2024; Best et al. 2024; Caramp et al. 2024; Jeenas 2024; Wroblewski 2024; Fukui et al. 2025)

4. **Long run capital allocation?**
   Depends on perc. CoC, so want to understand its drivers
   (this paper)

Perceived Cost of Capital and Real Outcomes

Perceived CoC influences real decisions, so it generates:

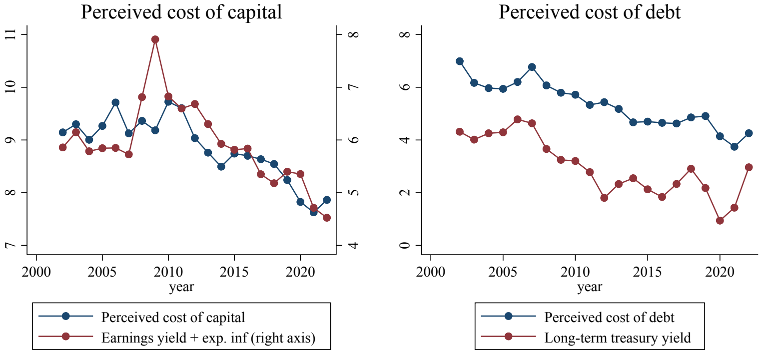
- lower investment
- higher average realized returns



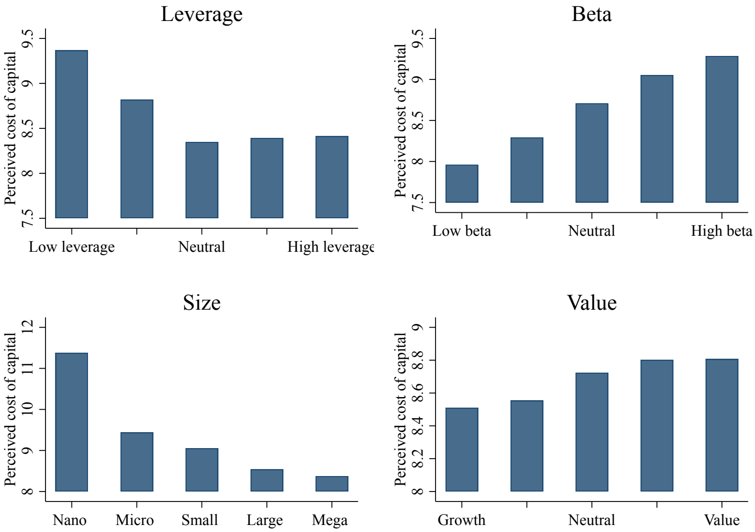
Magnitudes consistent with standard model and robust to controls

Time Variation in r^{perc} Follows Classic Expected Return Measures

$$r^{\text{perc}} = a_0 + 0.59^{***} \times \text{Earnings yield}_t + 0.32^{***} \times \text{Treasury yield}_t + \varepsilon$$



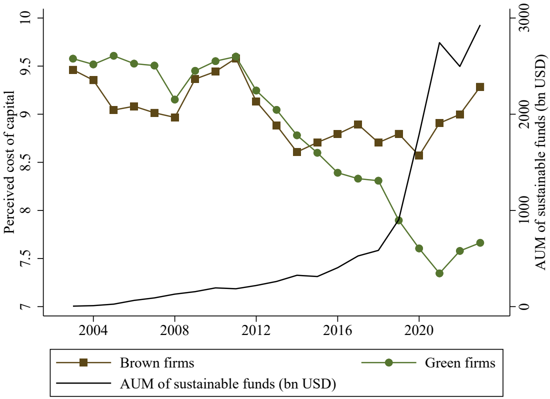
Classic Factors Shape Cross-Sectional Variation in r^{perc}



Consistent with Modigliani and Miller (1958) and Fama and French (1993)

A New Factor: Greenness Since 2016

"Climate Capitalists" (with Simon Oh) studies CoC of green and brown firms



- Identify green and brown firms using MSCI data
- Green firms perceive significantly lower CoC since 2016

Does $r^{\text{perc}} = r^{\text{exp}}$?

Move beyond individual predictors; test $r^{\text{perc}} = r^{\text{exp}}$

Ideally, estimate:

$$r^{\text{exp}} = \beta_0 + \beta_1 r^{\text{perc}} + \varepsilon$$

1. If $r^{\text{perc}} = r^{\text{exp}}$ then $\beta = 1$ & $R^2 = 1$
2. If r^{perc} is an unbiased estimate of r^{exp} then $\beta = 1$

Problem: r^{exp} unobserved

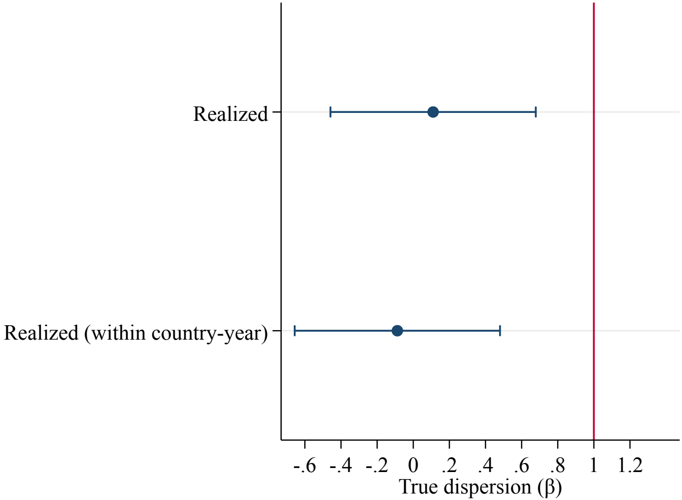
- Adapt "AP trick" and use realized returns: $r^{\text{realized}} = r^{\text{exp}} + \zeta$
- Estimate:

$$r^{\text{realized}} = B_0 + B_1 r^{\text{perc}} + \xi.$$

- $B_1 = \beta_1$ by definition

r^{perc} Is Biased

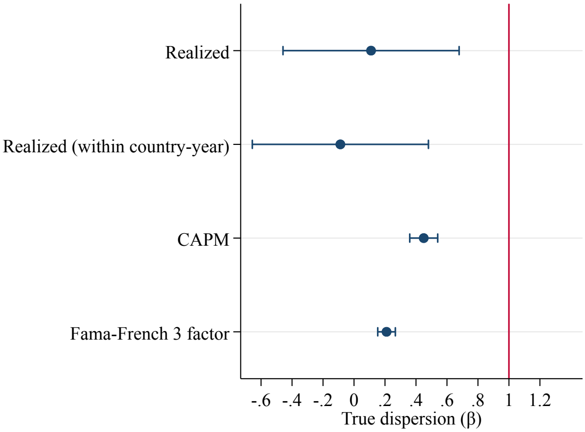
If r^{perc} is an unbiased estimate of r^{exp} then $\beta = 1$



$r^{\text{perc}} \neq \mathrm{r}^{\text{exp}}$

Bias Relative to CAPM

Do firms target CAPM, not r^{exp} (implies firms do not max. market value)?



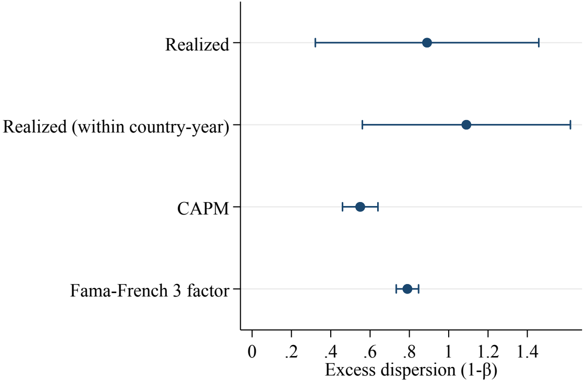
r^{perc} less biased relative to CAPM, but still by 50%

⇒ Non-standard terms added by managers matter

Excess Dispersion in r^{perc}

$1 - \beta_1 = \%$ of variation in r^{perc} not justified by variation in r^{exp}

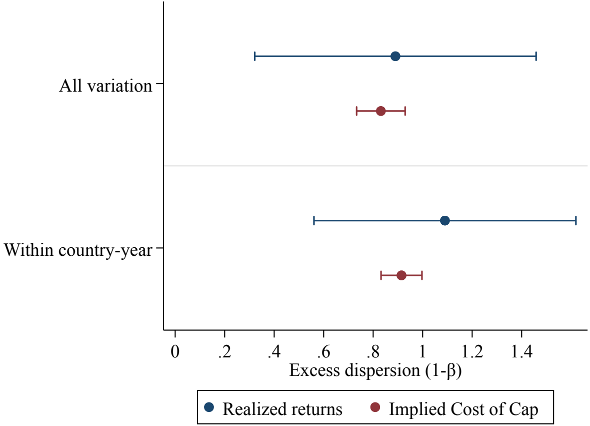
$1 - \beta_1 =$ "excess dispersion"



Excess Dispersion Relative to Implied Cost of Capital

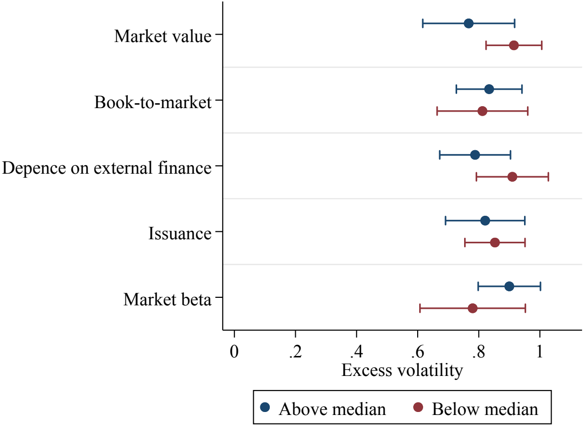
Alternative measure of $r^{\exp}$: "implied cost of capital"

Requires $r^{\text{implied}} = r^{\exp} + \eta$, with η and r^{perc} uncorrelated



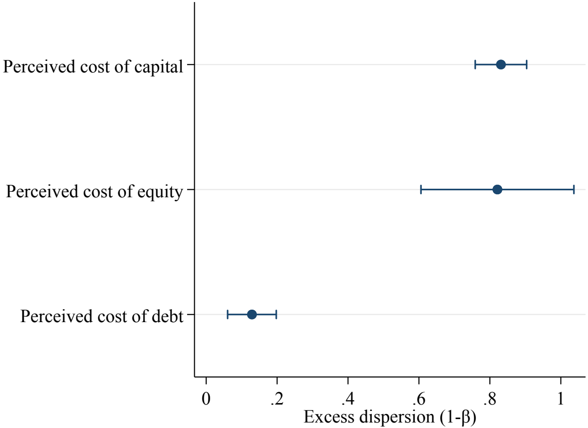
Heterogeneity in Excess Dispersion

Excess dispersion similar across firm types



Excess Dispersion Driven by Cost of Equity

Analyze perceived costs of equity and debt separately

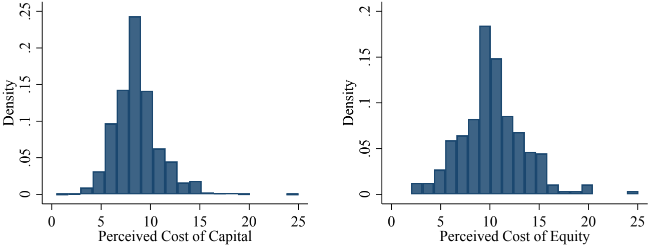


Excess dispersion not due to mismeasurement of tax, leverage, or r^{debt}

ME unlikely to drive results (predicts ROIC, factor-based IV)

Excess Dispersion in Summary Statistics

Raw histograms suggest that r^{perc} is too dispersed to be driven by r^{exp} alone



10-90 spread in the perc. cost of equity is 8%

Few stocks have 8% difference in long-run expected returns

Excess Dispersion and Misallocation

Want to gauge: How much can excess dispersion matter for real economy?

- $r^{\text{perc}} \propto$ capital in data

Standard models: $r^{\text{perc}} \neq r^{\text{exp}} \Rightarrow$ capital misallocation $\Rightarrow$ TFP loss (David et al. 2022)

Benchmark of Hsieh and Klenow (2009): TFP loss $\propto$ excess dispersion in data

- assume log-normality of TFP and r^{perc}, independence of wedge and r^{perc}

Impact of excess dispersion on TFP	
Using realized returns (baseline)	-5.36%
Using implied cost of capital	-5.02%
Low elasticity of cross-product substitution ($\sigma = 3$)	-4.02%
High elasticity of cross-product substitution ($\sigma = 5$)	-6.70%

Implication:

(1) either $r^{\text{perc}} \neq r^{\text{exp}}$ causes large welfare losses

(2) $r^{\text{perc}} \neq r^{\text{exp}}$ efficient, standard models incmplete, firms do not max. market value

Potential Drivers of Excess Dispersion

1. Estimation errors
   - r^{exp} hard to estimate (Fama and French 1997), CAPM too simplistic
   - Managers over-correct using biased perceptions (Greenwood and Shleifer 2014)
2. Alternative objective function
   - Max. future value? Unlikely, bias also w.r.t. future returns
   - Equity mispriced, so max. "fair value"? (Stein 1996) Maybe, yet CAPM bias = 50%
3. Bayesian learning
   - Can generate bias if agents react strongly to past (Martin and Nagel 2022)
   - But bias is high and rational Bayesians often shrink
4. Unlikely: fake signaling of low r^{perc}
   - Avg. $r^{\text{perc}} > r^{\text{exp}}$
   - Costly, as r^{perc} distorts investment
   - Distressed, undervalued, or low ROE firms do not have more excess dispersion

Conclusions

Across the board: $r^{\text{perc}} \neq r^{\text{exp}}$

Implications for research

- Bedrock assumption $r^{\text{perc}} = r^{\text{exp}}$ questionable
- Generates TFP loss in standard models
- Future work: can $r^{\text{perc}} \neq r^{\text{exp}}$ be rationalized?

Implications for practice

- What do managers learn in MBA class?
- Should we teach CoC differently?
- Should govt. policy target the TFP loss?

More on `costofcapital.org`

Thank You!

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