Discussion: Firm Level Productivity, Risk, and Return
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WFA, 2011
Summary of the Paper
Firm Level Productivity Predicts Stock Returns

- Estimate firm level productivity using semi-parametric method.
- TFP is positively correlated with contemporaneous stock return.
- High TFP is associated with lower future returns of the stock.
- Consistent with the model of Zhang (2005).
Main Comments

I like the paper for two reasons

- Relate returns to economic fundamentals
- Productivity parameters calibrated to match estimation results

Questions and Suggestions

- Relate to a broader literature
- General equilibrium
- Quantitative models of heterogenous firms
- Some minor details
Comment 1: Relate to a broader literature

Many models of cross-section of equity returns boils down to an "operating leverage" mechanism.

Low productivity → high operating leverage → high risk premium.

Question: does productivity predict future returns?

Modeling part: similar to Zhang (2005).
General Equilibrium
Implications on Quantities

- Motivation of the research: understanding returns by understanding technology
- What disciplines the choice of technology?
- Choice of the technology has direct implications on quantity dynamics – investment, consumption, etc.
- Models implications on the dynamics of investment and hours worked (consumption)?
General Equilibrium
How Would GE Make a Difference?

- Decreasing return to scale.
- Firms’ maximization problem:

\[
\max \left\{ (AK)^{\alpha} N^{1-\alpha} - WN \right\} = \alpha (1 - \alpha)^{\frac{1}{\alpha} - 1} A^{\frac{1}{\alpha}} W^{1-\frac{1}{\alpha}} K
\]

- Labor market clearing determines wage:

\[
W = (1 - \alpha) \int A_j K_j dj
\]

- Aggregate investment will be less volatile in GE under the same tech parameters.
Heterogenous Firms and Return to Scale

The paper uses a DRS technology:

\[ Y = (AK)^{\alpha_1} N^{\alpha_2}, \]

where \( \alpha_1 + \alpha_2 = 0.95. \)

Interpretations of \( \alpha \)
Heterogenous Firms

Size Distribution of Firms

Figure 2
The firm size distributions reported by the Small Business Administration for 1992, 2000, and 2006.
Heterogenous Firms

Size Distribution of Firms

- Growth and size: Pareto consistent with independent growth
- Luttmer (2010): *There are approximately 6 million employer firms in the United States. Around half of the labor force of these firms is employed by the roughly 18,000 firms with more than 500 employees, and a good quarter is accounted for by the 1,000 or so firms with more than 10,000 employees. This pattern of extreme skewness appears to be quite stable over time...*
- Ai and Li (2011): Constant return to scale + Private information endogenously generate the size distribution.
- CRS or DRS?
  - How to reconcile with size distribution in DRS framework?
Conclusion

- Careful empirical analysis.
- Modeling: GE aspects; heterogenous firms