Technological Growth, Asset Pricing, and Consumption Risk:

Discussion on Panageas and Yu (2006)

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WFA 2006, Keystone

Summary

A general equilibrium model with "large" technological innovations:

Aim to explain

1. Countercyclical aggregate risk premium
2. Small, predictable component of consumption growth
3. Long-horizon success of CCAPM

Ambitious, elegant, imaginative paper

Bottomline

The driver of cross-sectional predictability needs improvement

Outline

Mechanism

Why do value stocks earn higher average returns than growth stocks?

1. Two firms, L and H, with identical book values
2. Firm L's projects are more productive than Firm H's:

$$P^A_{Lt} > P^A_{Ht}$$

3. Equal growth options, P^F_t, imply:

$$P_{Lt} > P_{Ht} \quad \Rightarrow \quad \frac{P^F_t}{P_{Lt}} < \frac{P^F_t}{P_{Ht}}$$

4. Then $\beta^F_t > \beta^A_t$ implies $\beta_{Lt} < \beta_{Ht}$ and $\mu_{Lt} < \mu_{Ht}$

Unpalatability

Anecdotal argument

Implication:

Growth firms have lower fractions of growth options than value firms

Counterintuitive:

Growth options per dollar of value for Google/Dell lower than GM's

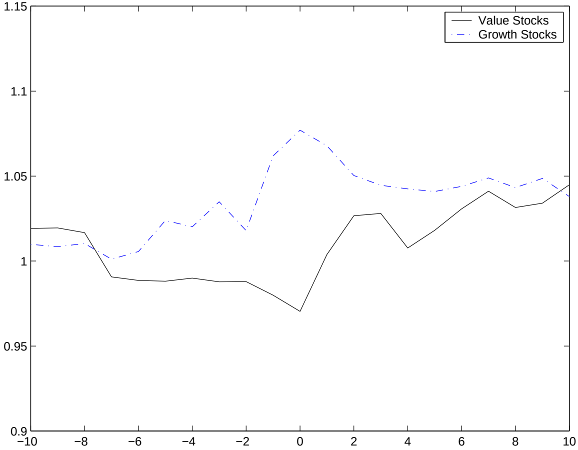
Necessity:

If growth firms had higher fractions of growth options then $\beta_{Lt} > \beta_{Ht}$

Unpalatability

Evidence from Chen, Petkova, and Zhang (2006, The expected value premium)

Real dividend growth for value and growth portfolios, one-way sort:



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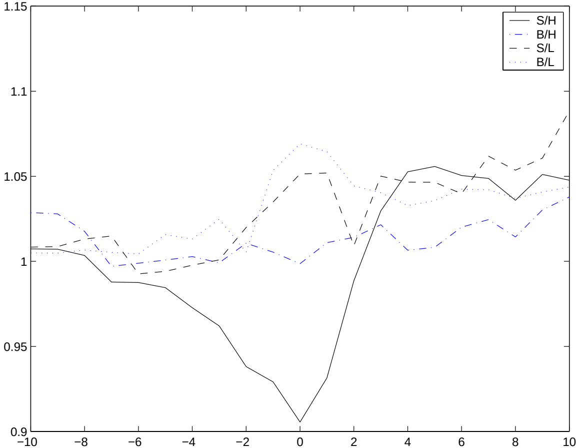

Unpalatability
Relevance

The paper aims to explain why value stocks have higher long run risk than growth stocks

à la Bansal, Dittmar, and Lundblad 2005, Parker and Julliard 2005

But if value and growth in the model are not those we see in the data. . .

Remedy

Strategy

Instead of cutting the link between growth firms and growth options...

How about assets in place being riskier than growth options?

There are abandon options embedded in assets in place

Investment exercises growth options but acquires abandon options

See the latest developments: Carlson, Fisher, and Giammarino (2004); Kogan (2004); Zhang (2005); Cooper (2006); Gala (2006)

Remedy
Conjecture

How would technological growth affect the cross section of returns?

1. A "large" technological innovation arrives
2. Value firms are stuck with more obsolete vintage capital
3. Now suppose divesting is more costly...

Conjecture: technological innovations are likely to reinforce the effects of costly reversibility à la Kogan, Zhang, Cooper, Gala

Conclusion

An impressive analysis on technological growth and asset prices:

The intuition that technological growth drives long run risk is appealing

The driver of cross-sectional predictability needs improvement