

Discussion: “Asset Pricing in a Production Economy with Chew-Dekel Preferences”

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Theme

Campanale, Castro, and Clementi (2007)

Characterizing aggregate asset prices in a general equilibrium production economy with Epstein-Zin preferences and convex adjustment costs

Theme

My discussion

An *important* paper. . .

Bansal and Yaron (2004): Epstein-Zin preferences with time-varying expected growth explain aggregate stock market behavior.

Can this success in the endowment economy be extended into production economies?

Nope, at least for now. Also see Kaltenbrunner and Lochstoer (2007) and Kuehn (2007)

Outline

- 1 Summary
- 2 The Predictability Puzzle?
- 3 Possible Directions

Summary

Model, simplified

$$v(k_t, \varepsilon_t) = \max_{k_{t+1}} \{c_t^\gamma + \beta \mu [v(k_{t+1}, \varepsilon_{t+1})]^\gamma\}^{1/\gamma}$$

subject to

$$c_t + k_{t+1} = k_t^\alpha (e^{\varepsilon_t})^{1-\alpha} + (1-\delta)k_t - \left| \frac{k_{t+1}}{k_t} - 1 \right|^\ell k_t$$

$$\varepsilon_{t+1} = \rho \varepsilon_t + \zeta_{t+1}, \quad \zeta_{t+1} \sim \mathcal{N}(0, \sigma^2)$$

A *simple* place to start

Summary

Quantitative results: Unconditional moments

	σ_C/σ_Y	σ_I/σ_Y	$E(r^f)$	$Std(r^f)$	$E(r^e - r^f)$	$Std(r^e)$
Model	0.501	2.516	0.250%	2.96%	1.889%	12.16%
Data	0.499	2.647	0.252%	0.834%	1.893%	7.694%

Table 2: Unconditional Moments with Epstein–Zin Preferences

Key parameter values: $\iota = 1.22$, $IES = 1/39 = 0.026$, risk aversion = 18

Comparative statics wanted!

Summary

Quantitative results: Predicting the risk-free rate, not the equity premium

Table 5: Long-Horizon Regressions of Equity Premia and Risk-Free Rate

Dependent Variables	$r_{t,t+s}^e - r_{t,t+s}^f$				$r_{t,t+s}^f$			
	Model		Data		Model		Data	
Horizon (s)	Slope	R^2	Slope	R^2	Slope	R^2	Slope	R^2
1	-.0054 (-4.25)	.00	-.117 (-2.27)	0.08	-.0556 (-109.81)	0.2	.002 (.18)	.00
2	-0.0088 (-4.86)	.00	-.219 (-3.13)	0.15	-.1030 (-110.01)	0.2	-.001 (-.03)	.00
3	-.0111 (-4.96)	.00	-.28 (-3.60)	0.19	-.144 (-109.02)	0.19	-.004 (-.17)	.00
5	-.0097 (-3.37)	.00	-.484 (-4.78)	0.31	-.21.11 (-105.52)	0.18	.04 (-.69)	.01
7	-.0047 (-1.39)	.00	-.712 (-5.29)	0.36	-.2639 (-101.23)	0.17	-.066 (-1.33)	.03

Note: t statistics in parenthesis. Specification: $x_{t,t+s} = a + b \log(P/D)_t + \epsilon_t$

Data sources: See Appendix A.

Summary

Quantitative results: Routledge and Zin's (2004) Generalized Disappointment Aversion

Table 11: Predictability of the equity premium: DA Vs. GDA.

Horizon (s)	<i>EU</i>		<i>Data</i>		<i>GDA</i>	
	<i>Slope</i>	R^2	<i>Slope</i>	R^2	<i>Slope</i>	R^2
1	-.00777 (-7.20)	.00	-.117 (-2.27)	0.08	-0.018 (-13.30)	.004
2	-0.0142 -9.36	.00	-.219 (-3.13)	0.15	-0.033 (-17.23)	.006
3	-.0191 (-10.26)	.00	-.28 (-3.60)	0.19	-0.045 (-19.27)	.007
5	-.0259 (-10.79)	.00	-.484 (-4.78)	0.31	-0.063 (-21.10)	.009
7	-.0287 (-10.2)	.00	-.712 (-5.29)	0.36	-0.073 (-21.11)	.009

Note: t statistics in parenthesis.

Predictability

A puzzle?

Is the lack of the equity-premium predictability *pervasive* across simple general equilibrium production economies?

- Kaltenbrunner and Lochstoer (2007) also report weak or no predictability in similar production economies
- Kuehn (2007) does generate predictability using an **investment commitment** constraint:

$$I_t \geq wI_{t-1}, \quad \text{in which } w = 0.95$$

Future

The big picture

Either time-varying risk, time-varying risk aversion, or both

Someone ought to extend the Campbell and Cochrane (1999) model into production economies

See Lettau and Uhlig (2000), but want more than log-linearization

Future

A conjecture on endogenous time-varying risk in production economies

Nonconvex adjustment costs: Fixed costs, costly reversibility

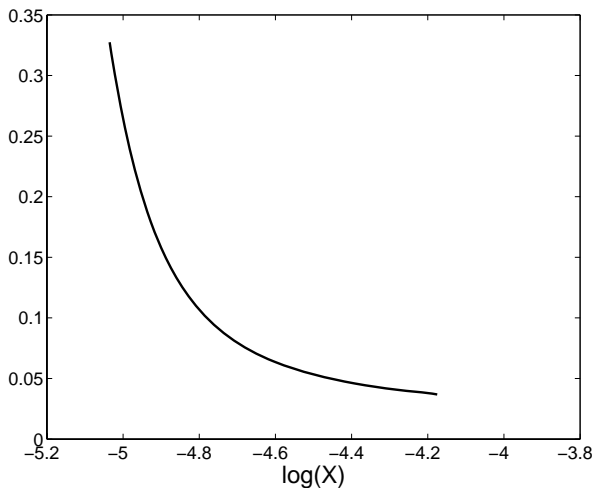
Only relevant at the firm level: We must aggregate. See Gomes, Kogan, and Zhang (2003) and Gala (2006)

Thomas (2002), Veracierto (2002), and Khan and Thomas (2003, 2007):
Nonconvexities are irrelevant for aggregate quantity dynamics:

Something has to give: Aggregate asset prices must vary?

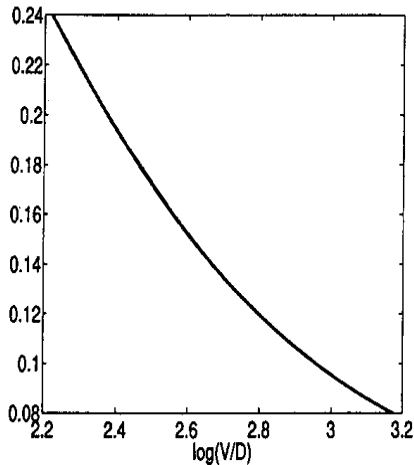
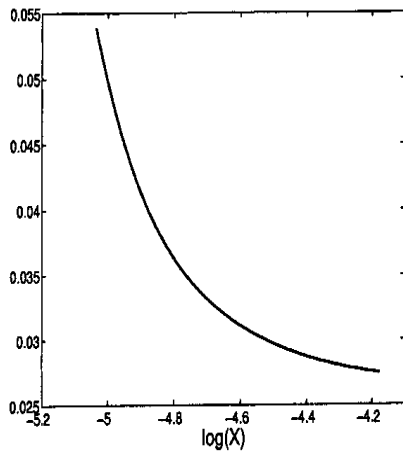
Suggestive Results

Gomes, Kogan, and Zhang (2003): The equity premium across business cycles



Suggestive Results

Gomes, Kogan, and Zhang (2003): Consumption growth and market volatilities



Conclusion

Discussion on Campanale, Castro, and Clementi (2007)

An *important* paper that enhances our understanding of aggregate asset prices in a general equilibrium production economy

Explaining time series predictability in production economies seems a pressing direction for future research

Take the cross-sectional distribution of firms seriously, even when the focus is on aggregate asset pricing