Gambling On A Recovery:
Firm Leverage, Investment and Cash Holding During Crises

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Overview

- Excess cash holding by firms usually attributed to insurance motive
- In a recession, there is a type of carry trade available: a *gambling motive*
- Borrow long in a recession at low interest ratesto benefit if the upturn arrives soon

Intuition

- Borrowing in a recession at low rates has positive *option value*
- Think of it like purchasing a call option on a stock
  - Your downside is capped because of limited liability
  - Might also be more valuable if you can do a carry trade: lend at short maturity
  - Your upside is large because you borrow low and have option to invest at this low rate if the next period is an economic expansion.
- Call option on future positive states of the world

Insurance v gambling

- If I see companies holding higher amounts of *both* long-term debt and cash, can I say it is because of:

1. *Insurance policy*. I like to keep cash on hand because then my downside is limited when I have low-cash flow.
2. *Gambling*. I like to keep cash on hand because then my upside is unlimited when the economy picks up.

- Gambling equilibrium can emerge as long as investors receive a premium on the risk-free rate and managers cannot divert large amount of cash.

Empirical Analysis

- Compustat panel data, quarterly 1990-2014
- Theoretically, should be a *more positive* reduced-form relationship between firm debt and cash holdings at the end of a recession
- Data supports this conclusion

Discussion

- Paper is mostly theory
- I am an empiricist
- Final section is empirical and work-in-progress

$\Longrightarrow$ Everybody gains from a discussion focused on empirical strategy

Thoughts

- Do expectations and default costs distinguish gamblers and insurees?
- Does the slope of yield curve affect gambling?
- How likely is gambling to arise if investors have perfect information about firm's debt levels?

Empirical Strategy

- *Very* difficult to identify the mechanism in question
  - work in progress
- Strategy is to estimate the relationship between ΔDebt and ΔCash and see if it changes during a recession

$$\Delta\text{Cash}_{it} = \gamma\Delta\text{Long Term Debt}_{it} + \delta\text{Recession}_t + \beta\Delta\text{Long Term Debt}_{it} \times \text{Recession}_t + X_{it} + \epsilon_{it}$$

- β should be positive because gambling should be seen during this time period

Empirical results

Effect size of recession interaction

VARIABLES	(1) Δ Cash & cash equivalent	(2) Δ Cash & cash equivalent
ΔShort term debt	-0.0459***	-0.0458***
	(0.00472)	(0.00471)
ΔLong term debt	-0.0867***	-0.0873***
	(0.00570)	(0.00576)
ΔLong term debt * recession		0.00480**
		(0.00207)
Recession		-0.000812
		(0.000552)

- Positive interaction suggesting relationship becomes **less negative**
- Main effect dominates (not necessarily a problem)
- Direction is in line with theory but effect is very small

Specification

- Reduced-form seems to capture some gambling but design has some issues
- Pooled OLS: lots of variation behind these estimates, is it the right type?
- Only 1 recession
  - No fixed effects
  - Inference: need more
  - Regional variation in US recession? Cross-country variation?
- Slope of yield curve

Omitted variable bias?

- Specification relies on between-firm variation
- Potential for OVB
  - Lurking confounder causes debt and cash
- Sectoral fixed effects: within-sector variation
- Survival bias: are firms leaving sample due to bankruptcy?

Conclusion

- Very interesting theoretical insight
- But very difficult to test empirically