Behavioral Corporate Finance

State of the Research and Future Challenges

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State of the Literature

<u>Traditional Assumptions</u>

1. All agents are rational
2. Managers maximize shareholder value
3. Complete and efficient capital markets

- Markets inefficient
  - Limits to Arbitrage
  - Correlated (non-diversifiable) investor sentiment
- Rational managers
  - Maximize shareholder value
  - Recognize and exploit opportunities (mispricing) created by capital market inefficiencies

- Markets efficient
- Biased Managers
  - Believe they maximize shareholder value, but make systematic mistakes
  - Governance mechanisms are imperfect (note that this problem is *immune to incentives*!)

Managerial Biases: What We Know

- Managers matter
  - Bertrand and Schoar (2004)
  - Bennedsen, Perez-Gonzalez and Wolfenzon (2010, 2012)
- Interesting questions now are why, how, and when…
- At least a portion of the effect of managers on firm policies and performance comes from individual beliefs or preferences (distinct from "skill" or "expertise" effects)
  - Overconfidence (Optimism Due to Self-Enhancement)
  - Miscalibration
  - …

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Empirical Results

- Compensation: Otto (2009)
- Earnings Management:
  - Schrand and Zechman (2012)
  - Bouwman (2013)
- CEO Turnover: Campbell et al (2011)
- Innovation:
  - Hirshliefer, Low and Teoh (2012)
  - Galasso and Simcoe (2011)
- Earnings Forecasts: Hribar and Yang (2010)
- Entrepreneurship: Landier and Thesmar (2009)
- Dividend Policy:
  - Deshmukh, Goel and Howe (forthcoming)
  - Bouwman (2010)
- Investment/M&A:
  - Malmendier and Tate (2005; 2008)
  - Ben-David, Graham and Harvey (forthcoming)
- Capital Structure: Malmendier, Tate and Yan (2011)
- Various Corporate Policies: Graham, Harvey and Puri (forthcoming)

Bias identified using the decision to hold unusually high concentrations of company-specific risk (Malmendier and Tate, 2005)

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Where We Stand

- Self-enhancement biases matter for corporate decision making
  - CEOs with concentrated holdings of company-specific risk make *robustly* different decisions, and often to the detriment of shareholders
    - Across time periods
    - Across decisions
    - With various modifications to the basic proxies
  - Evidence from press-based proxies and survey instruments provide important validation
- There is evidence of "behavioral consistency" – i.e., managerial biases seem to be robust predictors of decisions across domains (Cronqvist, Makhija and Yonker, 2012; portfolio OC literature)

Key to identification strategy!

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Future Directions

- Explore more subtle predictions of managers subject to self-enhancement biases (in conjunction with theory!)
  - What are the implications for effective governance?
    - How can firms best restrain overconfident CEOs?
    - Do boards *intentionally* hire overconfident CEOs in the first place?
  - How do biases affect the strategic interactions of managers with other agents in the economy (rational *and biased*)?
  - How do managerial biases correlate and interact with potential biases of other agents inside the firm?
  - Are the traditional corporate decision variables the "right" link between managerial biases and firm value? (culture, etc.)

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Key Challenges

- Measurement error
  - More problematic as null hypotheses become more complex (interactions, biases of multiple actors in a firm, …)
  - What economic force is the measure trying to isolate?
  - To the extent that the measure captures other forces, why is the link to the outcome of interest likely to be through the force of interest?
  - New data sources
  - New measures

Survey data and quasi-experimental approach seems particularly promising

- Cross-study consistency (confusion reduces impact!)

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Survey Evidence

How is the stock market currently valuing your equity?

Industry	Under	Correct	Over	Not Listed
Retail & Wholesale	19	4	3	37
Mining/Construction	4	1	0	18
Manufacturing	53	15	0	69
Transportation & Energy	11	3	0	9
Communications & Media	7	3	0	9
Tech (software/biotech)	7	7	0	11
Bank/Finance/Insurance	11	10	2	26
NR	6	4	0	8
Total	118	47	5	187

Source: FEI-Duke CFO Outlook Survey – **2nd Quarter, 1999**

Portfolio OC Measures 1992-2010

Panel A. Summary Statistics

	N	% Over-confident	% Not Over-confident
Longholder	3,566	22.18	77.82
Longholder_Thomson	21,549	32.24	67.76
Longholder_CJRS	19,108	49.45	50.55

Panel B. Pairwise Correlations

	Longholder	Longholder _Thomson	Longholder _CJRS	$Returns_{t-1}$	$Returns_{t-2}$	$Returns_{t-3}$	$Returns_{t-4}$	$Returns_{t-5}$
Longholder	1							
Longholder_Thomson	0.4375	1						
Longholder_CJRS	0.2208	0.2678	1					
$Returns_{t-1}$	0.0498	0.0723	0.1517	1				
$Returns_{t-2}$	0.0202	0.0581	0.1684	-0.0227	1			
$Returns_{t-3}$	0.0379	0.0523	0.1629	-0.0538	-0.0498	1		
$Returns_{t-4}$	0.0145	0.0508	0.1303	-0.0613	-0.0622	-0.0488	1	
$Returns_{t-5}$	0.0103	0.0518	0.0897	0.004	-0.0744	-0.0716	-0.0561	1

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OC and Equity Issuance

	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A. Longholder			
Longholder	-0.5854	-1.1084	-0.9629	-0.9203	-0.9361	-1.2997
	(1.79)*	(2.54)**	(2.50)**	(2.34)**	(2.16)**	(2.33)**
Observations	361	297	293	282	269	226
			Panel C. Longholder_Thomson			
Longholder_Thomson	-0.6344	-0.5764	-0.3728	-0.3606	-0.3405	-0.3622
	(6.78)***	(5.27)***	(3.38)***	(3.17)***	(2.79)***	(2.49)**
Observations	3,960	2,822	2,788	2,705	2,393	1,840
			Panel D. Longholder_CJRS			
Longholder_CJRS	0.3243	0.2057	-0.0021	0.0022	-0.3273	-0.4304
	(3.82)***	(2.00)**	(0.02)	(0.02)	(2.50)**	(2.78)***
Observations	3,552	2,648	2,615	2,539	2,276	1,773
CEO stock and option controls		X	X	X	X	X
Standard firm controls			X	X	X	
Book leverage				X	X	
Kink controls						X
Return controls					**X**	**X**
Industry fixed effects						X
Year fixed effects				X	X	X

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Future Directions

- Are self-enhancement biases the whole story?
  - Strong Psychological underpinnings for these studies
    - Illusion of control
    - Commitment to outcomes
    - Infrequent, noisy feedback

(Why did the literature start here?)

  - Other biases may matter as well – Psychology evidence can provide a roadmap to fruitful research areas
    - Escalation of commitment and sunk cost fallacy
    - Availability bias (in parallel to literature on individual investors)
    - "Groupthink" (some recent attention to this in boards literature)
- Impact will rely on clear identification strategies!

Future Directions

- Though we have pretty good evidence that differences in beliefs matter in cross-sectional comparisons, we know relatively less about the origins of managerial biases and how beliefs are updated
  - How do CEOs beliefs change over time in response to feedback?
    - Requires a lot of data and a long time series to make precise statements
    - Are only priors biased, but updating Bayesian?
    - If updating is not Bayesian, how should we model it? (need theoretical discipline)
    - One attempt: Billett and Qian (2008)
  - A recent promising angle on this: how do major shocks affect beliefs
    - Big effects (easier to identify)
    - Theory suggest the effects will be long-lasting (even Bayesian updating slow)
    - Examples
      - Great Depression / Career start during a recession (Malmendier, Tate and Yan, 2011; Schoar and Lou, 2012)
      - Military service / Combat exposure (Malmendier, Tate, and Yan, 2011; Benmelech and Frydman, 2012; Lin, Ma, Officer and Zou, 2011)
      - …

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Inefficient Markets: What We Know

- There is an empirical relation between securities prices and corporate financing choices that is consistent with managers taking advantage of mispricing
  - Survey evidence: Graham and Harvey (2001)
  - IPO/SEO evidence (including pre-issue earnings management): Ritter (1991); Loughran and Ritter (1995, 1997); Teoh, Welch and Wong (1998a, 1998b)
  - Aggregate: Baker and Wurgler (2000, 2003)
- And, evidence that managers "cater" to short-run market sentiment
  - Company names: Cooper, Dimitrov and Rau (2001)
  - Dividends: Baker and Wurgler (2004)
  - Stock prices: Baker, Greenwood and Wurgler (2009)

Challenges and Future Directions

- Identification often proves particularly difficult in this context
  - Requires a plausible measure of mispricing
  - Then, a plausible source of variation across managers (firm) in exposure to that mispricing
- Noisy proxies for mispricing (P/V; B/M)
- Difficult to separate evidence from the implications of dynamic capital structure models
- Evidence linking financial outcomes to real outcomes is less developed

Identification Examples

- Need to identify mispricing (and the optimal response to it) separately from opportunities
- Examples of two recent approaches to this problem:
  - DellaVigna and Pollet (2012)
    - Explicit measurement of mispricing: Neglected, but predictable changes in future demand due to shifting demographics
    - Assume: managers incorporate information before market
  - Baker, Pan and Wurgler (2012)
    - Use discontinuities around a focal price (52-week high) to identify responses to investor biases in M&A markets
    - Huge discontinuity around a particular (stale) price harder to reconcile with traditional models

Conclusion

- Much progress has been made in applying a behavioral approach to corporate finance
- Compelling evidence that managers are subject to well-founded cognitive biases, but also that decision-making responds to market inefficiencies
- Many opportunities to take the next steps beyond simply demonstrating that "biases (or inefficiencies) matter"
- Opportunities span the empirical and theoretical literatures, and the most impactful new contributions are likely to straddle both