Institutional Investors, Intangible Information and the Book-to-Market Effect

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Outline

- **Motivation & Overview**
- **Empirical Analysis**
- **Conclusions**

The Book-to-Market Effect: A Brief Review

- **Rational side: *Distress***

  Fama and French (1992,1993,1995,1996, 1997)

  - High book-to-market firms are likely to be financially distressed.

  Vassalou and Xing (2004): yes

  Campbell, Hilscher, and Szilagyi (2007): no

- **Behavioral side: *Overreaction***

  LSV (1994), La Porta et al (1997), Brav et al (2005)

  Barberis, Shleifer, and Vishny (1998), DHS (1998)

Overreaction to Intangible Information: Daniel and Titman (2006)

- **Decompose stock returns into: tangible return explained by accounting-based performance measures and intangible return orthogonal to those measures.**

- **Strong evidence of reversals of the intangible return, which suggests market overreaction to *intangible* information.**

- **Scaled-price ratios like book-to-market predict returns because they proxy for the intangible return.**

Research Questions

- **Do sophisticated players in the stock market, namely institutions, trade against intangible information, thereby mitigating the extent of overreaction?**

- **More generally, do trades by institutions tend to move asst prices toward or away from fundamental values?**

Theory

Does investor sophistication lead to price stabilization?

Yes Efficient Markets Hypothesis: Friedman (1953), Fama (1965)

We would expect institutions to trade against intangible information, thereby mitigating the extent of overreaction.

No Under delegated portfolio management, investment mangers with career concerns might find it optimal to herd with the market.

Scharfstein and Stein (1990): “sharing-the-blame” effect increases with uncertainties of the investment outcome.

In situations of intangible information (“covered by the fog”), institutions might have stronger incentives to herd in the direction of intangible information, contributing to the overreaction.

Summary of the Results

- **Institutions tend to herd into (out of) stocks, in response to positive (negative) intangible information.**
- **This tendency of institutional herding intensifies price overreaction, contributing to the value premium.**
- **The results are consistent with the reputational herding theory, contrasting the efficient markets view of institutional trading.**

Data

- **NYSE-AMEX-NASDAQ Stocks from CRSP-COMPUSTAT**
  Institutional Holdings: CDA/SPECTRUM
  Analyst Forecasts: I/B/E/S
- **Sample Period: 1981-2004**
- **Sample size: 66,852 firm-years**

Measure of Intangible Returns

- **Return Decomposition**

$$r_i(t-\tau,t) = \gamma_0 + \gamma_{BM} \cdot bm_{i,t-\tau} + \gamma_B \cdot r_i^B(t-\tau,t) + u_{i,t}.$$

- **Intangible returns**

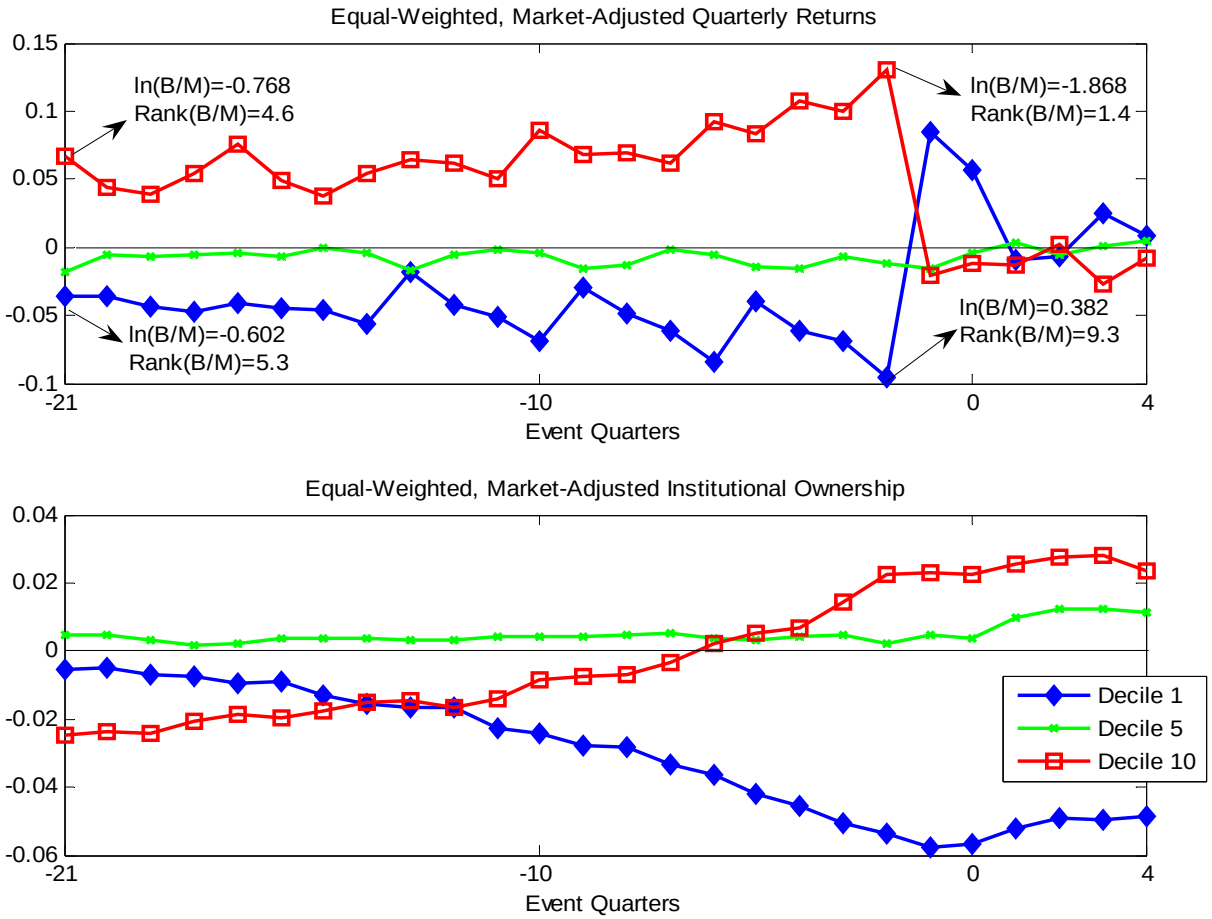
$$r_i^T(t-\tau,t) = \hat{\gamma}_0 + \hat{\gamma}_{BM} \cdot bm_{i,t-\tau} + \hat{\gamma}_B \cdot r_i^B(t-\tau,t)$$

$$r_i^I(t-\tau,t) = u_{i,t}.$$

Intangible Information and Changes in B/M Ratios

	$r^I(t\text{-}1,t)$	$r^B(t\text{-}1,t)$	$bm_{t\text{-}1}$	$dbm(t\text{-}1,t)$	bm_t
$r^B(t\text{-}1,t)$	0				
$bm_{t\text{-}1}$	-0.001	**-0.366**			
$dbm(t\text{-}1,t)$	**-0.804**	**0.547**	**-0.347**		
bm_t	**-0.509**	-0.033	**0.809**	**0.261**	
mc_t	**0.107**	**0.073**	**-0.22**	-0.012	**-0.233**

Overview: Institutional Trading and Intangible Information



Institutional Herding and Intangible Information: Methodology

- **LSV (1992) Herding Measure**

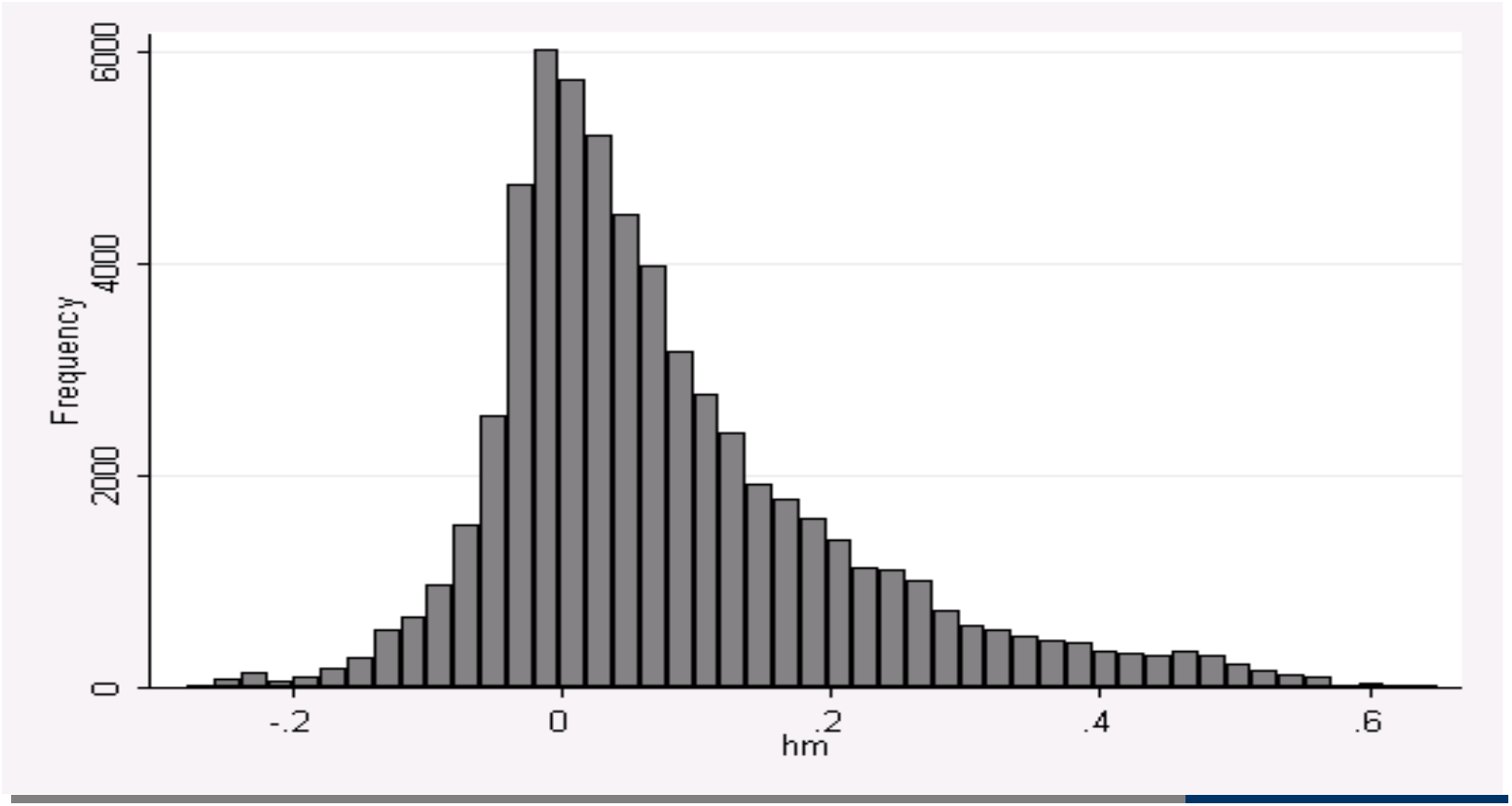
$$HM_{i,t} = |p_{i,t} - E[p_{i,t}]| - E|p_{i,t} - E[p_{i,t}]|$$

- **Grinblatt, Titman, and Wermers (1995) Conditional Herding Measure**

$$BHM_{i,t} = HM_{i,t} | p_{i,t} > E[p_{i,t}]$$

$$SHM_{i,t} = HM_{i,t} | p_{i,t} < E[p_{i,t}]$$

Distribution of Herding Measure



Institutional Herding in Situations of Intangible Information: Univariate Portfolio Approach

	Intangible Returns, December of t-2 to December of t-1				
	Low P1	P2	P3	P4	High P5
Panel A: Buy-Herding *BHM* June of t-1 to June of t					
Median	0.0193	0.0309	0.0458	0.0643	0.1087
Signrank Z-stat	21	31	42	54	71
Mean	0.0592	0.0655	0.0766	0.0912	0.1178
T-stat	28	38	50	65	96
# of stock-years	4,321	5,470	6,541	7,571	9,138
$\chi^2(4)$=1,400 (Pr=0.000), Z=-31.69 (Pr=0.000)					
Panel B: Sell-Herding Measure *SHM* June of t-1 to June of t					
Median	0.05	0.0326	0.0273	0.0208	0.0193
Signrank Z-stat	47	35	31	25	18
Mean	0.0755	0.0638	0.0616	0.0595	0.0804
T-stat	49	36	32	27	24
# of stock-years	7,738	6,695	5,765	4,753	3,070
$\chi^2(4)$=288 (Pr=0.000), Z=9.35 (Pr=0.000)					

Institutional Herding in Situations of Intangible Information: Multivariate Cross-Sectional Regressions

	$BHM_{t-11,t}$	$SHM_{t-11,t}$	$DIO_{t-11,t}$	$Dlog(1+N\_INST)_{t-11,t}$
Intercept	**0.0401**	0.0031	**0.0312**	**0.2411**
	[4.30]	[0.29]	[5.58]	[4.21]
$r^{I}_{t-17,t-6}$	**0.0666**	**-0.0160**	**0.0590**	**0.4208**
	[9.19]	[-2.17]	[14.14]	[11.91]
$r^{B}_{t-17,t-6}$	**0.0104**	-0.0069	**0.0103**	**0.0972**
	[2.17]	[-1.00]	[2.64]	[3.69]
bm_{t-17}	**-0.0076**	-0.0043	0.0004	-0.0061
	[-2.52]	[-1.59]	[0.20]	[-0.31]
$r_{t-5,t}$	**0.0631**	-0.0136	**0.0768**	**0.4663**
	[7.95]	[-1.09]	[11.22]	[10.01]
$size_{t-11}$	**0.0066**	**0.0116**	-0.0017	-0.0177
	[2.18]	[3.54]	[-1.09]	[-0.98]
Average R2	12.95%	6.22%	6.44%	8.85%

Price Impact (I):

Independent Sorts on Unconditional LSV Herding Measures and Intangible Returns

Past Changes in Institutional Ownership in Percentages

	Past Intangible Returns					
	Low	2	3	4	High	Low-High
Low HM	-0.431	0.153	0.320	0.230	0.460	**-0.891**
	[-1.26]	[0.45]	[1.07]	[0.90]	[1.39]	[-2.94]
2	-0.279	0.266	**0.490**	**0.921**	**1.329**	**-1.608**
	[-0.79]	[0.88]	[2.31]	[2.66]	[3.83]	[-5.29]
3	**-1.373**	-0.298	0.371	**1.054**	**1.605**	**-2.978**
	[-3.68]	[-0.71]	[1.22]	[3.81]	[3.56]	[-8.05]
4	**-2.186**	-0.213	0.485	**1.543**	**2.971**	**-5.156**
	[-4.85]	[-0.70]	[1.17]	[4.41]	[5.62]	[-7.33]
High HM	**-2.109**	0.906	**2.000**	**3.212**	**6.745**	**-8.854**
	[-2.35]	[1.12]	[2.61]	[4.76]	[7.95]	[-7.84]
High-Low						**-7.96**
						[-6.93]

Average Post-Herding Returns in Percentages

	Past Intangible Returns					
	Low	2	3	4	High	Low-High
Low HM	**1.78**	**1.55**	**1.53**	**1.53**	**1.35**	**0.44**
	[6.00]	[6.33]	[6.62]	[5.87]	[4.20]	[2.75]
2	**1.72**	**1.45**	**1.36**	**1.41**	**1.21**	**0.52**
	[5.15]	[5.25]	[5.42]	[5.20]	[3.54]	[2.73]
3	**1.68**	**1.57**	**1.42**	**1.35**	**1.09**	**0.59**
	[5.04]	[5.74]	[5.55]	[5.05]	[3.20]	[2.98]
4	**1.90**	**1.57**	**1.32**	**1.44**	**1.24**	**0.66**
	[5.68]	[5.80]	[5.28]	[5.26]	[3.31]	[3.09]
High HM	**2.13**	**1.59**	**1.41**	**1.36**	**1.21**	**0.92**
	[6.34]	[6.03]	[5.48]	[5.00]	[3.15]	[3.74]
High-Low						**0.48**
						[2.23]

Abnormal Returns in Monthly Percentages

	L/S1	L/S2	L/S3	L/S4	L/S5	L/S5-L/S1
CAPM Alphas	**0.53**	**0.58**	**0.67**	**0.8**	**1.09**	**0.55**
	[3.43]	[3.04]	[3.41]	[3.88]	[4.53]	[2.52]
Fama-French Alphas	0.26	0.27	0.29	**0.36**	**0.52**	0.26
	[1.73]	[1.54]	[1.62]	[1.91]	[2.47]	[1.23]
Four-Factor Alphas	0.23	0.23	0.31	**0.38**	**0.64**	**0.41**
	[1.54]	[1.27]	[1.69]	[1.98]	[2.99]	[1.85]

Price Impact (II): Sequential Sorts on Intangible Returns and Buy- and Sell-Herding

Intangible Returns			
Low		**High**	**Strategy**
Strong Sell-Herding	-	Strong Buy-Herding	**S1: Low-S5 Minus High-B5**
S4		B4	
S3		B3	
S2		B2	
Mild Sell-Herding	-	Mild Buy-Herding	**S2: Low-S1 Minus High-B1**
Mild Buy-Herding		Mild Sell-Herding	
B2		S2	
B3		S3	
B4		S4	
Strong Buy-Herding	-	Strong Sell-Herding	**S3: Low-B5 Minus High-S5**

Average Monthly Percentage Returns on the Investment Strategies

Portfolios	Average Return	T-stat	Carhart Alphas	T-Stat
S1: Low-S5 Minus High-B5	**1.48**	4.40	**1.13**	2.89
S2: Low-S1 Minus High-B1	**0.75**	3.14	0.34	1.55
S3: Low-B5 Minus High-S5	0.27	1.44	-0.06	-1.44
S1 minus S3	**1.20**	3.58	**1.19**	3.52
S1 minus S2	**0.73**	2.35	**0.79**	2.56
S2 minus S3	**0.48**	1.99	0.40	1.59

Institutional Herding and the Value Premium

	Book-to-Market Ratio, December of Year *t*-1					
HM(*t*-1,*t*)	Low	2	3	4	High	Value-Growth
Low *HM*	**1.67**	**1.52**	**1.5**	**1.73**	**1.93**	0.27
	[4.25]	[4.82]	[5.79]	[7.31]	[7.86]	[1.05]
2	**1.21**	**1.36**	**1.4**	**1.55**	**1.8**	**0.59**
	[3.34]	[4.41]	[5.16]	[5.91]	[6.60]	[2.77]
3	**1.15**	**1.36**	**1.45**	**1.62**	**1.77**	**0.63**
	[3.06]	[4.30]	[5.35]	[6.15]	[6.70]	[2.73]
4	**1.10**	**1.41**	**1.51**	**1.65**	**1.88**	**0.78**
	[2.76]	[4.23]	[5.53]	[6.37]	[6.66]	[3.23]
High *HM*	**1.21**	**1.33**	**1.67**	**1.8**	**2.02**	**0.81**
	[2.85]	[4.16]	[5.92]	[7.13]	[7.44]	[2.77]
High-Low						**0.54**
						[2.59]

Buy-Herding, Sell-Herding and the Value Premium

Portfolios	Average Return	T-stat	Fama-French Alpha	T-Stat
S1: Value-S5 Minus Growth-B5	**1.22**	3.76	**0.65**	2.95
S2: Value-S1 Minus Growth-B1	**0.66**	2.45	0.48	2.59
S3: Value-B5 Minus Growth-S5	0.26	1.19	0.05	0.27
S1 minus S3	**0.96**	3.09	**0.60**	1.97
S1 minus S2	**0.56**	2.10	0.17	0.62
S2 minus S3	0.40	1.82	**0.43**	1.98

Further Robustness Checks

- ***The Share Issuance Effect***
- ***Industry Specific?***
- ***The Role of Tiny Stocks***
- ***Vector Autoregressions***
- ***The Effect of Indexing***
- ***Sub-period Analysis***
- ***Different Types of Institutions***
- ***The Effect of Delisting Returns***

Conclusions

- **Daniel and Titman (2006) find that the reversal of the intangible return drives the book-to-market effect. I further find that the tendency of institutions to herd drives the reversal of intangible returns and hence the value premium.**

- **The trading behavior of institutions in situations of intangible information destabilizes asset prices, contributing to return predictability.**

Context in the Literature

- **Among the first studies to show the link between the trading behavior of institutions and the value premium.**

- **Joins the growing literature that highlights the relation between delegated portfolio management and asset price anomalies.**