Lecture 10: Herding behaviour and market psychology

The last lecture introduced the possible effects of psychology of analysts and investors in influencing the “anomalies” that arise in markets. This lecture looks at “herding” and market psychology of institutional investors and asset managers in more detail, and seeks to assess its potential link to financial turbulence in securities markets.

Should we expect volatility to increase with institutionalization?

Widely suggested it does, but:

- Better information than individuals
- Liquidity generation (diverse views/liabilities) and low transactions costs (large trades)
- …favour less volatility (prices move rapidly to new equilibrium, volatile only if fundamentals volatile)
- No trend increase in volatility apparent
- Higher volatility where institutions less important
- Stabilising elements of securitized financial system (distance from safety net, better diversification opportunities)
- Cross border flows and efficiency (mover overvalued to undervalued)

MARKET PRICE VOLATILITY (STANDARD DEVIATION OF MONTHLY PERCENTAGE CHANGES)

		1965–1970	1970–1975	1975–1980	1980–1985	1985–1990	1990–1995	1996–1999
United Kingdom	Bond total returns	1.2	3.4	3.5	2.6	2.4	1.9	2.8
	Share prices	4.0	8.7	5.1	3.3	5.2	3.3	3.4
	Exchange rates	1.2	1.3	1.9	2.0	1.8	1.7	1.7
	Industrial production	1.0	2.4	2.1	1.3	1.3	1.0	0.7
United States	Bond total returns	2.0	1.7	2.5	3.0	2.3	1.8	3.8
	Share prices	3.4	4.3	3.2	3.5	3.9	2.2	3.6
	Exchange rates	0.2	1.3	1.2	1.8	1.6	1.6	1.6
	Industrial production	0.8	1.2	0.8	0.9	0.6	0.5	0.5
Germany	Bond total returns	1.1	1.4	1.7	1.6	1.5	1.4	3.3
	Share prices	4.3	4.3	2.5	3.2	6.0	3.6	5.1
	Exchange rates	0.9	1.6	1.1	1.1	0.8	1.0	0.6
	Industrial production	2.0	1.7	1.7	2.5	1.6	1.4	1.4
Japan	Bond total returns	0.1	0.6	2.1	2.1	3.5	1.9	14.6
	Share prices	3.3	4.7	1.9	2.8	5.2	5.0	4.9
	Exchange rates	0.2	1.6	2.6	2.1	2.5	2.5	2.9
	Industrial production	1.1	1.5	1.3	1.2	1.4	1.6	2.2
Canada	Bond total returns	1.2	1.5	1.9	3.4	2.1	2.0	4.0
	Share prices	4.0	5.1	5.1	5.2	4.7	3.0	4.6
	Exchange rates	0.5	0.7	1.3	0.9	1.1	1.1	0.6
	Industrial production	0.9	1.4	1.2	1.5	0.9	0.7	1.0
France	Bond total returns	0.7	1.0	1.6	1.9	2.2	1.7	2.8
	Share prices	3.9	4.0	4.2	4.8	6.2	4.0	4.7
	Exchange rates	1.1	1.3	1.1	1.2	0.7	0.9	0.5
	Industrial production	6.1	2.0	1.7	1.3	1.5	1.2	1.1
Italy	Bond total returns	0.9	1.8	1.9	2.0	1.9	2.6	3.3
	Share prices	3.8	7.3	6.2	7.0	7.0	5.7	6.3
	Exchange rates	0.3	1.3	1.7	0.7	0.6	2.2	0.8
	Industrial production	2.3	3.9	3.0	2.5	3.2	3.5	1.4

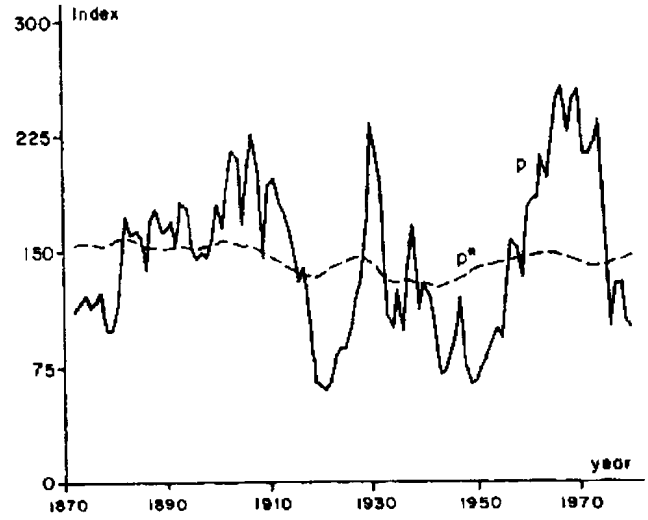
Higher volatility where markets less developed

Some evidence in favour of the hypothesis

- Excess volatility of stock prices (Shiller, Bulkley and Tonks), relative to actual outturns
- Variance bounds test comparing forecasts and outturns

P_t = share price
P^*_t = future dividends constructed ex post
$P^*_t = P_t + e_t$
$Var(P^*_t) = Var\ P_t + Var(e_t)$
$[+2cov(P_t e_t)]$ – omitted
$Var(e_t) > 0$ as forecast errors
So expect $Var(P^*) \geq Var(P)$ variance of forecast should not exceed variance of item forecasted. But opposite is true – excess volatility

Shillers chart of real share prices and discounted dividends



- Price changes react to unexpected changes in volatility (Haugen)
- Unexpected changes in economic and financial variables explain only 18% of differences in returns (Cutler et al) – but could be time varying risk premia which may themselves be predictable

- Limits to arbitrage and role of noise traders may help generate excess volatility
- Positive relation of institutional ownership to volatility (Sias) allowing for capitalization, i.e. within deciles, allowing for fact larger shares less volatile and institutions hold more of larger stocks
- Although rising institutional holdings do not generate excess returns, market wide herding not ruled out (Lakonishok et al)

Regulating hedge funds may worsen the situation

INSTITUTIONAL OWNERSHIP AND MARKET PRICE VOLATILITY IN THE UNITED STATES (NEW YORK STOCK EXCHANGE FIRMS, 1977–1991)

Capitalization Decile	Institutional Holding (%)	Standard Deviation of Weekly Returns
1 (smallest)	7.6	0.0646
2	12.7	0.0512
3	17.2	0.0488
4	23.9	0.047
5	26.8	0.0452
6	31.2	0.0426
7	35.6	0.0417
8	40.9	0.0397
9	45.6	0.0378
10 (largest)	47.5	0.0353

Source:Sias

Potential implications

- Institutions amplify size of disturbances owing to their size and common behaviour
- Periodic rather than continuous hence not captured in long term average data
- “Herding” - mimetic behaviour on the part of asset managers, which may generate market instability

What is the role of incentives for portfolio managers?

- The issue of principal-agent problems, fundamental to investor/asset manager link
- Reputation and short mandates (Scharfstein and Stein) – market takes into account not just returns but similarity to others' choices as good managers expected to get correlated signals
- Regular performance checks and following others (Benartzi and Thaler) – consequence of not following others worse than of performing badly, so adopt short time horizons, copy others, avoid contrarian positions

- Information acquisition and market dynamics (Froot et al) – if hold for short time, seek information others focus on as it enters market quickly, even if neglect own superior private information
- Herding of analysts (Olsen) – reputation effect for them, which reinforces institutional herding
- Churning (transact often to generate commission)
- Risk management (herd out of equities when approach solvency limit)
- Style distinctions (investors shift en masse to style in vogue)
- Use of benchmarks (if replicate a capitalization based benchmark)
- Behaviour of households

Information cascades

- Information cascades (Shiller and Pound, Bikhchandani et al)
  - Investors have private information
  - But also react to others' actions, taking sequential decisions
  - If uninformed go first, an incorrect cascade may arise
  - May arise from accounting information, as signal noisy to company prospects
  - So financial disclosure ignored by the market

Contrarian and feedback trading

Feasibility of contrarian strategies (profiting from and offsetting herding) – limited for mutual funds, credit limits on hedge funds and herding incentives encouraged rather than contrarian approach for life insurers and pension funds (also increasingly binding solvency regulations)

Positive versus negative feedback trading

- Herding by institutions themselves due to biases in judgment, desire to avoid embarrassment, investment strategies (Cutler et al)
- Or provocation in others to take advantage of superior information and price leader status (de Long et al)

What are the wider implications of herding behaviour for financial stability?

Basic reason is volatility and liquidity failure after periodic one-way-selling
Of concern to asset managers not just authorities (e.g. if liquidity needs arise, makes active management more difficult, possible losses on leveraged investments)
Reasons for one-way selling

- Incentive based reasons
- Concentration of assets
- Fiduciary responsibility
- No interest in maintaining market functioning
- Time varying liquidity constraints on leveraged investors
- Less information than a bank for credit decisions

Price volatility in deep markets

Sharp price shifts following medium term deviation from fundamentals

- Examples – 1987 crash, 1992/3 ERM crisis, bond market reversal of 1994
- Common features
  - Institutional investor involvement
  - Overreaction to fundamentals
  - Shock to confidence
  - Rapid and wholesale shifts between markets
- Risks posed to leveraged investors
- Adverse macroeconomic consequences

Example of 1987 crash

Buoyant investor expectations, leading to suspicion of a bubble
Impression/illusion of high liquidity
“News” was not commensurate with outcome
Portfolio insurance and index arbitrage interaction
Institutional investors heavily involved in selling, especially of
cross border holdings
Margin calls to traders of equity futures and options
Liquidity squeeze on brokers, threat of gridlock in payments and settlement
Banks feared brokers were insolvent and were unwilling to expand credit
Fed expanded liquidity to avoid systemic risk
Fear of another “Great Depression”
Inflation followed cut in interest rates

Market liquidity failure in shallow markets

Debt securities markets that are thin "dry up" when institutions sell heavily. Conceptually similar to a bank run

- Examples – Penn Central in 1970, Junk Bonds in 1989, Russia/LTCM case
- Self fulfilling expectations of collapsing liquidity
- Reaction of market makers to one way selling owing to
  - Uncertainty
  - Asymmetric Information
  - Collapses likely if return to market making low

Example of market liquidity risks - Russia/LTCM

Market liquidity failure driven by asset managers
Risk tolerance increased prior to crisis in long bull period
Reversal to risk aversion after triggers – Russia, LTCM failure
Flight to quality, collapse of issuance and liquidity - even in the deepest of markets
Evidence of “herding” among investors and traders - market lacked “macro portfolio diversification”
Long-term institutions unwilling to act in a contrarian manner
Role of VaR and risk management – assume risk exogenous when endogenous to collective behaviour
Risk of much wider systemic risk – so LTCM rescued and interest rates cut

Reasons for concern over market liquidity failures

- Banks' active involvement
- Possible failure of investment bank
- Reliance on securities markets for liquidity
- Possible failure of derivatives markets
- Cost of raising debt for corporate sector (if banks unable to substitute)

SELECTED EPISODES OF FINANCIAL INSTABILITY, 1970–1998

Date	Event	Main Feature
1970	U.S. Penn Central Bankruptcy	Collapse of market liquidity and issuance
1973	U.K. secondary banking	Bank failures following loan losses
1974	Herstatt (Germany)	Bank failure following trading losses
1982	LDC debt crisis	Bank failures following loan losses
1984	Continental Illinois (U.S.)	Bank failure following loan losses
1985	Canadian Regional Banks	Bank failures following loan losses
1986	FRN market	Collapse of market liquidity and issuance
1986	U.S. thrifts	Bank failures following loan losses
1987	Stock market crash	Price volatility after shift in expectations
1989	Collapse of U.S. junk bonds	Collapse of market liquidity and issuance
1989	Australian banking problems	Bank failures following loan losses
1990	Swedish commercial paper	Collapse of market liquidity and issuance
1990–1991	Norwegian banking crisis	Bank failures following loan losses
1991–1992	Finnish banking crisis	Bank failures following loan losses
1991–1992	Swedish banking crisis	Bank failures following loan losses
1992-6	Japanese banking crisis	Bank failures following loan losses
1992	ECU bond market collapse	Collapse of market liquidity and issuance
1992–1993	ERM crisis	Price volatility after shift in expectations
1994	Bond market reversal	Price volatility after shift in expectations
1995	Mexican crisis	Price volatility after shift in expectations
1997	Asian crisis	Price volatility following shift in expectations and bank failures following loan losses.
1998	Russian default and LTCM	Collapse of market liquidity and issuance

Issues for emerging market economies

- Size of institutional flows overwhelms markets
- Evidence of increased serial correlation (Aitken)
- Deceleration of foreign inflows depresses prices (Froot et al)
- Underlying two step allocation by institutions (1) allocate to EMEs as a whole (2) to individuals countries, possibly with no focus on fundamentals
- Hence correlated judgments generating contagion – uninformed managers seek not to deviate from consensus, and all withdraw at once