



I flock, you flock, we flock

Herd behaviour is in part inherited, safety in numbers, reliable peers, and in part learnt possibly by imitation).

Herd behaviour is good and herd behaviour is bad.



FreeFoto.com

Hherding Basics and Migrating Flocks

Herd behavior describes how individuals in a group can act together without planned direction. The term pertains to the behavior of animals in herds, flocks and schools, and to human conduct during activities such as stock market bubbles and crashes, street demonstrations, sporting events, religious gatherings, episodes of mob violence and even everyday decision making, judgment and opinion forming.

http://en.wikipedia.org/wiki/Herd_behavior

Herding Basics and Migrating Flocks

Collective aggregation behaviour is a ubiquitous biological phenomenon
[....]The most established candidates for stimuli driving its evolution are foraging efficiency [...] and reducing predation risk.

Andrew J. Wood and Graeme J. Ackland. (2007). Evolving the selfish herd: emergence of distinct aggregating strategies in an individual-based model. Proc. R. Soc. B , Vol. 274, pp 1637–1642

Herding Basics

Herd behaviour causes individuals to over value public information and undervalue private information.

Herding Basics: Bubbles

The Dotcom Herd

Herd behavior was exhibited in the late 1990s as venture capitalists and private investors were frantically investing huge amounts of money into internet-related companies, even though most of these dotcoms did not (at the time) have financially sound business models. The driving force that seemed to compel these investors to sink their money into such an uncertain venture was the reassurance they got from seeing so many others do the same thing.

http://www.investopedia.com/university/behavioral_finance/behavioral8.asp

Herding Basics: Public & Private Information

In an experiment with 7 traders, Cipriani and Guarino conducted a trading experiment where the participants actually traded with ‘real’ money. There was evidence of herd behaviour in their experiment:

Decision	Percentage
Following Private Information	45.7%
Partially Following Private information	19.6%
Cascade Trading	19.0%
Cascade No-Trading	12.3%
Errors	3.4%
Total	100%

Marco Cipriani and Antonio Guarino (2008). Herd Behavior in Financial Markets: An Experiment with Financial Market Professionals. *IMF Working Paper WP/08/141.* (<http://www.imf.org/external/pubs/ft/wp/2008/wp08141.pdf>)

Herding Basics: Incentives and Reputational Herding

In a study of the performance of 2345 hedge funds, and their managers, between 1994-2004, Nicole Boyson found:

Fund Type	Tendency to herd in Managers	
	More Experienced	Less Experienced
Hedge Funds	Yes	No
Mutual Funds	No	Yes

Boysen, Nicole. M (2010). Implicit incentives and reputational herding by hedge fund managers. *Journal of Empirical Finance.* Vol. 17, pp 283-299

Herding Basics: Crossing continents

“Foreign investors” bring investment as well as volatility

- international investors' tend to mimic each other's behavior, sometimes ignoring useful information—as one contributor to market volatility in developing countries.
- a positive association between a country's lack of transparency and international investors' tendency to herd when investing in its assets.
- if herding by international investors raises volatility or causes more frequent financial crises in emerging markets, it is related to these countries' transparency features.

Shang-Jin Wei and Heather Milkewicz (2003). A Global Crossing for Enronitis?: How Opaque Self-Dealing Damages Financial Markets around the World. *Brookings Papers on Economic Activity*, 2003.

Herding Basics

“the herding effect is more prominent during periods of market losses”:

During the loss making period there are “limited diversification opportunities for investors in this market, especially during periods of market losses when diversification is most needed”

Is this happening in emerging markets as well?

Riza Demirer, Ali M. Kutan, Chun-Da Chen (2010) Do investors herd in emerging stock markets?: Evidence from the Taiwanese market. *Journal of Economic Behavior & Organization* 76 (2010) 283–295

Herding Basics

Herd behaviour is said to be one of the reasons behind stock price bubbles, and the probability of herd behaviour is positively correlated with the ambiguity of the distribution of stock returns as well as the disparity between traders and market makers' attitudes towards this ambiguity.

Zhiyong Dong, Qingyang Gu, and Xu Han (2010). Ambiguity aversion and rational herd behaviour. *Applied Financial Economics*, Vol. 20, pp 331–343

Herding Basics: A model

The simplest model of herding is probably the following. There are two possible states and the agents' decision consists of either investing or refraining from investing.

In the good state the investment yields a positive return and in the bad state it yields zero. Each agent gets an informative signal about the true state, and the signals are i.i.d. The cost of investment is one half of the return in the good state, and the prior probability of the good state is one half. This means that the agents are indifferent between investing and refraining when they have but the prior information. If they get a good signal they strictly prefer to invest and if they get a bad signal they strictly prefer to refrain.

More generally, if an agent, by observing the actions of his predecessors, can infer that the number of good signals is greater than the number of bad signals he prefers to invest. In the opposite case he prefers to refrain.

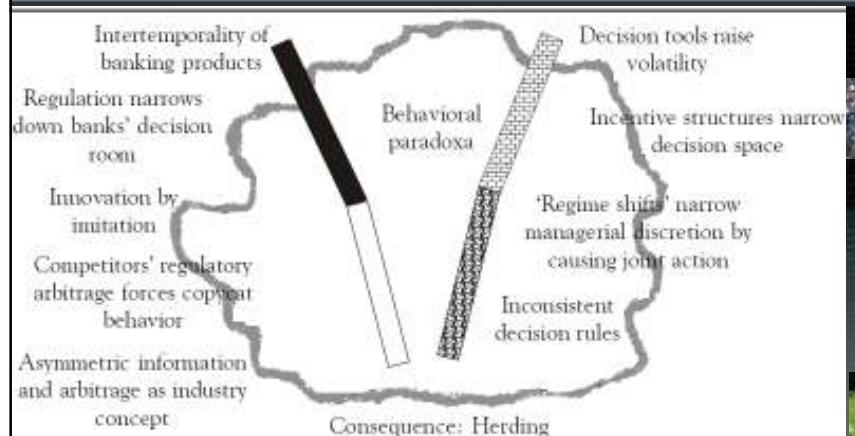
Klaus K. Kultti and Paavo A. Miettinen(2010). Herding with Costly Observation. *The B.E. Journal of Theoretical Economics*, Vol. 7 [2007], Iss. 1 (Topics), Art. 28

Herdung Basics:

Out of one market frying pan into another's fire: Gold



Herdung: A Causality



Haiss, Peter. (2010). Bank Herding and Incentive Systems as Catalysts for the Financial Crisis. *The IUP Journal of Behavioral Finance*, Vol. 7 (Nos.1&2) pp31-58.

Herding Basics

Herd behaviour is a classic case of multi-sensory fusion and shows how Herbert Simon and Daniel Kahneman and company's *fast* and *slow* mode of thinking and reacting are in operation.

Herding Basics

Herd behaviour is one of the reasons behind stock price bubbles, and the probability of herd behaviour is positively correlated with the ambiguity of the distribution of stock returns as well as the disparity between traders and market makers' attitudes towards this ambiguity.

Zhiyong Dong, Qingyang Gu, and Xu Han (2010). Ambiguity aversion and rational herd behaviour. *Applied Financial Economics*, Vol. 20, pp 331–343

Behaviour and Financial Markets – The Euphoria

The volume of trading in financial and commodity markets, and the sometimes the less than transparent relationship between investors' demands and traditional metric of asset prices, is perhaps related to those 'who trade despite having no new information to impound on stock prices' (Forbes 2009:119).

'Noise' traders invariably *misprice* assets through a series of small trades and to volume of trading and volatility in the prices.

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

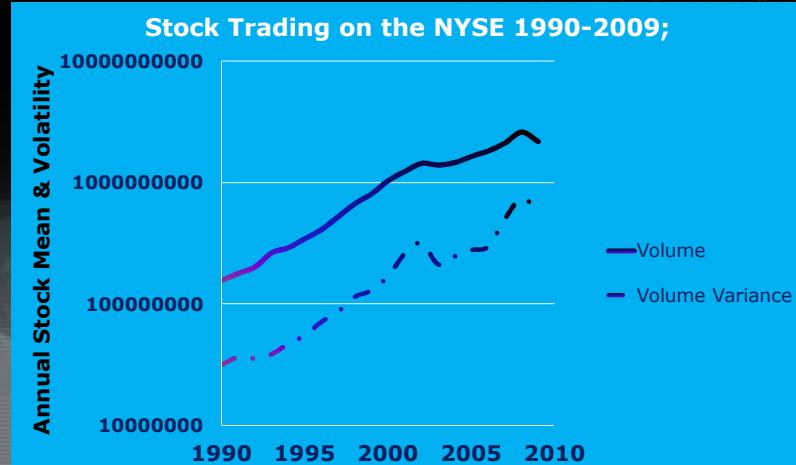
Herding Basics: Evergrowing Equity Markets

The New York Stock Exchange (NYSE) is a stock exchange located at 11 Wall Street in Lower Manhattan, New York City, USA. It is by far the world's largest stock exchange by market capitalization of its listed companies at US\$13.39 trillion as of Dec 2010.

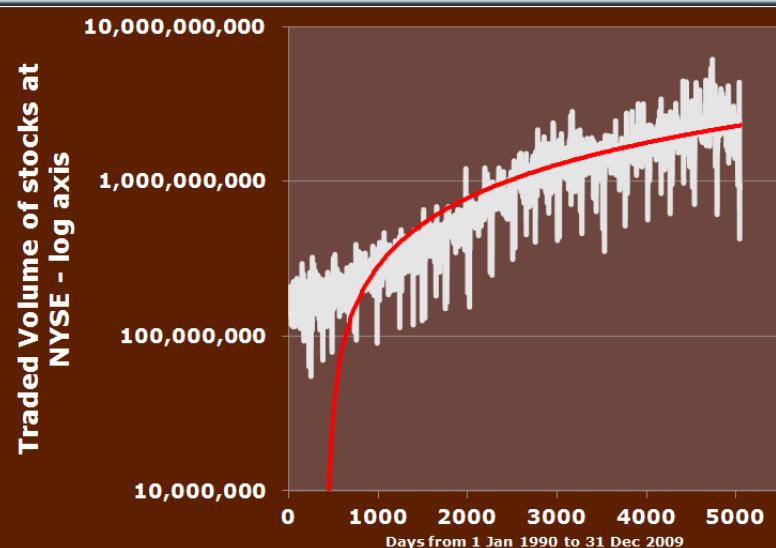
The US GDP in 2009 was 14.39 trillion; the stocks traded on NYSE were 11.76 trillion



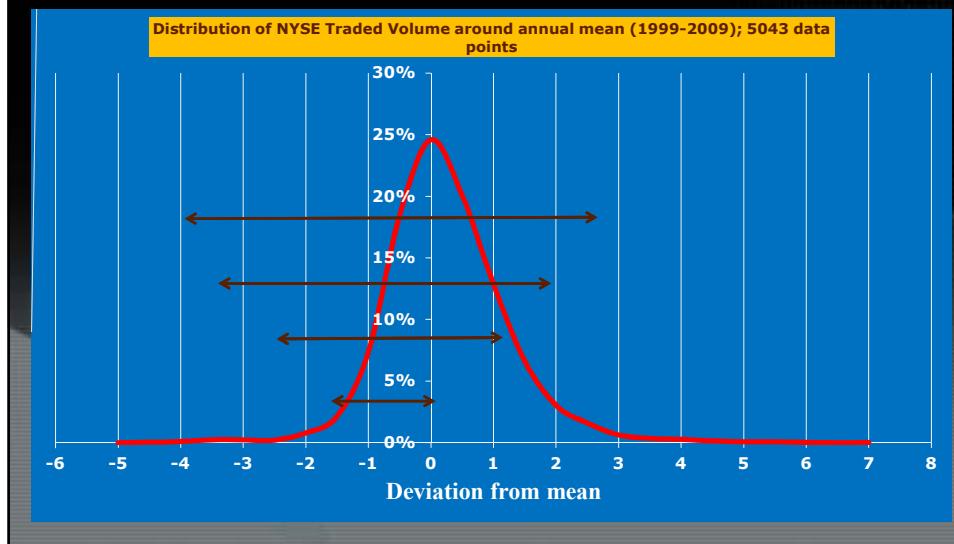
Herding Basics: Evergrowing Equity Markets



Herding Basics: Evergrowing Equity Markets



Herding Basics: Evergrowing Equity Markets



Herding Basics: Evergrowing Equity Markets

	Total Occurrences in Traded Volume at NYSE	Prediction by Random Walk
Deviation from Mean within	Every X days	Every X days
1 Std. Dev.	2	1.5
2 Std. Dev.	3	4
3 Std. Dev.	18	23
4 Std. Dev.	68	379
5 Std. Dev.	174	15931
6 Std. Dev.	630	1750302

Mean Volume traded= 1 Billion stocks/ per day
Volatility in Trading= 250-800 million stocks/per day

Herding Herds Shreds Commodity Markets



<http://www.thebureauinvestigates.com/2011/06/28/banks-trade-food-as-world-goes-hungry/>

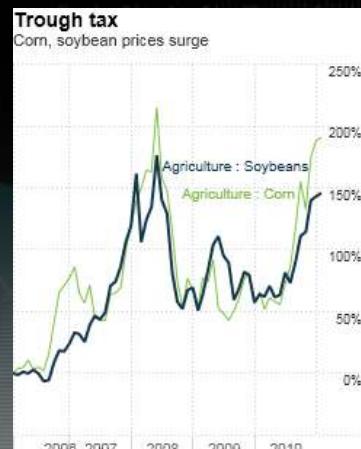
Herding Herds Shreds Commodity Markets

Contagion effect and the integration of commodity markets

- commodity markets [...] are more and more integrated, raising the fear of systemic risk.
- The tightening of cross market linkages, means that a shock induced by traders or speculators may spread, not only to the physical market, but also to other derivative markets.
- This question has been investigated through different ways. The first is the study of the impact of traders on derivative markets through the such-called "herding phenomenon". The second is the study of spatial and temporal integration

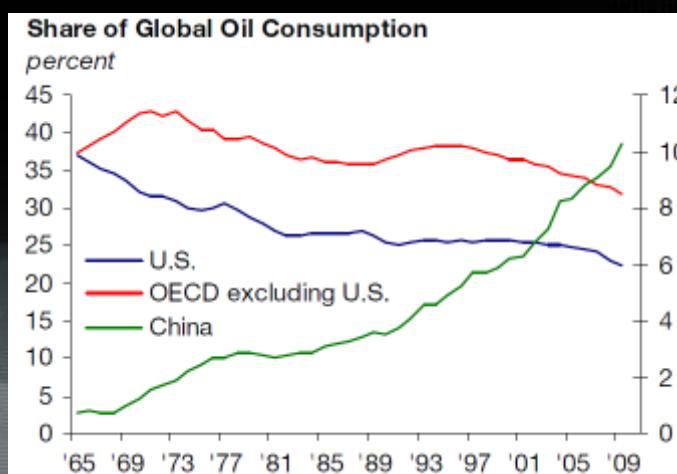
<http://basepub.dauphine.fr/bitstream/handle/123456789/1227/Energy%20finance.pdf?sequence=1>

Herding Herds Shred Commodity Markets



<http://finance.fortune.com/2011/02/02/why-cattle-markets-are-having-a-cow/>

Herding Herds Shred Commodity Markets

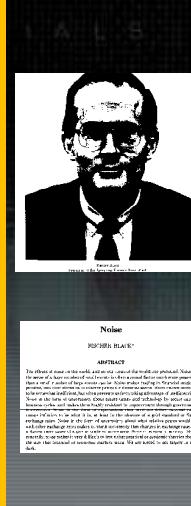


Financial Investment in Commodity Markets: Potential Impact on Commodity Prices & Volatility:IIF
Commodities Task Force Submission to the G20. Institute of International Finance., 2011

Noise, noisy traders and herding?

The effects of noise on the world, and on our views of the world, are profound. Noise [is rooted in][...] a small number of small events [and] is often a causal factor much more powerful than a small number of large events can be'.

Noise causes to be somewhat inefficient, but often prevents us from taking advantages of the inefficiencies.



Black, Fischer. (1986). Noise. *Journal of Finance*. Vol 41 (No.3). 529-541

Noise, noisy traders and herding?

- Financial markets and media streams are expected to aggregate about investment of money and votes respectively.
- However, in many instances, markets and media tend to stifle information related to endogenous and exogenous variables in 'an echo chamber of platitudes' (Forbes 2009:221).
- These platitudes coupled with human tendency of risk seeking leads to evolution of noise and noise traders.

Noise, noisy traders and herding?

Noise

FISCHER BLACK*

ABSTRACT

The effects of noise on the world, and on our views of the world, are profound. Noise in the sense of a large number of small events is often a causal factor much more powerful than a small number of large events can be. Noise makes trading in financial markets possible, and thus allows us to observe prices for financial assets. Noise causes markets to be somewhat inefficient, but often prevents us from taking advantage of inefficiencies. Noise in the form of uncertainty about future tastes and technology by sector causes business cycles, and makes them highly resistant to improvement through government intervention. Noise in the form of expectations that need not follow rational rules causes inflation to be what it is, at least in the absence of a gold standard or fixed exchange rates. Noise in the form of uncertainty about what relative prices would be with other exchange rates makes us think incorrectly that changes in exchange rates or inflation rates cause changes in trade or investment flows or economic activity. Most generally, noise makes it very difficult to test either practical or academic theories about the way that financial or economic markets work. We are forced to act largely in the dark.



Black, Fischer. (1986). Noise. *Journal of Finance*. Vol 41 (No.3), 529-541

Noise, noisy traders and herding?

Noise has many forms:

- Is caused by a projection of future tastes and technology by sector causes business cycles; these cycles cannot be controlled by interventions (statal or corporate);
- Is about irrational expectations about fiscal and monetary systems and are largely immune to remedies (statal or corporate);



Black, Fischer. (1986). Noise. *Journal of Finance*. Vol 41 (No.3), 529-541

Noise, noisy traders and herding?

But the memory and the impact of noise is not long lasting .

The presence of noise is not easily incorporated in theoretical systems, that by virtue of academic tradition of clarity and pedagogic import, discount noise in the formulation of economic and finance theories.

Noise, noisy traders and herding?

- The noise can be introduced by
 - Experts commenting on the state of the market and projecting on the future with theories that deal mainly with some critical aspects of the market → *technical analysis* for looking only at trends; relying on simplifying assumptions about the behaviour of prices and volumes traded → assumption of normality.
 - The dependence of the experts on one or more stakeholders;**
 - Technology that provides ways and means of accessing markets that were hitherto unavailable only a few years ago → electronic trading, *algo-sniffing; agencement* – an endless network of traders, machines, investors leading to opaque markets
 - Discounting affect altogether → *efficient market hypothesis*; ignoring the difference in wealth accrual and the utility of the wealth to those who acquire it.

Herding as a contingency

Assume that there are two kinds of traders only in a market: informed traders and noise traders. The noise trader fails to ascertain the true value of an asset and relies on guesswork, heuristics, imitation of the informed trader, or prayer.

The noise trader *misprices* and the informed trader should see this as an opportunity to create a margin through arbitrage.

This arbitrage is not always possible and worse still the informed tries to follow the noise trader.

Herding as a contingency

Assume that there are two kinds of traders only in a market: informed traders and noise traders. The noise trader fails to ascertain the true value of an asset and relies on guesswork, heuristics, imitation of the informed trader, or prayer. The noise trader *misprices* and the informed trader should see this as an opportunity to create a margin through arbitrage. This arbitrage is not always possible and worse still the informed tries to follow the noise trader.

Traders		Noise	
		Pessimistic	Optimistic
Informed	Pessimistic	Herding	Short-sell
	Optimistic	Buy	Herding

Herding as contingency: DSSW Model

DeLong, Shleifer, Summers and Waldman have presented ‘a simple overlapping generations model of an asset market in which irrational noise traders with erroneous stochastic beliefs both affect prices and earn higher expected returns.’

According to the authors, ‘the unpredictability of noise traders’ beliefs creates a risk in the price of the asset that deters rational arbitrageurs from aggressively betting against them.’

This misperception of correct price of the asset can lead to situations where the prices ‘can diverge significantly from fundamental values even in the absence of fundamental risk’.

DeLong, B., A. Shleifer, L. Summers and R. Waldman (1990). Noise trader risk in financial markets. *Journal of Political Economy*. Vol 98, pp 703-38.
Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

FINANCIALS

Let μ be the number of noise traders (n), and that the rest, $1-\mu$, are informed traders (i).

Let λ be the demand for an asset by the two types of traders, λ_t^i and λ_t^n . The normalised demand for a risky asset u is

$$(1 - \mu)\lambda_t^i + \mu\lambda_t^n = 1$$

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

FINANCIALS

Consider a safe asset, s , paying dividend r and has a fixed price of I forever

Consider an unsafe asset, u , paying dividend r forever but its price and supply depends on the misperception of its price.

Assume that the noise traders (n) misprice the asset u at time t by ρ_t with mean ρ^* and variance $\sigma_{\rho_t}^2$. The mean ρ^* is construed as the average amount of bullishness/bearishness of the noise trader.

If there are no noise traders, having been killed by arbitrage, then u and s will give dividend of r forever.

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

The investors risk averseness is expressed by the utility function

$$U(w) = e^{-\gamma w}$$

Where w is the wealth of the investor and γ is the risk aversion parameter.

The expected value of the distribution of wealth is its average value \bar{w} and its dispersion or risk to wealth. The expected utility for the investor is

$$E(U) = \bar{w} - \gamma \sigma_w^2$$

The utility rises if the average wealth of the investor increases but decreases in presence of the dispersion σ_w^2

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

The expected value of the utility function will be used to compute the price of the asset p_t at time t conditioned upon the behaviour of both the investors:

$$E(U) = \bar{w} - \gamma \sigma_w^2$$
$$E(U) = c_0 + \lambda_t^i [r + \widehat{p_{t+1}} - p_t(1+r)] - \gamma(\lambda_t^i)^2 \widehat{\sigma_{p_{t+1}}^2}$$

$\widehat{p_{t+1}}$ is the conditional expectation of u at time $t+1$ formed at time t

$\widehat{\sigma_{p_{t+1}}^2}$ is the conditional variance of the price of u at time $t+1$ formed at time t .

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

FINANCIALS

Now, since

$$E(U) = c_0 + \lambda_t^i [r + \widehat{p_{t+1}} - p_t(1+r)] - \gamma(\lambda_t^i)^2 \widehat{\sigma_{p_{t+1}}^2}$$

Components of $E(U)$	Elaboration
c_0	is the endowment of the investor – his or her net current assets
$\lambda_t^i [r + \widehat{p_{t+1}} - p_t(1+r)]$	is the expected capital gain/loss because the investor held onto the unsafe asset u – the gain will be if $(\widehat{p_{t+1}} - p_t(1+r)) > 0$
$\gamma(\lambda_t^i)^2 \widehat{\sigma_{p_{t+1}}^2}$	is the risk to wealth should avoid at all cost

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

FINANCIALS

The utility function $E(U)$ has to be maximised with respect to the demands for the unsafe asset U .

$$\frac{\partial E}{\partial \lambda_t^i} = 0 = r + (\widehat{p_{t+1}} - p_t(1+r)) - \gamma(\lambda_t^i)^2 \widehat{\sigma_{p_{t+1}}^2}$$

And the price $p(t)$ is given as

$$p_t = \frac{1}{1+r} (r + \widehat{p_{t+1}} + \mu p_t - 2\gamma \widehat{\sigma_{p_{t+1}}^2})$$

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

Using the derivative of the utility function, we can describe the demands of the informed and noise trader for the unsafe asset u

$$\text{Informed trader demand} \Rightarrow \lambda_t^i = \frac{\widehat{p_{t+1}} - p_t(1+r)}{\gamma \widehat{\sigma_{p_{t+1}}^2}}$$

$$\text{Noise trader demand} \Rightarrow \lambda_t^i = \frac{\widehat{p_{t+1}} - p_t(1+r)}{\gamma \widehat{\sigma_{p_{t+1}}^2}} + \frac{p_t}{2\gamma \widehat{\sigma_{p_{t+1}}^2}}$$

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding as a contingency

Now we have to find an approximate solution for the conditional value of the price and that of the variance. This is obtained by a recursive solution of $\frac{\partial E}{\partial \lambda_t^1}$ and $\frac{\partial E}{\partial \lambda_t^0}$

The price for the asset

$$p_t = 1 + \frac{\mu(\rho_t - \rho^*)}{1+r} + \frac{\mu\rho^*}{r} - \frac{2\gamma}{r}\sigma_p^2$$

- The price rises when the noise traders are optimistic: $\rho_t - \rho^* > 0$
- The price falls when the noise traders are pessimistic: $\rho_t - \rho^* < 0$
- The price is kept up in perpetuity due to the average mispricing of the asset by ρ^* of μ noise traders
- The volatility and the risk aversion, discounted by the return r , lowers the price by $\frac{2\gamma}{r}\sigma_p^2$

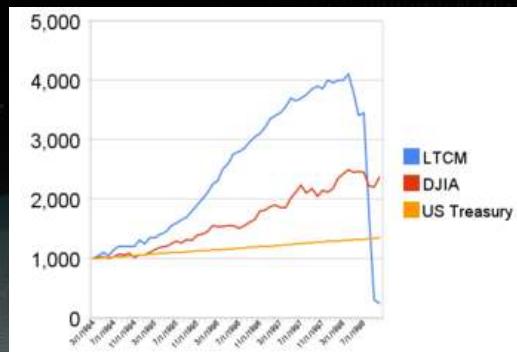
Constant λ is the informed trader's risk aversion factor; ρ changing value of noise trader's mispricing of an asset

Forbes, William. (2009). *Behavioural Finance*. Chichester: John Wiley & Sons.

Herding in Financial Markets

'LTCM's basic strategy was 'convergence' and 'relative-value' arbitrage: the exploitation of price differences that either must be temporary or have a high probability of being temporary. Typical were its many trades involving 'swaps': by the time of LTCM's crisis, its swap book consisted of some 10,000 swaps with a total notional value of \$1.25 trillion.' (MacKenzie 2003:354).

Donald MacKenzie (2003), Long-Term Capital Management and the sociology of arbitrage, *Economy and Society*, Vol 32 (No. 3), pp 349-380



The value of \$1,000 invested in LTCM, the Dow Jones Industrial Average and invested monthly in U.S. Treasuries at constant maturity.

Economics, Finance and Behaviour

So what herd behaviour has to do with sentiment clustering: if the sentiment in formal media follows sentiment in informal media → Herding

Finding Bull and Bear Herds in Financial Markets

“ intentional herding is likely to be better revealed using intraday data, and that the use of a lower frequency data may obscure results revealing imitative behaviour in the market. ”

Blasco, N; Corredor,; Ferreruela, S. (2011). Detecting intentional herding: what lies beneath intraday data in the Spanish stock market. *The Journal of the Operational Research Society* Vol 62 (No.6) (Jun 2011), 1056-1066

Economics, Finance and Behaviour

There are, it appears two polar views [bank] herding':

- 1. Rational Herding;**
- 2. Behavioral Herding**

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 30-58

Economics, Finance and Behaviour

1. Rational Herding

This includes information cascades: prior investment analyst choices influence post choices → small bank operative follow large bank operative into sub-prime and risky loans. Information asymmetries cause cascading.

Reputation-based herding relates to risk-seeking/risk averse behaviour precipitated by investment managers/gurus who are famous/notorious for their choice of assets;

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 30-58

Economics, Finance and Behaviour

1. Rational Herding

Compensation: Investment managers are remunerated on the return performance of other managers [...] rather than on absolute performance. This may lead to herd behaviour as investment managers merely follow other investment managers.

Payoff Externalities: Refusal to re-negotiate outstanding loans of a distressed firm by one bank may lead to others to follow (similar to depositors running on distressed banks) in a herd. ‘The observation of payoffs from the repeated actions of other firms may similarly lead to boom and bust patterns in the adoption of financial innovations [like securitization]’ (Haiss 2010:37)

Haiss, Peter (2010). ‘Bank Herding and Incentive Systems as Catalysts for the Financial Crisis’. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 39-58

Economics, Finance and Behaviour

Behavioral herding

Dependence of behaviour upon the observed behaviour of others, or the results of behaviour;

Procrastination in taking a decision and then rushing to implement it;

Imitation

Responding to affect

Haiss, Peter (2010). ‘Bank Herding and Incentive Systems as Catalysts for the Financial Crisis’. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 39-58

Herding in Markets

We know of traders in financial and commodity markets mimicking each other and not being cognisant of their private information which contradicts what is happening in the markets; we know about long queues of depositors acting on rumour and literally follow their co-depositors; but do institutions act like herds? Banks for example?????????

Herding: Ambiguity and Crowds

An important issue in modern financial theories is to study how agents make decisions on investments under risk, which is quite different from the concept of ambiguity.

If the value functions of market makers and traders are homogeneous, herd behaviour will never happen even if ambiguity exists; if some types of traders have different attitudes towards ambiguity from market makers, then herd behaviour will happen with a positive probability.

Zhiyong Dong, Qingyang Gu, and Xu Han (2010). Ambiguity aversion and rational herd behaviour. *Applied Financial Economics*, Vol. 20, pp 331–343

A Typology of Herding?

There are, it appears two polar views [bank] herding':

1. Rational Herding;
2. Behavioral Herding

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 30-58

Economics, Finance and Behaviour

Incentive structures faced by bank managers appear 'central' in mitigating 'herding, as myopic and asymmetric reward structures in many banks were among the key drivers of the excess of the most recent financial boom [...]'

(Haiss 2010:50)



Haiss, Peter. (2010). Bank Herding and Incentive Systems as Catalysts for the Financial Crisis. *The IUP Journal of Behavioral Finance*, Vol. 7 (Nos. 1 &2) pp31-58.

Hherding in Markets

In a study of the performance of 2345 hedge funds, and their managers, between 1994-2004, Nicole Boyson found

Fund Type	Tendency to herd in Managers	
	More Experienced	Less Experienced
Hedge Funds	Yes	No
Mutual Funds	No	Yes

Boyson, Nicole. M (2010). Implicit incentives and reputational herding by hedge fund managers. *Journal of Empirical Finance*, Vol. 17, pp 283-299.

Herding in Audit Committees

It has been shown that “herding equilibrium exists in which the audit committee “herds” and follows the auditor’s judgement no matter what its own insights suggest.”

Barbara Schöndube-Pirchegger, Jens Robert Schöndube. (2011). Reputation concerns and herd behavior of audit committees - A corporate governance problem *Journal Of Accounting And Public Policy* Volume: 30 (4), p. 327-347.

Analyst-led Herding

Do ‘sell-side analysts herd around the consensus when they make stock recommendations? “empirical results support the herding hypothesis.

Stock price reactions following recommendation revisions are stronger when the new recommendation is away from the consensus than when it is closer to it, indicating that the market recognizes analysts’ tendency to herd.

Analysts from larger brokerages, analysts following stocks with smaller dispersion across recommendations, and analysts who make less frequent revisions are more likely to herd.

Narasimhan Jegadeesh and Woojin Kim (2010). Do Analysts Herd? An Analysis of Recommendations and Market Reactions *The Review of Financial Studies*. v 23 (No. 2) pp 902:934

Analyst-led herding

The key distinction between forecasts and recommendations is that when analysts make forecast revisions, they rationally incorporate information in the consensus forecasts even if that information is stale to the market. However, analysts do not revise their recommendations based on information already reflected in market prices because their recommendations are based on prevailing market prices[...]. Moreover, analysts revise recommendations in discrete levels.

Most commonly, analyst recommendations rate stocks as “strong buy,” “buy,” “hold,” “sell,” and “strong sell.” Analysts also use other labels such as “market underperform” and “market outperform,” or “underweight” and “overweight,” to convey their opinions

Narasimhan Jegadeesh and Woojin Kim (2010) Do Analysts Herd? An Analysis of Recommendations and Market Reactions. *The Review of Financial Studies* Vol. 23 (No.2). pp 902-937.

Analyst-led Herding: Forecasts and Recommendations

F I N A N C I A L S

Period	1983-2005
Firms followed	5714
Analysts followed	6588
Brokerages	444
Mean analysts/brokerage	19.27
Mean analysts following each firm	7.45

Narasimhan Jegadeesh and Woojin Kim (2010) Do Analysts Herd? An Analysis of Recommendations and Market Reactions. *The Review of Financial Studies* Vol. 23 (No.2). pp 902-937.

Analyst-led Herding: Forecasts and Recommendations

F I N A N C I A L S

Recommendation revision	Obs.	Returns since a number of trading days since revision						
		0	1	2	21	42	126	
Upgrades	34,385	2.0	2.3	2.4	3.3	3.6	4.8	
Downgrades	37,170	-3.2	-3.4	-3.5	-3.8	-3.8	-3.6	
Reiterations	11,690	-0.11	-0.12	-0.05	-0.16	0.3	2.0	

Narasimhan Jegadeesh and Woojin Kim (2010) Do Analysts Herd? An Analysis of Recommendations and Market Reactions. *The Review of Financial Studies* Vol. 23 (No.2). pp 902-937.

Analyst-led Herding: Forecasts and Recommendations

Recommendation revision	Obs.	Number of trading days since revision						
		0	1	2	21	42	126	
Upgrades	34,385	2.0	2.3	2.4	3.3	3.6	4.8	
Toward—away consensus	15835- 17391	-0.4	-0.4	-0.5	-0.3	-0.2	-0.5	
Downgrades	37,170	-3.2	-3.4	-3.5	-3.8	-3.8	-3.6	
Toward—away consensus	17177- 18682	1.6	1.6	1.5	1.8	1.8	2.1	
Reiterations	11,690	-0.11	-0.12	-0.05	-0.16	0.3	2.0	

Narasimhan Jegadeesh and Woojin Kim (2010) Do Analysts Herd? An Analysis of Recommendations and Market Reactions. *The Review of Financial Studies* Vol. 23 (No.2). pp 902-937.

Herding amongst Central Bankers

There is some evidence of herding from the deliberations of the various committees, and indeed the Council of the revered *Budensbank*, comprising of some individuals that are open about their econo-political orientation (left/right, conservative/social democrat).

Berger and Woitek (2005) have noted that, for example, in setting the key discount rate ‘political background of [the Council] member matters’. More importantly for us: ‘there is some herd behaviour: the dissenting vote was highly correlated among groups. [...] all groups were more inclined to vote no if members of other groups did so as well.’(ibid:752)

Helge Berger and Ulrich Woitek (2005). DOES CONSERVATISM MATTER? A TIME-SERIES APPROACH TO CENTRAL BANK BEHAVIOUR. *The Economic Journal*, Vol 115 (July), 745-766.

Instances of Rational Herding

Finding	Herder	Author
Cascade		
Boom in foreign currency borrowing and lending in Austria attributed to herding on media signals and loan brokers and	Banks & Bank Clients	Waschiczek 2003 and
Poorly informed depositors are likely to herd to overinvest in bank frenzies and to herd to panic in bank crashes.	Banks & Depositors	Huang and Xu (1999)
Contagious effects of expectations when a number of financial institutions collapsed in Japan towards the end of 1997.	Banks	Shimizu and Ui (1998)
Branch openings follow other, existing branches	Banks	Chang et al. (1997)
Herding behavior by international lenders creates a mechanism for capital account reversals experienced in	Banks (International)	Komulainen (2001)
Reputation		
Banks' merger and acquisition (scale) and product (scope) strategies may be driven by herding.	Banks	Milbourn et al. (1999)
Weak evidence on herding in loans to less developed countries; small ones herded behind larger banks.	Banks	Jain and Gupta (1987)

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 30-58

Instances of Rational Herding

Finding	Herder	Author
Cascade /reputation		
Herd-type lending was partially determined by competitors' decisions and has potential to generate credit cycles.	Banks (Swiss)	Rötheli (2001)
Herding in decision to write down assets; once the first bank sets aside loan-loss-reserves, others follow fast.	Banks	Rajan (1994)

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 30-58

Instances of Rational Herding

FINANCIALS

Reputation/regulatory		
Herding in US—commercial real estate lending in the 1980s due to tax law (enabling/disabling accelerated depreciation), broadening product ranges for S&Ls and tightening capital ratios.	Banks	Mondschein and Pecchenino (1995)
Herding in recycling of sharply rising petrodollar volume into credits to Latin America due to oil shocks and fed monetary policy	Banks (International)	Mondschein and Pecchenino (1995)

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 30-58

Instances of Behavioral Herding

FINANCIALS

Finding	Herder	Author
Behavioral/ regulatory		
Upon deregulation, Scandinavian banks followed each other in high-growth strategies, taking on additional risks.	Banks	Engwall (1994)
"Sheep flock behavior" via market share strategy in the rapidly expanding Scandinavian credit market (+ 100% 1985-1990).	Banks	Reve (1990)
Weak support that US thrifts imitate the behaviour of their size peers. Strong support for the 'pull of imitation' of large and profitable banks that serve as role models for thrifts in decisions to venture into new product markets.	Savings & Loan Associations	Haveman (1983)

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*. Vol 7 (Nos. 1 &2), pp 30-58

Instances of Rational/Behavioral Herding

Finding	Herder	Author
Cascade /reputation		
Herd-type lending was partially determined by competitors' decisions and has potential to generate credit cycles.	Banks (Swiss)	Rötheli (2001)
Herding in decision to write down assets; once the first bank sets aside loan-loss-reserves, others follow fast.		
Cascade/behavioral		
City banks in Japan had been following a cyclical pattern of herding in the domestic loan market in the late 1980s bubble	Banks (Japanese)	Uchida and Nakagawa (2007)
Cascade; Payoff Externality behavioral		
Mimetic behavior in shaping renewal in the services industry derived from banks "exploitation strategies" (improving efficiency of existing activities" rather than explorative [innovative] strategies).	Banks	Volberda et al. (2001)

Haiss, Peter (2010). 'Bank Herding and Incentive Systems as Catalysts for the Financial Crisis'. *The IUP Journal of Behavioral Finance*, Vol 7 (Nos. 1 &2), pp 30-58

Herding and Incentive Structures

Incentive structures faced by bank managers appear 'central' in mitigating 'herding, as myopic and asymmetric reward structures in many banks were among the key drivers of the excess of the most recent financial boom [...]'
 (Haiss 2010:50)



Haiss, Peter. (2010). Bank Herding and Incentive Systems as Catalysts for the Financial Crisis. *The IUP Journal of Behavioral Finance*, Vol. 7 (Nos.1&2) pp31-58.

Herding Herds Shreds Commodity Markets

THOMSON REUTERS

INSIDE OIL

WEDNESDAY, OCTOBER 05, 2011

To download the full report (PDF document) please click [here](#)

SINGAPORE INTERNATIONAL ENERGY WEEK
31 October - 4 November 2011

Join the influencers of the energy industry
Register now at www.siew.sg

COLUMN:
Oil market lurches from exuberance to panic: John Kemp

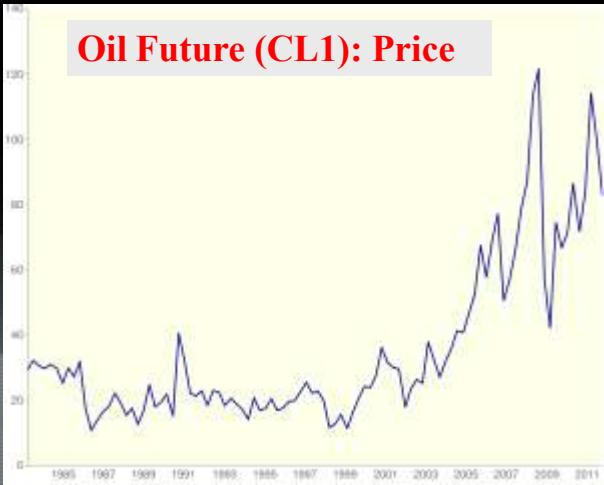


--John Kemp is a Reuters market analyst. The views expressed are his own--
LONDON (Reuters) - Oil markets have swung from irrational exuberance in the first half of the year to increasingly irrational pessimism in recent weeks. Participants risk exaggerating the risk of a deep and prolonged recession hitting demand in both the advanced economies and emerging markets.

http://nobelprize.org/nobel_prizes/economics/laureates/2002/smith-lecture.pdf

Herding Herds Shreds Commodity Markets

Oil Future (CL1): Price

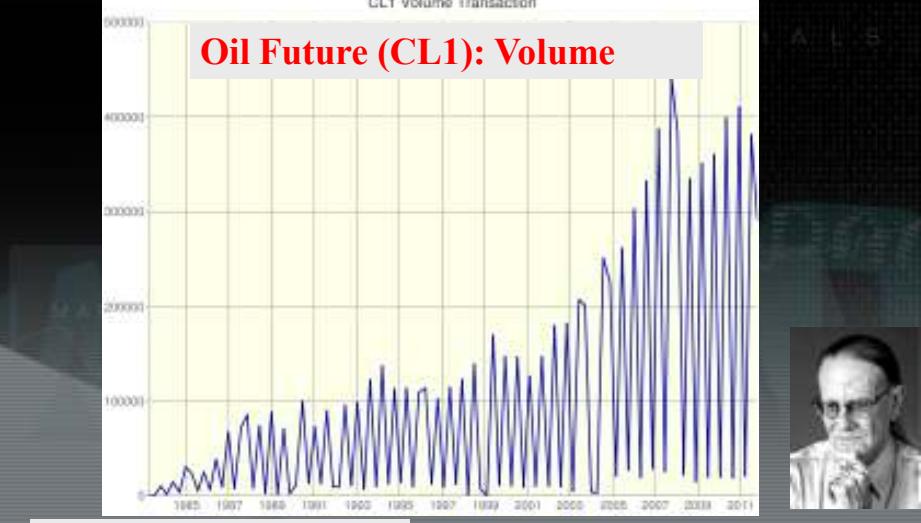


The graph shows the price of oil futures (CL1) over time. The y-axis represents price in dollars per barrel, ranging from 0 to 100. The x-axis represents years from 1985 to 2011. The price starts around \$30 in 1985, fluctuates between \$20 and \$40 until the early 1990s, then rises steadily to about \$60 by 2000. It then experiences a sharp spike to nearly \$100 in 2008 before dropping sharply and remaining volatile around \$50-\$60 through 2011.

<http://wikipedia.org/05/futget?ticker=CL&month=1>

Herding Herds Shreds Commodity Markets

Oil Future (CL1): Volume



<http://www.wikiposit.com/plot?Y2h0P>

Anti-herding and herding in commodity markets



Pierdzioch et al (2010) have looked at the oil-price forecasts of the Survey of Professional Forecasters published by the European Central Bank to analyze whether oil-price forecasters herd or anti-herd.

They conclude that ‘Oil-price forecasts are consistent with herding (anti-herding) of forecasters if forecasts are biased towards (away from) the consensus forecast’.

Christian Pierdzioch , Jan Christoph Rülke , and Georg Stadtmann (2010). New evidence of anti-herding of oil-price forecasters. *Energy Economics* . Vol. 32, pp 1456-1459

Herding Herds Shreds Commodity Markets

There is little convincing evidence linking financial investment with trends in commodity prices and volatility. While there have been periods of correlation (sometimes attributed to "herding" behavior) in recent years, including among previously uncorrelated markets, researchers have not documented a clear *causal link between* financial investment and commodity prices.

In theory the price effect of commodity financial investment is ambiguous. On the one hand, well-informed, rational investors should add liquidity to commodity derivatives market, facilitating price discovery and keeping prices more aligned with fundamentals. As commodity investors buy when prices are low and sell when prices are high, this should help clear the market. However, some argue that "ill informed" investors exhibiting herding behavior could add to price volatility [...]

Financial Investment in Commodity Markets: Potential Impact on Commodity Prices & Volatility:IIF Commodities Task Force Submission to the G20. Institute of International Finance., 2011, pp 5-6

Herding Across Financial Markets



FINANCIAL ASSETS

BONDS

STOCKS

Most of the studies examining the empirical evidence on herding and its effects have been done in the context of developed countries. In these countries the evidence suggests that investment managers do not exhibit significant herd behavior and that the tendency to herd is highly correlated with a manager's tendency to pursue momentum investment strategies. Whether such positive-feedback or momentum strategies are efficient, depends on how fast new information is incorporated into market prices.

Herding in Financial Markets

Long-Term Capital Management L.P. (LTCM) was a hedge fund management firm that utilized absolute-return trading strategies, including fixed-income arbitrage, statistical arbitrage, and pairs trading, combined with high leverage.

Founded in 1994 and had annualised returns of over 40% until 1997. The firm, got entangled in the transformation of Russia from a controlled economy to a market-based economy, and was bailed-out after making losses of \$4.6Billion in 1998 by other institutions under the guidance of the US Federal Reserve

John Meriwether, formerly of Salomon Brothers, founded LTCM in 1994 and had the Economic Science Nobel Laureates (1997) Myron Scholes and Robert C. Merton on its Board of Directors.

http://en.wikipedia.org/wiki/Long-Term_Capital_Management

Herding Basics: Lock-stepping Stocks

Floyd Norris
writes
a ‘must-read’
financial blog in
the *New York*
Times. This is
what he had to
say on August
16, 2010.



Herd Behavior

Last month was a good one for the stock market, following two bad ones. That can be seen in market averages, but it can be seen most clearly in market breadth.

Of the 500 stocks in the Standard & Poor's 500, 429 went up in July. In May, that figure was 70 and in June, 35.

In other words, this market is one that moves largely on the basis of economywide hopes and fears. Company specifics take a back seat.

I looked at how likely such months have been since the beginning of 1999, which is as far back as S.&P. has data. Over all, about a quarter of the months show at least 75 percent of the stocks in the index going in the same direction, whether up or down. But eight of the last 12 have seen moves that large, and five of the last six. I can find no previous periods with as many such moves.

Since herds run both ways, the net impact can be unimpressive. Through July, 266 of the 500 stocks were up in 2010, with 233 down and one unchanged. The index level now is almost exactly where it was at the end of 2009. The market has gone nowhere, but it did it with gusto.

Herding Basics: Lock-stepping Stocks

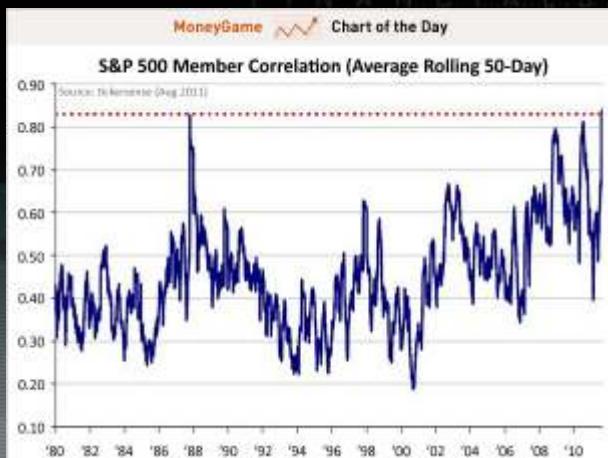
August 2011

Herd mentality has descended upon Wall Street, as S&P 500 stock correlation reaches its highest levels ever.

This unseats former records set in 1987, when portfolio insurance strategies caused stocks to tumble in tandem.

Analysts have learned to expect high correlation in bear markets, when investors rush to sell off equities. But Felix Salmon has noted that the rise of high-frequency trading and ETFs could mean that high correlation is just part of a larger trend.

Either way, this spike in correlation is far from reassuring for markets.



http://articles.businessinsider.com/2011-08-24/markets/30076940_1_herd-m mentality-correlation-investors-rush

Herding Basics: Lock-stepping Stocks

August 2011



BEHIND THE MONEY

[HOME](#) | [RAPID RECAP](#) | [HALFTIME REPORT](#) | [BEHIND THE MONEY](#) | [VIDEO](#) | [FOLLOW](#) | [DISCLAIMER](#)

Mon-Thur 12:30p ET & Fri 10:30p ET

End of Stock-Picking: S&P Stocks in Lockstep
With Index

Published: Monday, 29 Aug 2011 | 5:49 AM ET

| [Tune In](#) | [Size](#) | [Print](#)

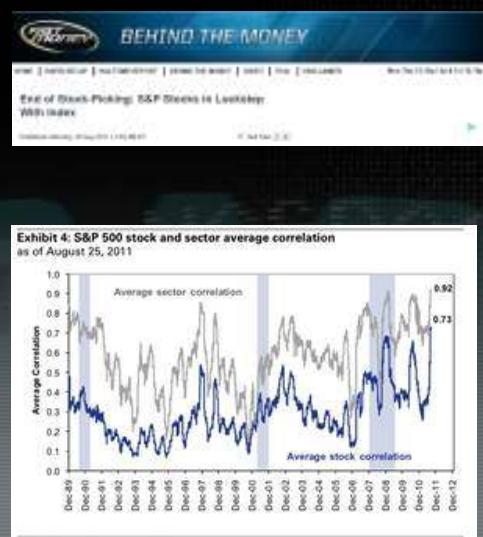
The correlation of moves in individual stocks and the S&P 500 index is at a record, making the job of long-only mutual fund managers to differentiate from the benchmark virtually impossible, according to a report from Goldman Sachs.

The correlation for the S&P 500 and its members is at 0.73, according to Goldman, meaning that the majority of stocks move in lockstep with the index on a daily basis. This is at least the highest in 20 years and therefore likely a record

"Record high S&P 500 and sector correlation poses a challenge for fundamental investors," said David Kostin, chief U.S. investment strategist at Goldman Sachs, in the Friday note.

Herding Basics: Lock-stepping Stocks

Kostin and other traders believe this lemming behavior among individual stocks could be attributed to the popularity of exchange-traded funds, which allow investors to trade whole indexes and sectors as easily as individual stocks, and the surge in lightning fast high-frequency trading, the buying and selling of millions of stocks in milliseconds based on algorithmic models.



Herding in Equity Markets

Guo and Shih (2008) have examined the co-movement of stock prices and its association with herd behaviour during period of high-tech mania using the implications for return data and found 5 key points:

1. return dispersion and volatility dispersion are higher in high-tech industries.
2. directional co-movement of stock prices as a modified herding measure to investigate herd behaviour for high-tech stocks.

Wen-Chung Guo and Hsiu-Ting Shih (2008). The co-movement of stock prices, herd behaviour and high-tech mania. *Applied Financial Economics*, Vol 18, pp 1343–1350

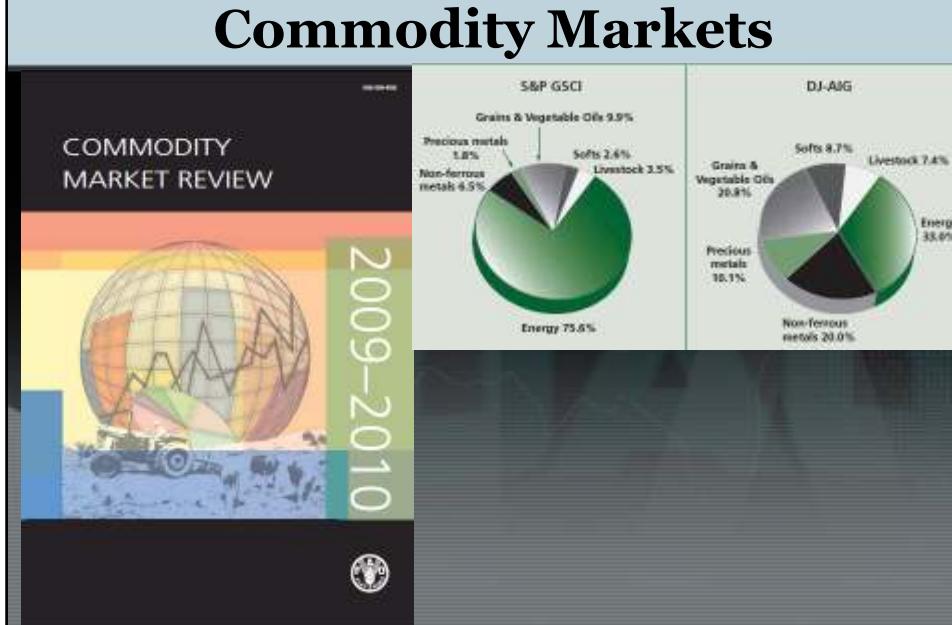
Herdin in Equity Markets

Guo and Shih (2008) have examined the co-movement of stock prices and its association with herd behaviour during period of high-tech mania using the implications for return data and found 5 key points:

3. return and volatility dispersion were not found to exhibit a consistent relation with extreme market conditions in the Taiwan market.
4. herding, measured by directional co-movement, is more prevalent in high-tech industries, as compared to traditional economic industries
5. an asymmetric result that herding has great significance during extreme up markets.

Wen-Chung Guo and Hsiu-Ting Shih (2008). The co-movement of stock prices, herd behaviour and high-tech mania. *Applied Financial Economics*, Vol 18, pp 1343–1350

Herding Herds Shreds Commodity Markets



Herding Herds Shreds Commodity Markets

About.com Commodities

Commodities | Commodity Types | Basics | Trading Commodities

Live Cattle Futures Herding Higher

By Chuck Kowalski, About.com Guide February 8, 2010

[My Bio](#) | [Headlines](#) | [Forum](#) | [RSS](#)

Live cattle futures have continued to move higher since mid-December, even though the overall commodities markets have been weak. The fundamental setup for cattle is positive right now. Supplies are shrinking in the near term and the USDA expects exports to increase.

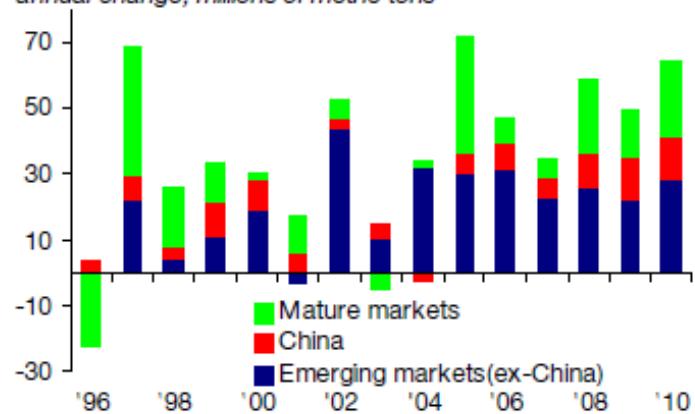
April live cattle futures have rallied from a low near 85 in December and they closed at 90.80 on Monday. Tuesday could be a tricky day from a technical perspective. There is a double top from the last two trading sessions at 91.20 and the previous high is 91.35. A break above here should lead to another run higher - possibly around 93. A break below 90.40 on Tuesday might be a good setup for a quick trade on the short side.

Overall, cattle looks like it will move higher. It has been able to distance itself from the negative influences of outside markets in the last couple weeks and the fundamental setup looks good.

<http://commodities.about.com/b/2010/02/08/live-cattle-herding-higher.htm>

Herding Herds Shreds Commodity Markets

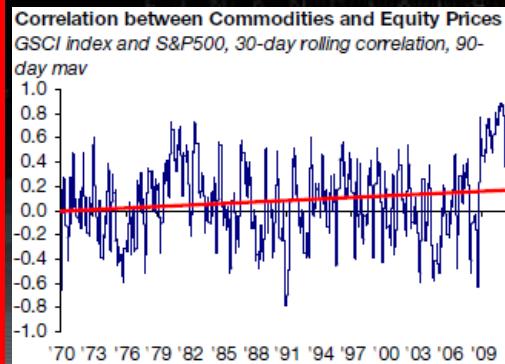
Major Crop Demand
annual change, millions of metric tons



Financial Investment in Commodity Markets: Potential Impact on Commodity Prices & Volatility:IIF
Commodities Task Force Submission to the G20. Institute of International Finance., 2011

Herding across the markets: Equities and Commodities

Financialization of commodity markets has led to "herding" and more correlation among previously uncorrelated asset classes
A related argument states that the rising weight of financial investment in commodity futures markets—particularly via such practices as algorithmic trading and the “herding effect,” has led to investors being broadly indiscriminate among different asset classes—using information collected in one market (e.g., equities) to form expectations about price movements in another (e.g. commodities), irrespective of fundamentals in the latter.[..] This would suggest that financial investment has led to increasing correlation between commodities and other markets



Financial Investment in Commodity Markets: Potential Impact on Commodity Prices & Volatility:IIF
Commodities Task Force Submission to the G20. Institute of International Finance., 2011, pp 5-6

I flock, you flock, we flock

What interests me is the so-called herd behaviour that can be observed in the different segments of human society.



Exuberant financial trading is one example. Exuberant labeling of groups of people is another. Exuberant scientists is yet another example



I flock, you flock, we flock

Exuberant behaviour: reckless risk taking; unwarranted self belief shared with an equally (mis)informed community; no rational basis for evaluation; always related to the 5-year boom-busts we have gotten used to (dot com, sub-prime)

