Andreas Krause

Speculation

- many investors in financial markets are not interested in the value of the asset, but seek to make profits from trading, that is exploiting differences in prices over time.
- This activity is referred to as 'speculation' and these market participants are also often known as 'traders'; the term 'investor' often being associated with those holding an asset for a long time period to benefit from its value, that is the payment of dividends or interest.
- We will look at informed speculation and whether it is beneficial, but also how uninformed speculators can make profits.

Speculation and investment

- Speculation is the exploitation of price differences over time
- Speculation seeks to generate these profits within short time periods
- Obtaining the benefits of the asset, such as dividends, is of little interest
- Investment seeks to obtain these benefits and is focused on long-term gains

Speculation and investment

→ We will briefly discuss the difference between speculation and investment.

- Commonly speculation is about making profits arising from prices changing over time; whether such changes are the result of a change in the true value, the price adjusting to a new true value, or the price changing without the true value changing is irrelevant in this context.
- Speculation is usually very-term, with time frames starting at only seconds to a few days, where most speculation has a time horizon not exceeding the trading day.
- With speculation, there is no interest of benefitting from the asset itself, such as obtaining dividends.
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  - In contrast to this, investment is focussed on obtaining these benefits of assets
  - and the time horizon is usually longer, months or even years.

→ Thus speculation seeks to benefit from the short-term fluctuation of prices.

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Negative views on speculation

- Speculation is commonly seen negatively as detrimental to investors and destabilizing markets.
- Speculators are often accused of ignoring the fundamental value and driving asset prices high.
- We will look at the impact speculation has on the market and at the consequences of herding, which ignores information.

Negative views on speculation

→ In much of the press speculation is seen negative, particularly at times of market stress, that is during times of high market volatility.

- It is often argued that speculation is not beneficial to investors as it increases volatility and distorts prices.
- The increase in volatility that is attributed to speculation is then used as an argument that speculation destabilises the market.

- That speculators are not concerned about the fundamental value of an asset has been used against them,
- in particular that this causes asset prices to be unreasonably high (rarely low) and making asset unattractive to long-term investors.

- We will look whether speculation has such negative impact on asset prices
- as well as the possibility that speculation is driven by uninformed speculators causing a trend in asset prices which they seek to exploit, ignoring the fundamental value of the asset. This is known as 'herding'.

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Speculation and volatility

- Market prices fluctuate due to information becoming available and changes in trading behaviour of investors.
- Speculators try to take advantage of these fluctuations.
- If they trade against the trend, they can reduce asset volatility.
- If they misjudge future trading behaviour, they can increase asset volatility.
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→ We first consider the impact of speculation on the volatility of asset prices.

- Market prices fluctuate due to information becoming available and informed traders seeking to exploit the difference between the current price and the value of asset.
- Prices also fluctuate due to exogenous trades (noise traders), which will affect the resulting equilibrium price.

- Speculators try to take advantage of these price changes by correctly anticipating them.
- Of course, by being informed about the fundamental value of the asset, speculators could anticipate the adjustment of the price, but what speculators are more concerned about is the fluctuation in demand that drives some of the price changes. Such noise trading, although often assumed to be random, might have a predictable pattern, such as trades around key dates or events.

- If speculators go against the trend of other traders, the price changes (volatility), would decrease as an increase (decrease) in demand for an asset is met with a decrease (increase) in demand from speculators. Reducing the net demand for an asset leads to a smaller price adjustment and will hence reduce price volatility.
- We will see that is they misjudge the extent of the demand change by other traders or they misjudge how much speculation occurs, volatility can actually increase.
- We will see how these different effects are arising and also consider the effect on the welfare of traders, speculators and the aggregate welfare.

→ We will here consider a model in which informed speculators seek to exploit their knowledge.

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Stabilizing and destabilizing speculation
LIVERMORE
NEW YORK STOCK EXCHANGE

→ We will consider a graphical analysis of speculation here, which will allow us to derive some generic results to assess the benefits and costs of speculation.

Benefits of speculation

- If speculators anticipate future price movements correctly and speculation is limited, it reduces price volatility
- Destabilising speculation reduces overall welfare, but investors nevertheless benefit from speculation

? Why might the welfare gains to investors from destabilising volatility be more limited than in this model?

! Investors are risk averse and the increased volatility will negatively affect their utility from holding the asset, this will reduce the overall welfare or make it even negative

Benefits of speculation

→ We have seen that speculation can be socially beneficial and is always beneficial to non-speculators.

- If the amount of speculation is not too large and speculators anticipate future price movements correctly, the volatility of prices is reduced. In this case speculation is stabilising.
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  - If speculators have wrong information, overestimate the future price change, or there is more speculation than anticipated, speculation increases the volatility of prices.
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Copying other traders' decisions

- Herding is a situation where traders make the same decisions.
- Traders ignoring information is often seen as irrational.
- There is significant evidence that herding in financial markets exists.
- We will show that herding can be rational and profitable.

Copying other traders' decisions

→ Speculation is not always informed as assumed thus far, speculators might well be uninformed. In this case, speculators might be copying each other's decisions and through that coordinated action generate profits, while driving prices away from the fundamental value.

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- However, evidence suggests that in financial markets herding is existent and quite common.
- We will show here how ignoring information and herding can be both rational and profitable to a trader.

→ We will not discuss a simple model in which traders can either become informed and use their information or they choose to not become informed and herd. In this model we will show how herding can emerge as an optimal decision by traders.

Copying other traders' decisions

- Herding is a situation where traders make the same decisions and this decision is not based on information but traders copying each other's decisions
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Andreas Krause
Herding
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→ The model is presented her in an intuitive way without the use of explicit formulae.

Profitable herding

- Herding can be profitable if it dominates the market and in this case informed traders might find it optimal to ignore their information.
- The existence of herding can be seen as information and following the herd as acting on that information.
- If you observe that many traders make the same decision, is this a sure sign of herding?
- Traders could have received information that induced the same behaviour, it is only herding if it is not based on information about the value of the asset.

Profitable herding

→ We have seen that herding can be very profitable and it is rational for traders to not acquire information.

- Herding can be profitable if there are enough traders engaging in this activity, it is then that traders would not want to acquire information or already informed traders will ignore their information. These traders will then generate profits from following the trend that other traders have started.
- Rather than claiming that traders are uninformed, we can interpret them as being speculators that are informed about future demand, created by themselves, and they are therefore having access to information the 'informed' traders doe snot have, causing them to be better informed than the 'informed' trader.
- [?] Suppose you observe that many, or even most, traders make the same decision, such as buying an asset, would that be sufficient evidence that there is herding?
- [!] If many traders receive the same information, then they would act similarly and this is not classified as information. We only speak of herding if there is no information associated with the value of the asset that can have caused this behaviour.

→ Thus we have seen that herding is possible, can be profitable and would be rational. The fact that prices deviate substantially from the fundamental value and do so over prolonged periods of time, despite traders having access to information, makes markets very inefficient.

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- Rather than claiming that traders are uninformed, we can interpret them as being speculators that are informed about future demand, created by themselves, and they are therefore having access to information the 'informed' traders doe snot have, causing them to be better informed than the 'informed' trader.
- [?] Suppose you observe that many, or even most, traders make the same decision, such as buying an asset, would that be sufficient evidence that there is herding?
- [!] If many traders receive the same information, then they would act similarly and this is not classified as information. We only speak of herding if there is no information associated with the value of the asset that can have caused this behaviour.

→ Thus we have seen that herding is possible, can be profitable and would be rational. The fact that prices deviate substantially from the fundamental value and do so over prolonged periods of time, despite traders having access to information, makes markets very inefficient.

Profitable herding

- Herding can be profitable if it dominates the market and in this case informed traders might find it optimal to ignore their information
- The existence of herding can be seen as information and following the herd as acting on that information

? If you observe that many traders make the same decision, is this a sure sign of herding?

! Traders could have received information that induced this same behaviour. It is only herding if it is not based on information about the value of the asset.

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Summary of key results

- Speculation can be beneficial if its extent is limited as it then reduces asset volatility
- Excessive amount of speculation reduces overall welfare as speculators make losses
- If speculation occurs to such an extend that it dominates the market, it can start a trend that becomes self-fulfilling
- If traders can coordinate to generate such a trend, herding can be optimal and generate larger profits than informed traders can generate

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→ Let us now summarize the key results we have obtained about speculation in financial markets.

- We have seen that informed speculation can be beneficial as long as they extent of speculation is not too big.
- If there are too many speculators in the market, speculation reduces the welfare and speculators make a loss.
- If speculation dominates the market, it can start a trend (herding) and this trend is self-fulfilling. As traders act the same, they affect the price and generate profits for them, causing more traders to follow their lead, reinforcing the trend and increasing profits.
- Traders need to coordinate their behaviour to generate a trend, and if they succeed it is rational and optimal to be part of this.

→ Such coordination can be the belief in spurious 'market rules', even if they are proven to be wrong, they can become correct of enough traders follow them; such 'rules' can act as a focal point to coordinate actions.

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