

**TAPPING ON
THE BRAKES:
*ARE LESS ACTIVE MARKETS
SAFER AND BETTER?***

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MORE “ACTIVE” CAN TAKE MANY FORMS

- High frequency trading
- Liberalization: More kinds of trades and transactions allowed
 - Financial market deregulation
 - Especially, liberation of cross border capital flows
- Trading in new markets—derivatives

Answers are related

Paper studies some contexts which have been well-studied to get insights for others

TWO BASIC, LONG-STANDING THEOREMS

- **Greenwald-Stiglitz theorem: Pareto inefficiency of markets with incomplete and asymmetric information and imperfect risk markets**
 - Also Geanakoplis and Polemarchis
 - Privately profitable transactions may not be socially beneficial
 - Pecuniary externalities
 - Example: Trade liberalization can lead to Pareto inferior equilibrium

THEORY OF 2ND BEST

(Meade, Lipsey-Lancaster)

Movement *towards* a first best economy may be welfare reducing

- We can never have a full set of markets
- Hence there is no presumption that *more trading* (more markets on which trade occurs) will be a Pareto improvement; could lead to a Pareto inferior equilibrium

I. WELL-KNOWN RESULTS – CAPITAL MARKET LIBERALIZATION (CML) LITERATURE

- CML can lead to more volatility (theoretical, empirical (World Bank))
 - Lowering societal welfare (Stiglitz, 2008), in the absence of adequate insurance markets and cross-generation redistribution mechanisms
- CML has had macro-economic implications
 - Related to numerous major crisis (World Bank)
 - Without benefit of higher growth (Rodrik)

EMERGING POLICY CONSENSUS: RESTRICTIONS ARE DESIRABLE

- Significant macroeconomic externalities (fleshing out Greenwald-Stiglitz analysis), e.g. firms may borrow excessively in foreign denominated bonds
 - Government intervention, taxing externality generating activities, desirable (Korinek; Jeane-Korinek)
- New policy consensus
 - Desirable for government to impose restrictions (“capital account management techniques)(IMF)
 - *Ex ante* and *ex post*
 - Price and quantity interventions

II. HIGH FREQUENCY TRADING

- Justified in terms of “price discovery”—making markets more informative

And

- Adding liquidity to market
- Real test: does it lead to better economic outcomes
 - *Ex ante* higher expected utility
 - Better investment of real resources

THREE BASIC QUESTIONS

1. Does more information (a more informative price system) lead to higher welfare?
2. Does more trading (HFT) lead to a more informative price system *in the relevant sense*, i.e. that would lead to higher welfare?
3. Does more trade (HFT) lead to more liquidity, *in the relevant sense*?

THREE STAGES OF ANALYSIS

- Information of market participants given (*except what they can extract from prices, order flow, market activity*)
- Information of some market participants (about fundamentals) endogenous
- **Real Investments** are endogenous

A. FIRST STAGE: ZERO SUM GAME

- Money generated in each state goes to some individual
- Can be negative sum game: resources can be spent to beat rivals
- Price information is too coarse to allow better matching (requires more fundamental information, e.g. correlations with returns on human capital)

STANDARD RESULTS

Basic approach—viewing additional information as “screening”, within statistical decision framework, differentiating states of nature that otherwise would not be differentiated

- High frequency trading *may* lead to a slightly faster incorporation of information, i.e. sooner than it otherwise would have
 - Presumption that *a little information* (a little faster information?) is not worth the cost (fundamental non-concavity in the value of information—Radner Stiglitz)
 - Presumption that getting information faster has little social value (Hirshleifer, Stiglitz)
 - Just determines who gets certain information rents

GENERAL EQUILIBRIUM EFFECTS

- **Presumption that social value of distributive (rent-seeking) activities is negative, especially if there are any associated costs**
 - *More informative price equilibria are Pareto and welfare inferior (Stiglitz, 1975)*
 - *Individuals may expend excessive amounts in the acquisition of information (Stiglitz, 1982)*
 - *Greater volatility, more inequality, dissipative expenditures in information acquisition and dissemination*

FURTHER EFFECTS IN MACROECONOMIC CONTEXTS

- Parallel to analysis of CML
- Price effects associated with information have *real* consequences
 - On selection constraints
 - On incentive compatibility constraints
 - On collateral constraints
- Pecuniary externalities matter
- Market equilibrium is not in general efficient

FURTHER COMPLICATIONS WHEN VIEWED AS ZERO SUM GAME

- Exist actions by each player which can make it more difficult for others players to extract information from market (adding encrypted noise)
- Other players then have to de-encrypt (or to trade through dark pools, less transparent, also subject to manipulation)
- Such expenditures are dissipative, socially wasteful
- It is really a negative sum game

FURTHER DANGERS

- **Market manipulation and sophisticated front-running**
 - Evidence that at least the latter occurred when there was a “fast feed” to Goldman Sachs
 - Reducing overall confidence in the marketplace

STAGE 2: INCENTIVE TO ACQUIRE INFORMATION

- Assume there are a group of traders who invest in *fundamental information*, i.e. finding out about tastes and technology
- Conjecture: HFT leads to a less informative market place, because it discourages investments in the acquisition of fundamentals
- Result a variant of Grossman-Stiglitz analysis

GROSSMAN-STIGLITZ

- **Markets cannot be fully informational efficient (in a relevant sense)**
 - Because if they were, no one would have any incentive to acquire information.
 - The market would only reflect costless information, and hence would not be very informative.
- **They showed that there was an equilibrium level of disequilibrium**
- **The equilibrium that emerges depends, however, on what is observable, and how the uninformed can extract information from the informed**

- If the uninformed can observe the actions of the informed, not just the price, then information is conveyed more efficiently from the informed to the uninformed, and in equilibrium, the informed invest less in information: the price system becomes less informative
- But in effect, this is what HFT does: it attempts to extract information from the informed (by examining patterns of trade and prices)
- “Stealing” some of the information rents that would otherwise have accrued to those who invested in acquiring fundamental research

WORSE THAN THAT

- Informed know that their information is being stolen
Attempt to “encrypt” their information
 - E.g. by sophisticated patterns of order flows
- But HFT try to de-encrypt
- Both encryption and de-encryption are costly activities
 - And can add volatility to the market
- To protect information, some informed (fundamental) traders move to dark pools
 - Losing the advantages of markets
 - Also subject to manipulation

STAGE 3:

DOES HFT LEAD TO BETTER INVESTMENTS?

- *Broad perspective:*
 - *New financial innovations (including HFT), fewer restrictions, more trading has not led to better overall economic performance*
 - *Lower economic growth*
 - *Especially measured correctly, focusing more on median, taking into account volatility*
 - *If this is true in aggregate for all the innovations, also true for each individually (unless some of them have had a large negative effect)*

- Not a surprise, given that HFT may have made markets *less* informative
 - And given other adverse effects noted below
 - Some of social costs may not even be well-reflected in GDP statistics

- Counterargument:
 - Things would have been even worse in the absence of these innovations
 - Things would have been even worse in the absence of a particular innovation

- Heavy burden to establish

A. AFTERMARKET IS RELEVANT

- If individual has to sell his asset “quickly,” then value of investment depends on the price at that time

B. LIQUIDITY

- Again, what matters is *liquidity when it is relevant*—not just thickness of markets on average
- Search: if asset has different value to different buyers, then it takes time to find “good” buyer
 - Assumes that financial markets are *not* informationally efficient
 - With efficient markets, all relevant information already incorporated into price
 - Individual might believe that market underestimates potential growth of asset, and therefore would not like to sell it
 - But this is not a matter of liquidity of asset, but liquidity of individual
 - Market does not want to lend him money with the asset as partial collateral

LIQUIDITY

- Advantages of thick market are that one can sell one's assets without moving the market
- But with HFT, algorithmic traders detect sales and the market moves against the informed seller
 - It is as *if* the market is not thick, even if there is a large volume

LIQUIDITY

- Liquidity increased by standing offers to buy and sell
- Standing offers saves on transactions costs
- But exposure to lemons problem
- Lemons problem exacerbated by HFT
- Shrinking *effective* liquidity, just as it shrank investment in “fundamental” information

C. OTHER ADVERSE EFFECTS

- **Increase focus on short termism**
 - Already serious problem in economy—hampers long term growth
 - Models with limited attention
- **Misallocation of resources (including human resources) from productive investment to rent seeking**

III. COMPLETING THE MARKET AND THE THEORY OF THE 2ND BEST

- Agenda of completing the market mistaken—didn't take into account the theory of the second best (Turner)
- Provides more opportunities for pseudo-wealth creation—bets which increased individuals beliefs about their wealth
 - Leading to increased macroeconomic volatility
- Difficult issues of welfare evaluation
 - Even if ex ante expected utilities are increased (Brunnermeir, Simsek, and Xiong, 2014)

IV. CONCLUDING REMARKS

- Devising regulations to make markets “safer” by restricting trades may be difficult
 - Opens up opportunities for regulatory arbitrage
- Possible to discourage short term trading
 - Financial transaction tax
 - Some possibility of tax arbitrage
- Still, benefits of discouraging excesses may well exceed costs
 - Benefits have not been established
 - Costs are apparent
 - Advocates have yet to make a convincing case