

# Artificial Market Model (Agent Based Model)

SPARX Asset Management Co., Ltd.

Takanobu Mizuta

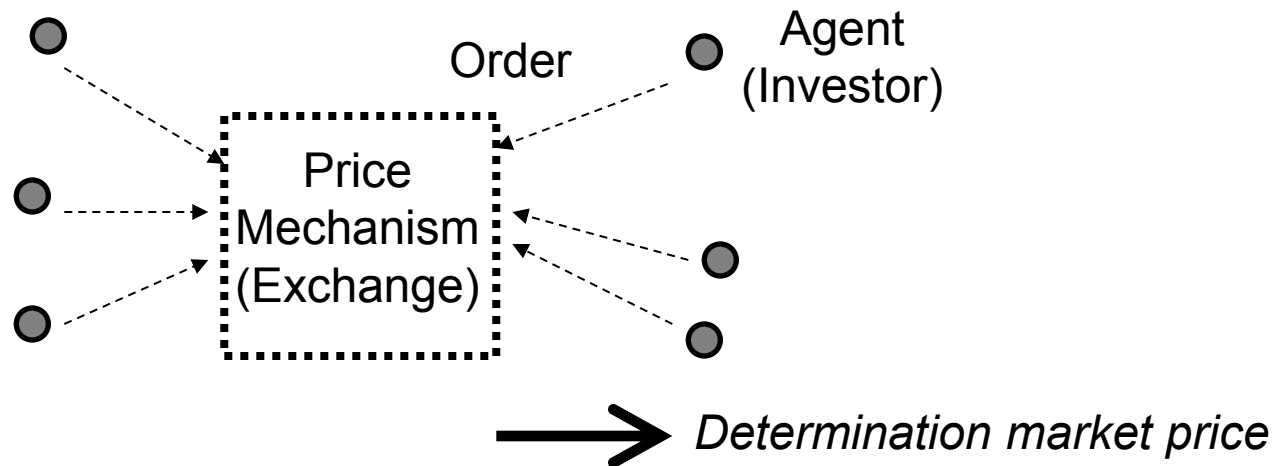
<http://www.mizutatakanobu.com/>

Virtual and Artificial financial Market built on Computers

Agents (Artificial Investors)

+

Price Mechanism (Artificial Exchange)



Complete Computer Simulation needing NO Empirical Data

Note that the opinions contained herein are solely those of the authors and do not necessarily reflect those of SPARX Asset Management Co., Ltd.

## Difficulty of Empirical Study

to investigate situations that have never occurred in actual financial markets

→ No empirical data

to isolate the direct effect of changing regulations to price formation

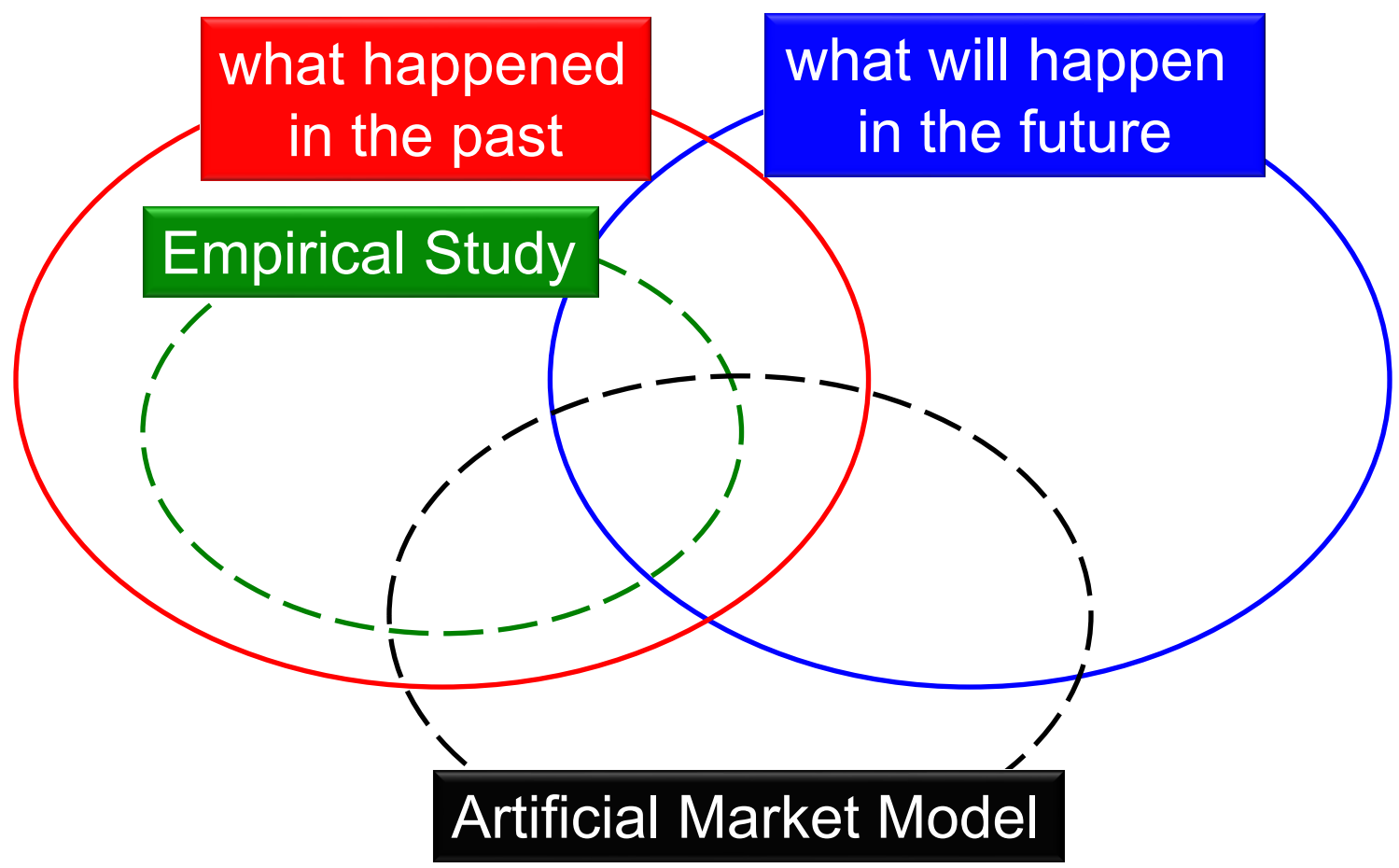
→ So many factors cause price formation in actual markets



## Artificial Market Model

- ✓ can isolate the pure contribution of the changes to the price formation
- ✓ can treat the changes that have never been employed

# Strong point of Artificial Market Model



Find "possible" changes

Contribute to discussion by finding "possible" side effects

Columbus' Egg



## JPX Working Papers

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Vol. 1	2012/09/28	Short Selling on the Tokyo Stock Exchange and the Effects of the Uptick Rule	*	*

- Research and Studies / Policy Recommendations
- JPX Working Papers
- Policy Recommendations from JPX Financial and Capital Market Workshop
- Macroeconomic Workshop

# The Japanese Society for Artificial Intelligence, Special Interest Group on Financial Informatics

Many studies on Artificial Market Model are presented



## 第18回研究会

2016-12-26 (月) 09:05:35 (35d) | Topic path: [Top](#) / 第18回研究会

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**第18回 人工知能学会 金融情報学研究会 (SIG-FIN)**

**2017年3月10日 (金) 10:00-17:00 (予定) [±](#)**

- [第18回 人工知能学会 金融情報学研究会 \(SIG-FIN\) 2017年3月10日 \(金\) 10:00-17:00 \(予定\)](#)

<http://sigfin.org/>

Sorry for no English web page

## Contributions

Reduction of Tick Size, Up-Tick Rule,  
Price Variation Limit, Dark Pool, Frequently Batch Auction,  
Contribution of HFTs for share competition among Exchanges,  
Suitable Latency of Exchange System, VaR Shock,  
Chain Bankruptcy of Banks,  
Regulations and Rules to prevent Financial Crush

\* Mizuta (2016) SSRN Working Paper Series <http://ssrn.com/abstract=2710495>

## Future Discussion

Monetary Policy, Monitoring Financial Systems

\* Battiston et al. (2016) **SCIENCE** 19 Feb 2016, Vol. 351, Issue 6275, pp. 818–819. <http://science.sciencemag.org/content/351/6275/818>

My Expectation for AI Except Artificial Market

Screening Insider Trades and Manipulations of Stock Price;  
AI have already contributed to arrest Money Laundering and Unauthorized using  
Credit Cards.