

Algorithmic Trading during Financial Crisis

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Titles ?

Market Structure during Financial Crisis

or more honestly,

some random Thoughts about Market Structure during Financial Crisis

Apologies!

Why this topic is important?

Notwithstanding what you see in the papers, what happened over last few years is an extra-ordinary opportunity to understand what aspects of market mechanisms that were built over years succeeded and what aspects failed and why? and how could we design systems better?

If one gives too much emphasis on the headline-numbers and assume that everything failed in the crisis, we would be giving up years of accumulated knowledge and expertise about the functioning of financial markets that is so essential for future growth and development.

In analysing and understanding the financial crisis, we need to distinguish the role of banks, other institutions and markets.

Why Algorithmic Trading?

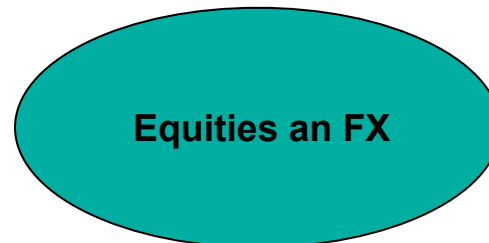
- **Systematic and Transparent trading strategies**
- **based less on human biases and judgements in run time**
- **frontier trading + technology tools deployed in most liquid markets**

Provides much cleaner “data” to study the market structure

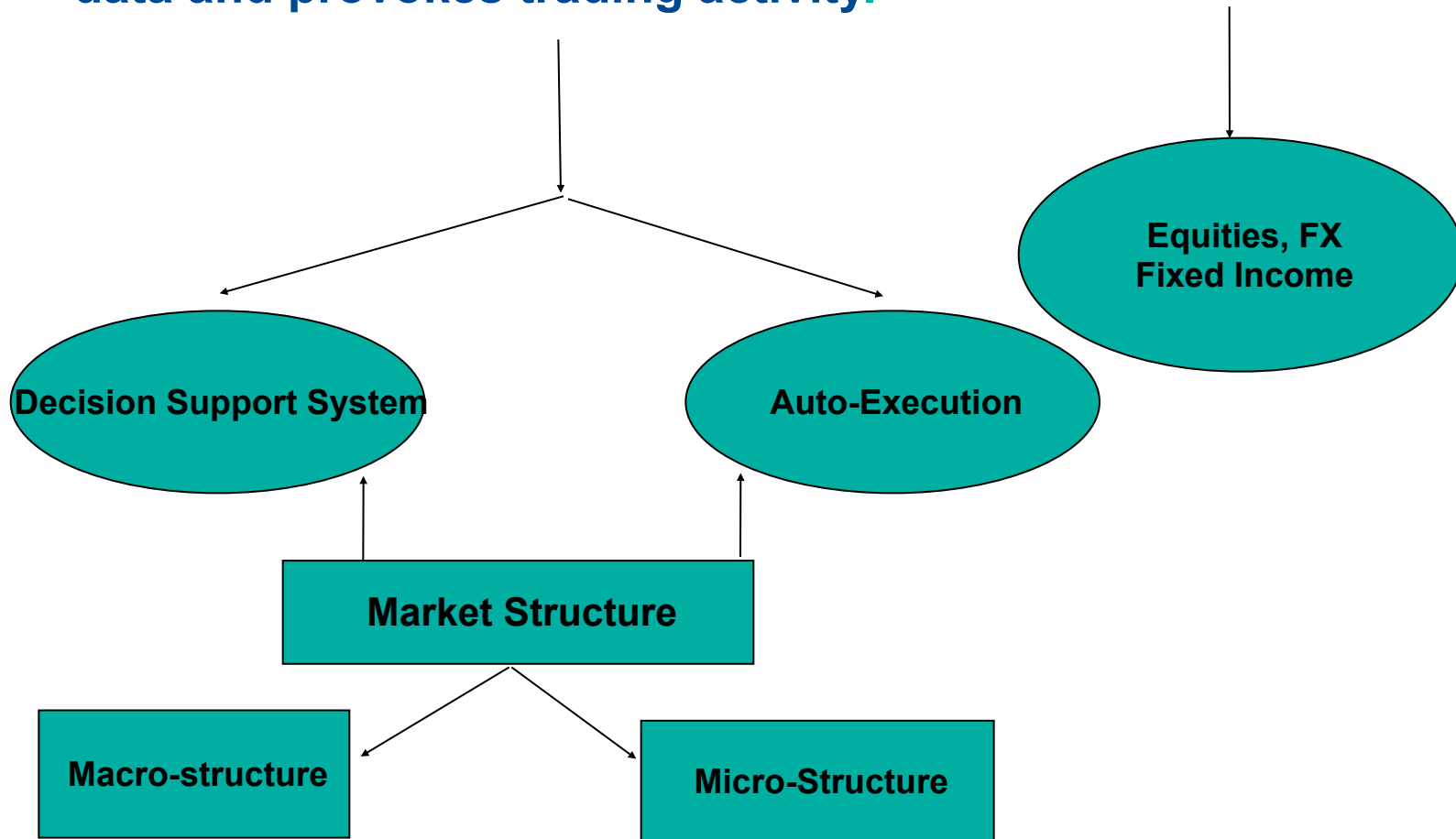
**As an aside, highlights the role of Quants / Acads in financial markets -
have they caused or exacerbated the crisis?**

Algorithmic trading is any type of computer-assisted mathematical / statistical model based trading activity which handles the timing, submission and management of trades and orders.

Encompasses ‘model-based trading’, ‘program trading’, ‘auto trading’, ‘black box trading’ and ‘high-frequency trading’, across single or multiple pools of liquidity.



More generally, Algorithmic Trading could be defined as any automated routine that processes incoming market data and provokes trading activity.



Market Structure and Algorithmic Trading

Macro-Structure



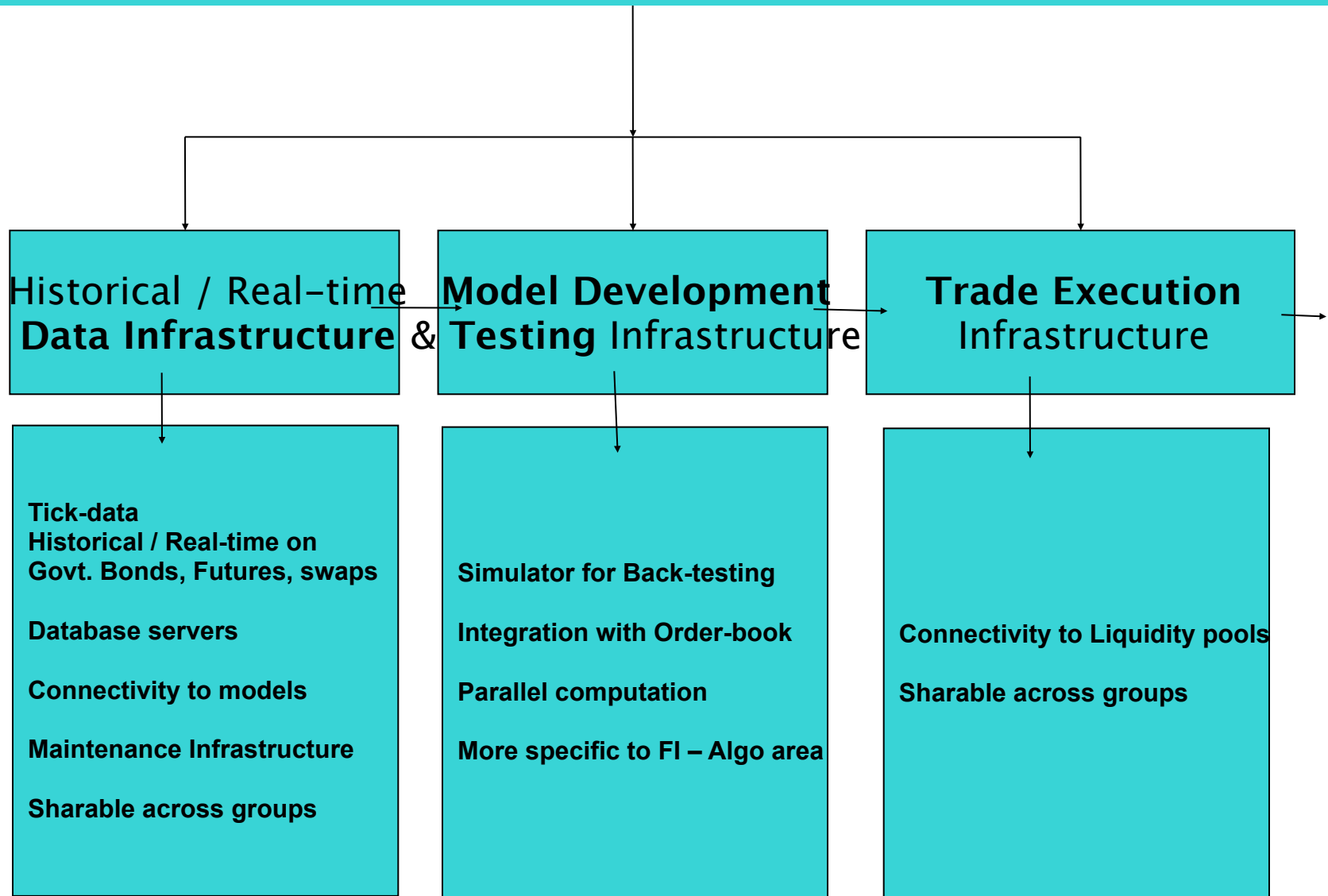
Macro-policy environment
**Depth and Breadth of
Financial Markets**
Regulatory framework
e.g. Emerging Markets

Micro-structure



Organization of Trading Process
Electronic vs OTC
- Information Dissemination
Liquidity and Transparency

Algorithmic Trading System



Algorithmic Solutions - Overview



Decision Support

Auto-Execution

Internal Clients

External Clients

Flow or Prop-Trading

Price Generation (dynamic)

Mid-price
B/A spreads
Client Spreads

Auto-Hedging (Real-Time)

PnL/Risk Decomposition
Optimal Hedging

Inventory Management

Risk / Position limits

RV Analytics

Single / Multiple Instruments
Single / Multiple Asset Classes

Directional Signals

Low-frequency
High-Frequency

Order Execution / Routing

Have Algorithms Failed?

	Pricing	Execution	Predictive / Risk
Equities / FX	Good	Good	not clear
Sovereign Bonds	Good	Good	bad
Credit Products	Bad	?	bad

Comments

1. Different asset markets responded differently \leq differences in underlying market (micro and macro) structures
2. Equities - exchange traded, centrally settled, etc. - have been relative more resilient (craig Furfine's paper); FX markets were also resilient (clara Vega)
3. Govies - due to flight to quality - experienced high volume as well as volatility; but the risk management systems failed - lack of credibility in inter-bank markets.
4. Credit Products - flow and exotics - did badly.
5. Quant Strategies + predetermined (pro-cyclical) risk control systems \Rightarrow liquidity crisis

Conclusion

**“Art of Progress is in
Managing Order in times of Change
and
Managing Change in times of Order”**