

# Robustness of Walrasian General Equilibrium

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## Presenter

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# An Illustrative Exercise

<https://www2.econ.iastate.edu/tesfatsi/amulmark.htm>

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## Starting Point:

A Two-Sector Walrasian General Equilibrium Economy

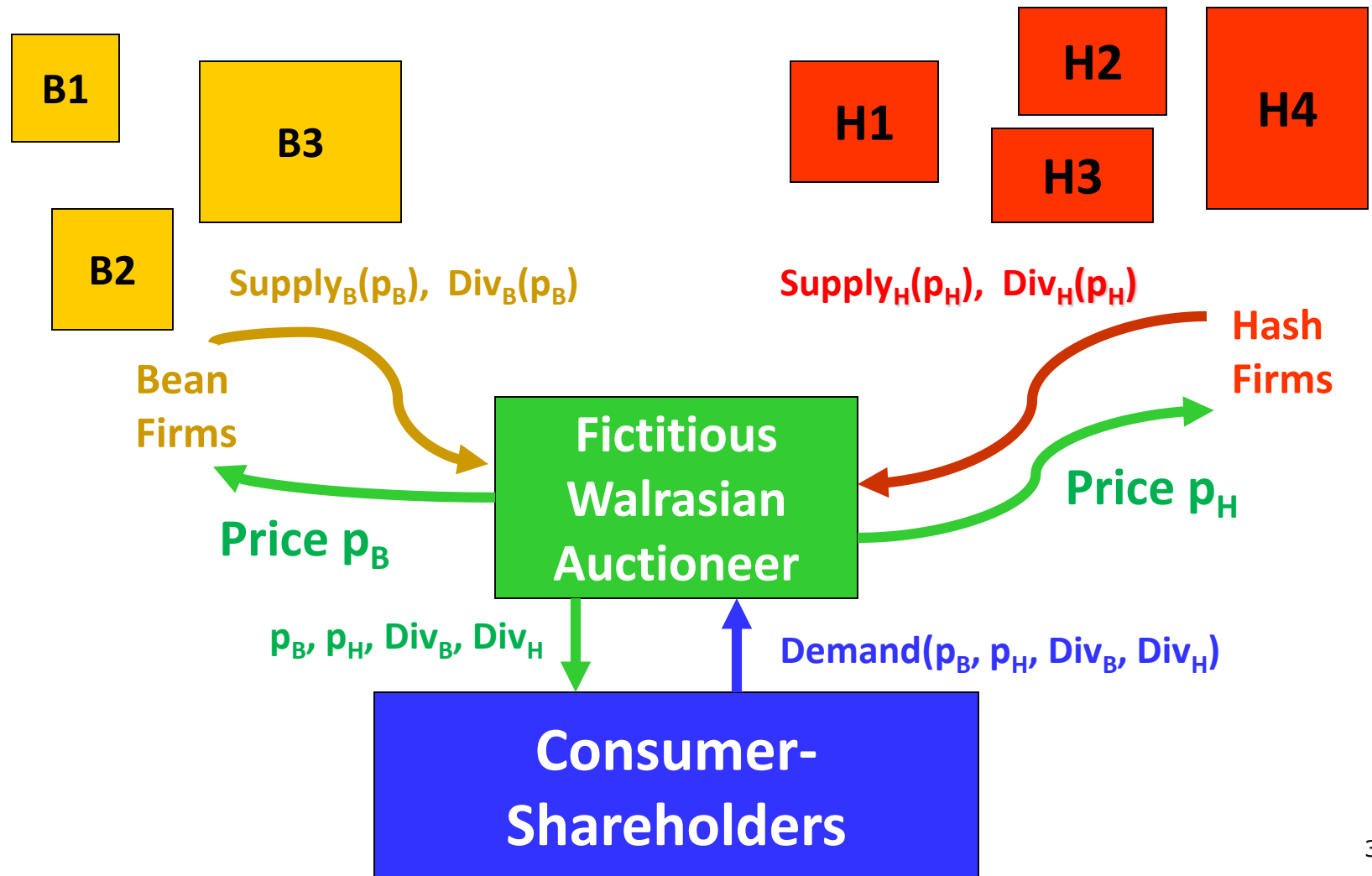
<https://www2.econ.iastate.edu/tesfatsi/WalrasIntro.pdf>

## Exercise:

- **Remove** all imposed *equilibrium* conditions (e.g., market clearing, correct expectations,...)
- **Introduce** minimal *trader-driven* production, pricing, and trade processes needed to re-establish complete circular flow among firms and consumers
- **Experiment** to see if/when resulting economy is able to attain an “equilibrium” state over time

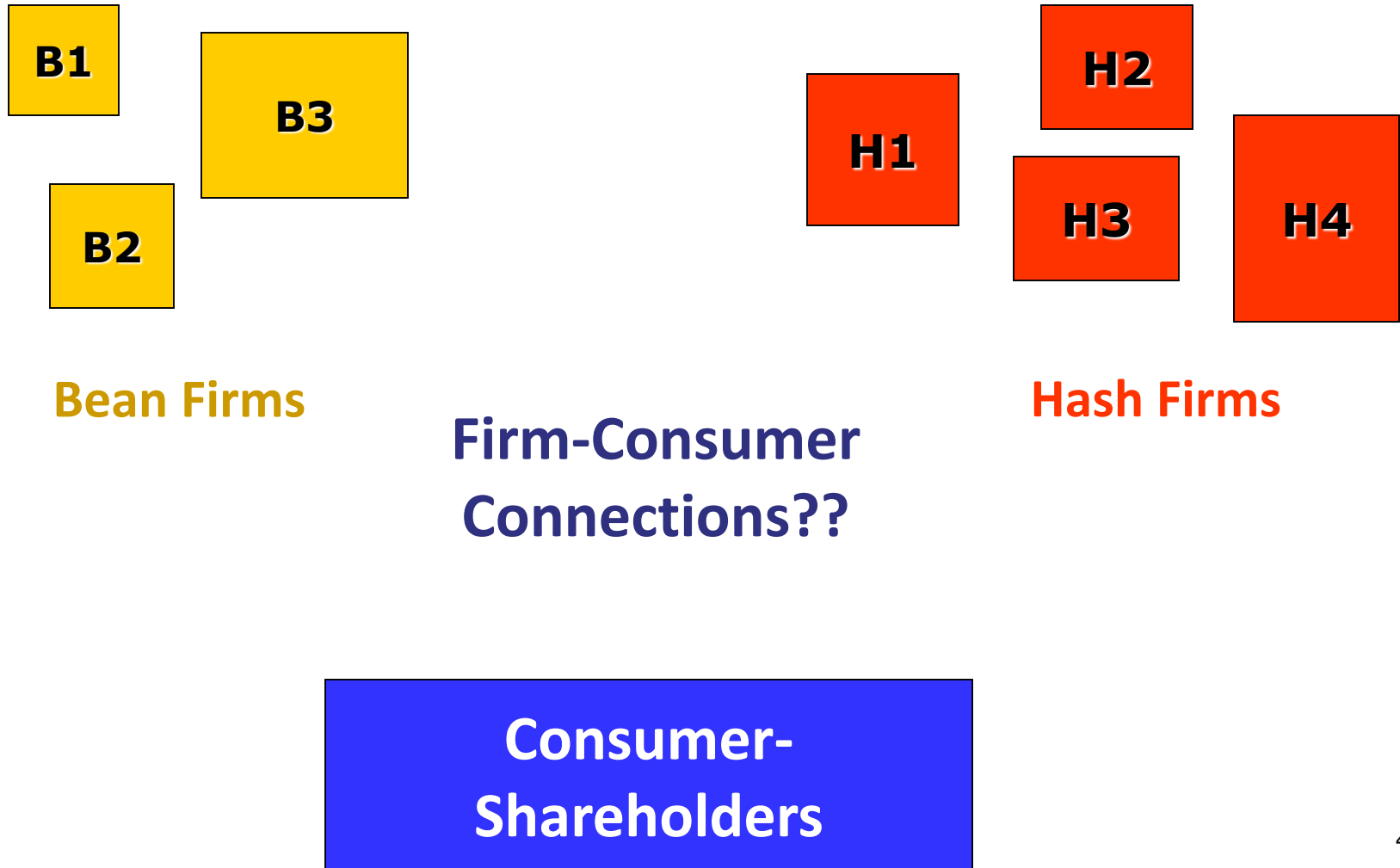
# Starting Point:

## A Two-Sector Walrasian General Equilibrium Economy



# Pluck Out the Fictitious Walrasian Auctioneer

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# Without the Fictitious Auctioneer...

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*Careful attention must now be paid to:*

## ➤ Market Organization

- Who trades with whom?

**Examples:** Business-to-business (B2B) transactions,  
business-to-consumer (B2C) transactions, ...

- In what types of market structures does this trading take place?

**Examples:** Double auctions, single-sided auctions, exchanges,  
bilateral trades, ...

## ➤ Learning Behavior and Strategic Interaction

- Price/quantity discovery processes
- Formation of buyer-seller interaction networks

# Market Organization

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## ➤ Two basic forms of trading:

### ■ **Bilateral** trading

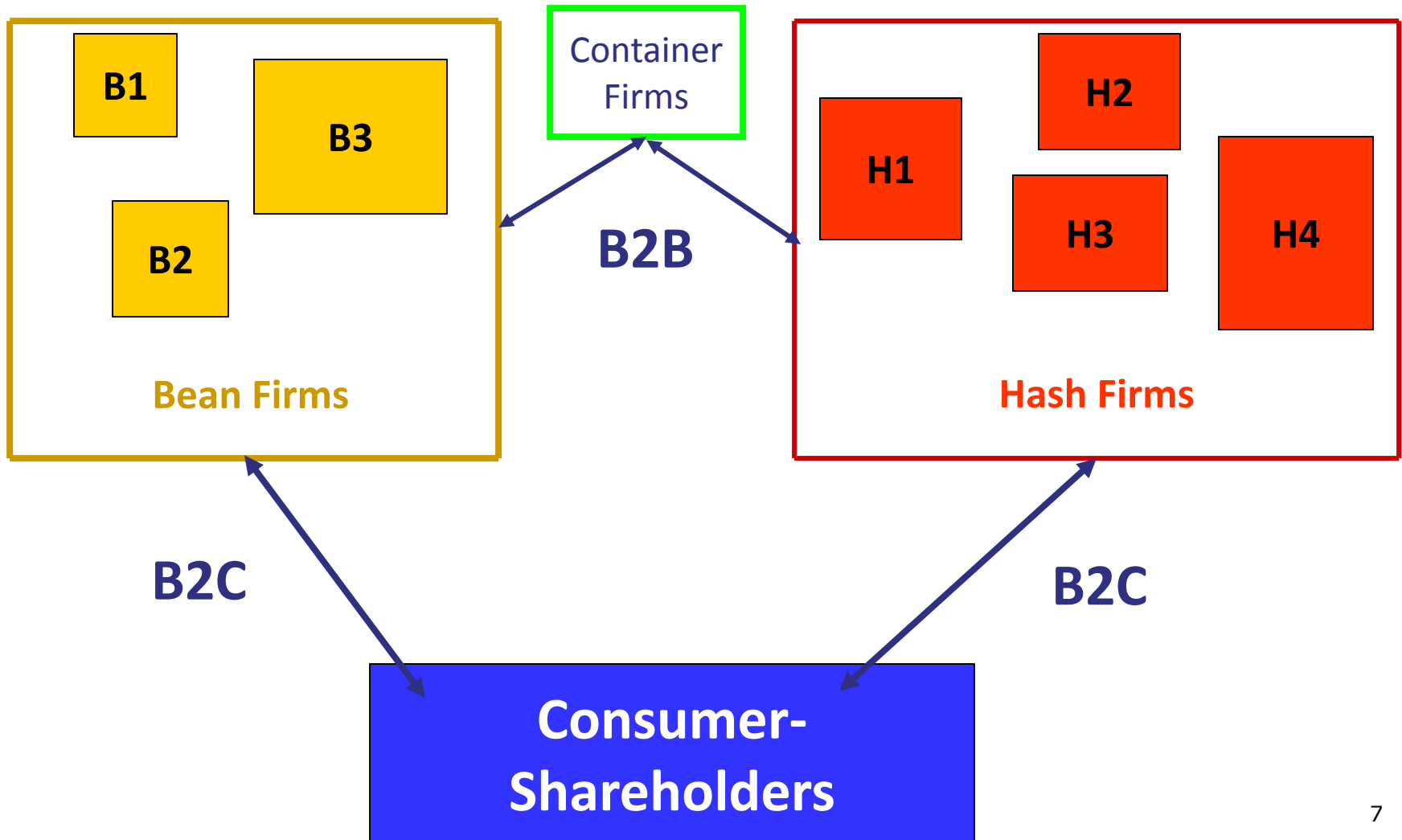
(Seller  $\leftrightarrow$  Buyer)

### ■ **Mediated** trading

(Seller  $\leftrightarrow$  Mediator  $\leftrightarrow$  Buyer)

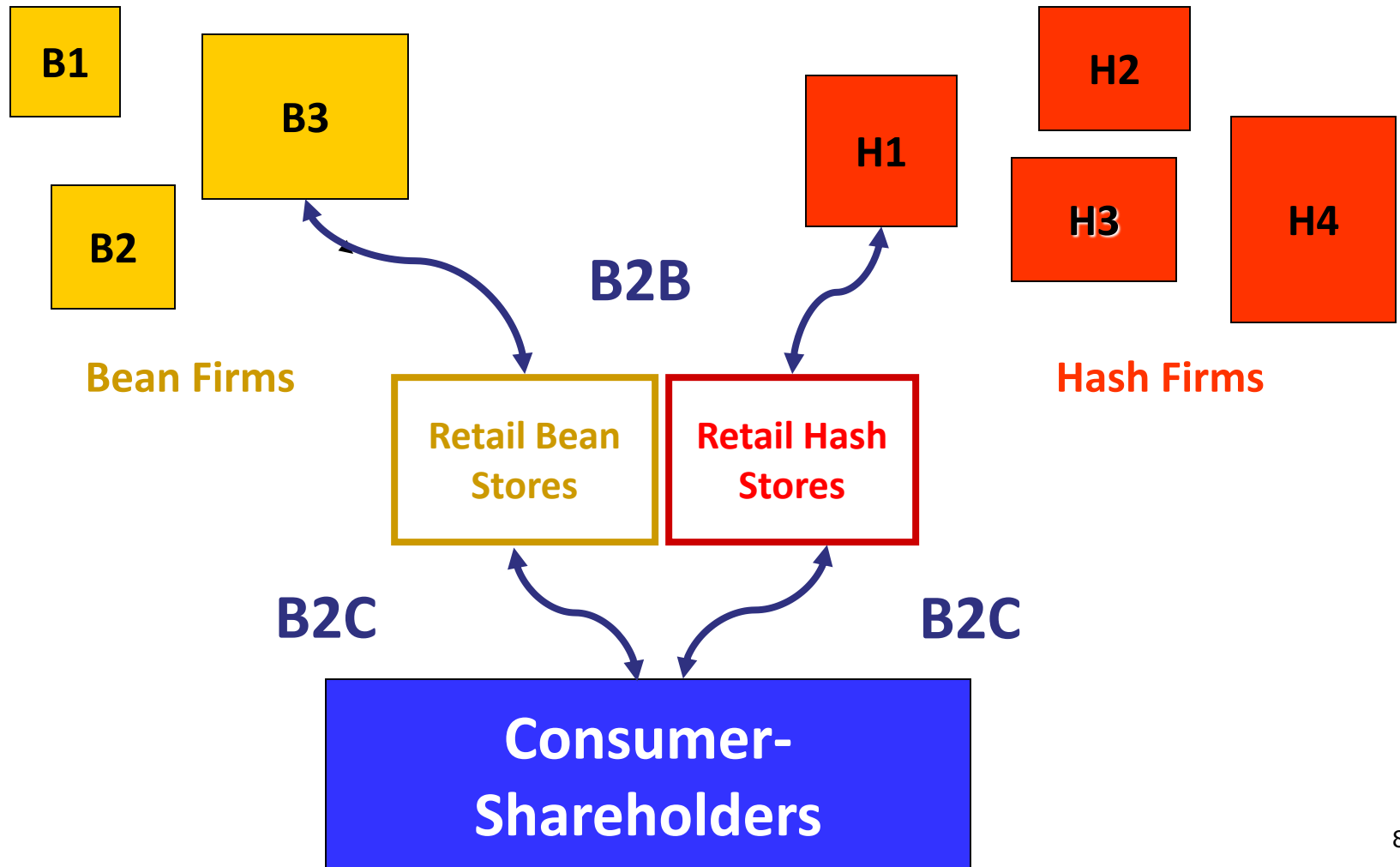
# Example 1: Bilateral Trade

*Business-to-Business (B2B) and Business-to-Consumer (B2C)*



## Example 2: Mediated Trade

Producers  $\longleftrightarrow$  Retail Stores  $\longleftrightarrow$  Consumers





# Key Types of Market Mediators

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## ➤ Broker

- Facilitates trade by matching buyers with sellers
- Does ***not*** take a position in the traded assets (i.e., does ***not*** maintain an inventory of the assets)
- Earns profits through ***commissions*** charged to buyers/sellers

***Examples:*** Stockbroker; Real-Estate Broker; ...

## ➤ Dealer

- Facilitates trade by matching buyers with sellers
- ***Makes the market*** (takes position in traded assets, sets prices)
- Earns profits by ***selling high and buying low***

***Examples:*** Bond dealer; Car dealer; Retail store owner; ...

# Key Types of Mediated Market Forms

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## ➤ Auction

- Centralized facility (clearing house) managed by brokers

*Examples:* Art auctions, U.S. Treasury bill auctions, etc.

## ➤ Over-the-Counter (OTC)

- Decentralized facility managed by dealers

*Examples:* NASDAQ stock market; U.S. government bond market, foreign exchange market for international currencies

## ➤ Exchange (Hybrid of Auction and OTC)

- Centralized facility conducted through specialized broker/dealer intermediaries

*Examples:* Retail chain store/franchise; New York Stock Exchange

# Learning Behavior & Strategic Interaction in Markets

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## ➤ Price/Quantity Discovery

- **For sellers**, seeking to determine the most profitable amount to produce and/or the most profitable price to charge per unit in order to compete for business against rival sellers
- **For buyers**, seeking to determine what items are available for purchase and which sellers are willing to accept the lowest prices for the items they wish to purchase

## ➤ Buyer-Seller Interaction (Relational Goods)

- How to behave in longer-term relationships (e.g., job situations, servicing contracts, loan contracts, repeat purchases from same supplier, ... )
- Trust, honesty, punctuality, ...

# Key Types of Market Procurement Processes that Must Be Carried Out

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- ◆ *Terms-of-Trade:* Set production and price levels
- ◆ *Seller-Buyer Matching:*
  - Identify potential sellers/buyers
  - Compare/evaluate opportunities
  - Make demand bids/supply offers
  - Select specific sellers/buyers
  - Negotiate seller/buyer contracts
- ◆ *Trade:* Transactions carried out
- ◆ *Settle:* Payment processing and shake-out
- ◆ *Manage:* Long-term seller/buyer relations

# Plucking Out the Walrasian Auctioneer: Detailed Macroeconomic Study

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Ekaterina Sinitskaya and Leigh Tesfatsion, “**Macroeconomies as Constructively Rational Games**,” *J. of Economic Dynamics and Control*, Vol. 61, 2015, 152-182.

<https://www2.econ.iastate.edu/tesfatsi/MacroConstructiveRationalityWP.SinitskayaTesfatsion.pdf>

## ➤ Online Module of Readings on WGE Robustness Issues

Leigh Tesfatsion, “Introduction to Walrasian General Equilibrium Modeling”

<https://www2.econ.iastate.edu/tesfatsi/WalrasIntro.pdf>

Leigh Tesfatsion, “Walrasian General Equilibrium: Benchmark of Coordination Success?”

<https://www2.econ.iastate.edu/tesfatsi/Walbench.pdf>

Leigh Tesfatsion, “Robustness of Walrasian General Equilibrium Modeling”

<https://www2.econ.iastate.edu/tesfatsi/WalrasianGERobustness.LT.pdf>

Leigh Tesfatsion, “Game Theory: Basic Concepts and Terminology”

<https://www2.econ.iastate.edu/tesfatsi/gamedef.pdf>

Leigh Tesfatsion, “Non-Walrasian Equilibrium: Illustrative Examples”

<https://www2.econ.iastate.edu/tesfatsi/nonwalra.pdf>