Summary.

Search theoretic models have become a popular tool for studying a variety of topics in finance for at least three reasons.

1. First, a number of financial markets—often called over-the-counter or “OTC” markets—are actually best described by a typical search and bargaining model; in these markets, investors have to locate a counterparty themselves, and once they find a suitable trading partner the two are free to trade at any mutually agreeable price. Hence, these models represent the most natural framework to study prices and allocations in OTC markets, and how they depend on the level of frictions in the environment.

2. Second, even in markets in which certain agents or institutions exist to intermediate most trades, understanding which agents or the nature of these institutions often requires understanding the underlying frictions. In other words, understanding why a specific market microstructure has evolved often requires imagining a world without that microstructure, i.e., a world where an investor has to find someone on his own to buy his shares of IBM. Hence, search theoretic models represent a natural starting point for theories of endogenous market microstructure.

3. Lastly, another important source of inefficiency in financial markets—especially during the recent crisis—is information frictions. While such frictions can sometimes be challenging to study in standard, competitive models, search and matching models offer a more tractable framework for understanding how asymmetric information at the microeconomic level ultimately affects outcomes at the macroeconomic level. The reason is simple: in a search and matching framework, we model bilateral interactions explicitly. In studying these interactions, we can utilize all of the results and techniques from the voluminous game theoretic literature that studies the effect of information frictions in two-player games. Hence, search theoretic models represent a natural framework for studying the effects of information frictions on market outcomes.

In this mini-course, we will study several classes of models, and we will highlight all three of the advantages of search theoretic models described above.
Outline.

The structure of the course will be as follows.

**Lecture 1: Basic Models of Decentralized Asset Markets.** In the first half of the class, we will develop the simplest possible model of a “pure” (or un-intermediated) decentralized asset market, where investors with one of two valuations for an asset are randomly matched with each other and engage in Nash bargaining if there are gains from trade. This benchmark model will be based on:

- Duffie et al. [2007].

In the second half of the class, we will introduce intermediaries or “marketmakers” into the framework developed above. One of the primary purposes of this model will be to develop a theory of asset prices and the bid-ask spread based on search and bargaining frictions. The benchmark model will be based on

- Duffie et al. [2005]

**Lecture 2: More General Models of Decentralized Asset Markets.** In this class, we will generalize the simple models of Duffie, Garleanu, and Pedersen to allow for arbitrary heterogeneity in valuations across investors. We will then use this model to study the effect of search frictions on asset prices, trading times, trading networks, and the nature and extent of misallocation relative to a frictionless benchmark. This general model will be based on:

- Hugonnier et al. [2014].

If we have time, we will discuss a few examples of how models of decentralized asset markets have been applied to real-world issues. Suggested readings include:

- Vayanos and Weill [2008].
- Gavazza [2011].
- Afonso and Lagos [2014].

**Lecture 3: Adverse Selection in Search Models (part 1).** In this class, we will first introduce the standard model of directed (or competitive) search, as formulated in:

- Burdett et al. [2001].

Then we will study how to introduce adverse selection into the competitive search paradigm, as in:

- Guerrieri et al. [2010].

Applications of this framework to financial markets can be found in

- Guerrieri and Shimer [2014]
- Chang [2012].
Lecture 4: Adverse Selection in Search Models (part 2). In the final class, we will introduce an alternative model of search frictions due to:

- Burdett and Judd [1983]

Then we will show how to introduce adverse selection into this model, as in:

- Lester et al. [2015]

References


