My research focuses on understanding how firms are organized and how their organization interacts with market equilibrium. Formal contracts are almost always imperfect or unavailable, which shapes the way in which firms organize their boundaries and choose their internal structures. Since most transactions that take place in the market involve firms, a good understanding of firms' internal workings has potentially important implications for the functioning of the market. In two of my papers, I explore such implications by developing elemental models of organizations and embedding them into a market setting in order to investigate the equilibrium co-determination of the design of organizations and market conditions.

In my job-market paper, "Productivity and Credibility in Industry Equilibrium," I explore a model in which the strength of informal agreements within firms determines the distribution of firm productivity in a competitive equilibrium. Following Penrose and Chandler, I argue that in order for a large firm to produce efficiently, the owner of the firm must decentralize daily operating decisions to a team of managers. Absent perfect formal contracts, decentralization requires trust: the owner must trust that the managers will not squander the firm's resources, and managers must trust that judicious use of resources will be rewarded appropriately. I model trust as credibility in a relational contract (an informal, self-enforcing agreement), where the credibility of the owner's promises is derived from the value the firm's potential future competitive rents. In an economy with heterogeneous firms, competitive rents, credibility, and therefore firms' decentralization levels and hence productivity are jointly determined in industry equilibrium. Since competitive rents serve as collateral in firms' promises, the allocation of rents matters for efficiency. In equilibrium, larger firms' success is rewarded with competitive rents and hence collateral. This competitive advantage leads to even greater competitive rents. This positive feedback loop is limited by decreasing returns to scale in my model, but it nevertheless results in aggregate inefficiencies. Larger firms overproduce, making it excessively difficult for small entrepreneurs to thrive. I show that improvements in formal contracting institutions reduce the importance of credibility in sustaining decentralization and therefore disproportionately benefit small entrepreneurs. Cross-country differences in contracting institutions can thus partially explain the observed pattern that productivity differences are more pronounced in developing countries.

My second paper in this line of research, "Organization and Information: Firms' Governance Choices in Rational-Expectations Equilibrium" (joint with Robert Gibbons and Richard Holden), explores the way that firms' internal structures and the informativeness of the price mechanism shape each other. As in the incomplete-contracting model of Grossman and Hart (1986) and Hart and Moore (1990), different governance structures (here, different allocations of residual rights of control within the firm) create different incentives for investments within firms. One of the investments is in gathering payoff-relevant information about the demand for a final good. A firm that is organized to induce such an investment will act on the information that it gathers. In turn, this information will be reflected in market prices (as in Grossman and Stiglitz (1976, 1980)), which reduces the incentives for other firms to choose their governance structures to induce such information acquisition. In industry equilibrium, the informativeness of the price mechanism and the internal organization of firms are thus co-determined.
Gibbons, Holden, and I expand on the machinery developed in this paper in another joint work, "Rational-Expectations Equilibrium in Intermediate-Good Markets." In this paper, we argue that since an intermediate good may be used in several different final-good industries, the price of the intermediate good may reflect the value of the input for each of these industries. All else equal, if more producers in one final-good industry become informed about the value of their output, then the intermediate-good price will become more sensitive to (and hence more informative about) this value. Other producers of this final good will find intermediate-good prices to be a better signal about the value of their output and so will be less inclined to become informed (i.e., there are positive within-group informational externalities). However, as the intermediate-good price becomes more sensitive to the value of one final good, it necessarily becomes less sensitive to (and thus less informative about) the value of the other final good. Producers of other final goods will find the intermediate-good price to be a less useful signal, so they will be more inclined to become informed (i.e., there are negative cross-group informational externalities). Producers in one industry thus endogenously act as rational noise traders from the perspective of other industries.

In some of my other research I explore the implications of incomplete contracts for the organization of the firm. In "Influence-Cost Models of Firm Boundaries and Structures," I develop a simple model to explore how organizations respond to what Milgrom and Roberts (1988) called "influence activities" – costly activities aimed at persuading a decision maker. I show that organizational practices that might otherwise seem inefficient (including closed-door policies, flat incentives, defensive information acquisition, and rigid decision-making rules) can optimally arise. The observed correlation between the measured quality of management practices and firm performance reported in Bloom and Van Reenen (2007) can be rationalized as the result of the optimal choice of such organizational practices. Further, the prospect of influence activities can shape the boundaries of the firm, providing a theory of the firm based on ex-post inefficiencies, capturing an element of Williamson (1971)'s trade-off between "haggling" between non-integrated entities and decision-making by "fiat" within integrated firms. The extent of the costs of "haggling" under non-integration and the bureaucratic costs associated with integration are related to the level of uncertainty in the environment, and hence this model is consistent with Williamson (1973)'s idea that "substantially the same factors that are ultimately responsible for market failures also explain failures of internal organization."

All of the preceding papers focus on the implications of contractual incompleteness. But it is well known that certain models of incomplete contracts stand on controversial theoretical foundations. In joint work with Ernst Fehr and Tom Wilkening entitled "Handing out Guns at a Knife Fight: Behavioral Limitations of Subgame-Perfect Implementation," we experimentally examine the empirical validity of Maskin and Tirole’s (1999) critique of the micro-foundations of incomplete contracting models, in which they demonstrate that subgame-perfect implementation mechanisms can always be used to obtain first-best outcomes, making the comparison of second-best institutions (such as the allocation of residual rights of control) moot. Two of the key assumptions underlying Maskin and Tirole’s analysis are that (1) the parties involved are willing to accept contracts that potentially involve very large fines off the equilibrium path and (2) individuals do not retaliate when play involves such fines. We find that the mechanism performs significantly worse than Maskin and Tirole predict, and players prefer not to subject themselves to it. We believe this work provides a reasonable answer to Maskin’s (2002) question: “to the extent that [alternative institutions] do not replicate the performance of [the Maskin and Tirole] mechanism, one must ask why the market for institutions has not stepped into the breach, an important unsolved question.” Our experiment indicates that retaliatory preferences, loss aversion, and fear of irrationality greatly limit the domain of such mechanisms.
Looking forward, I plan to pursue several research avenues related to my job-market paper. The first will examine the impact of trade liberalization on the strength of relational contracts within firms and the resulting changes in industry-wide productivity distributions. Second, I plan on extending the analysis, which is currently stationary, to allow for Markovian uncertainty using tools recently developed by Kwon (2011). This will allow me to analyze the effects of persistent aggregate shocks on heterogeneous firms, providing a theory of the dynamics of relationships, and hence productivity, over the business cycle. It will also allow me to explore firm-level dynamics in a stationary industry equilibrium, augmenting Hopenhayn (1992)'s analysis to account for the effect of formal contracting institutions on the life cycle of firms: if firm growth requires non-contractible investments by managers, then the rate of firm growth will be constrained by the firm's potential. Small firms will grow more slowly than large firms, and therefore the firm-size distribution will grow more variable over time.