My research focuses on corporate finance and behavioral finance and includes empirical and applied theory papers. My work in corporate finance specifically aims at providing clean and novel empirical evidence on the real effects induced by frictions in the market for financing. My main contributions in this area have been to investigate (1) the role of real estate collateral on economic activity (capital expenditure, labor demand, entrepreneurial decisions) and (2) how various forms of corporate ownership (e.g., family ownership, or ownership by a private equity group) affect firm behavior. My work in behavioral finance builds on rigorous theoretical frameworks to analyze empirically the role of investors’ behavioral biases on asset prices. I put a special emphasis on linking the theory precisely to the data. Two main questions have been at the center of my research in this area: the determinant of volatility and the failure of the risk/return trade-off. In this research statement, I describe my main contributions to these fields.

Real Effects of Credit Constraints

Credit frictions are at the heart of most modern macro-economic models. Governments around the globe spend billions of dollars in public programs aiming at alleviating credit constraints. Yet, quantifying the real effects of credit frictions in the data remains a hard task. The challenge is to find variations in the demand or supply of financing that are exogenous to firms’ investment opportunities. While innovative solutions have been found in the literature, most of these contributions have used identification strategies relying on some form of natural experiments, raising the question of external validity. In a series of paper that I describe below, I have used regional variations in housing prices as shocks to the value of collateral available to agents that hold real estate assets in the region. This empirical strategy is a novel and credible way to identify the effect of financing frictions. But beyond identification, this empirical methodology documents precisely an important and relevant channel through which credit frictions affect economic activity. Because real estate is a very “redeployable” asset, it is a large source of collateral in the aggregate. Understanding how regional variations in house prices affect the behavior of land-holding agents is a nice laboratory to study how aggregate collateral supply shocks may affect the economy.

In “The Collateral Channel: How Real Estate Shocks affect Corporate Investment” (American Economic Review, 2012), joint with Thomas Chaney and David Thesmar, we look, over the sample of all publicly-traded corporations in the U.S., at variations in the value of collateral available to land-holding firms and how they affect their ability to raise debt and invest. The identification strategy uses variations in local real estate prices as shocks to the value of collateral available for land-holding firms and controls for local demand shocks by comparing the behavior of land-holding firms and non-land-holding firms located in the same area. Reverse causality (large firms’ investment affect real estate prices) is dealt with by instrumenting house price variations with the interaction of changes in mortgage rates and the local elasticity of land supply. In our main specification, we find that for each dollar increase in the value of real estate assets, firms invest 6 additional cents; this increase in investment is entirely financed through additional debt issuance. This sensitivity can be quantitatively important in the aggregate, since, as we show in the paper, real estate represents a sizable fraction of the tangible assets that firms hold on their balance sheet.
While an extensive literature looks at the impact of credit frictions on firms’ investment decisions, much less is known about the impact these frictions might have on labor demand. This is an important question. Credit constraints could be one of the determinants of the prolonged high unemployment rate that followed the Great Recession. The challenge empirically is that, in addition to finding plausibly exogenous variations in credit frictions, one needs to find high quality data on firms’ employment policy to seriously address the question. In “Real Estate Collateral and Labor Demand” (Working Paper, 2013) joint with Thomas Chaney, Zongbo Huang and David Thesmar, we apply the same identification strategy to a large administrative dataset of French private firms. This dataset, available through the French Statistical Office, presents two main advantages: (1) we can focus on mono-establishment firms and thus minimize measurement errors on the location of the real estate holdings of these small, private firms (2) we have access to payroll data on employment, which are of much better quality that employment data available for publicly traded company. We find that collateral shocks have a strong impact on the labor demand of firms, with sizeable aggregate effects. During the 2002-2006 real estate price run-up, 10% of aggregate job growth in France was due to increased availability of real estate collateral to firms. The response of employment to collateral shocks is however smaller than what would be expected given the effect of collateral on investment and stable labor-capital complementarity, suggesting potentially large adjustment costs on labor. We quantify these adjustment costs using a structural model of firms’ investment, hiring and financing decisions. Combining this structural approach with the reduced form analysis is, I believe, an important contribution of this paper.

Entrepreneurial activity is another important margin of economic activity that can be affected by credit constraints. Most entrepreneurs are individuals with limited wealth. Asymmetric information is likely to prevent credit markets from operating efficiently for these individuals. An early literature, using for instance inheritance shocks, discovered large effects of liquidity on the decision to become an entrepreneur. Recent contributions have challenged this view, arguing that the correlation between wealth and entrepreneurial activity is tenuous and could reflect business opportunities more than actual credit constraints. The literature is thus still largely debating the importance of the role that credit constraints may play on entrepreneurial activity and therefore on economic activity as a whole. In “Housing Collateral and Entrepreneurship” (Working paper, 2013), joint with Martin Schmalz and David Thesmar, we bring a new way to address this debate. The starting point of our analysis is that housing collateral is almost a requisite for small entrepreneurs to access significant amount of debt financing. We thus simply adapt the identification strategy described above to a setting where the outcome variable is entrepreneurial activity. Intuitively, the empirical strategy thus uses variations in local house prices as shocks to the value of collateral available to individuals owning a house and controls for local demand shocks by comparing entrepreneurial activity of homeowners and renters operating in the same region. Our empirical analysis use exhaustive administrative data on business starts in France. Our results show that an increase in collateral value leads to a higher probability of becoming an entrepreneur. The most novel part of the paper looks at the effects of collateral values on post-entry growth. Conditional on entry, entrepreneurs with access to more valuable collateral create larger firms, more value added, and are more likely to survive, even in the long run. This long run effects are particularly interesting since in theory, if productivity shocks are persistent, poor but productive entrepreneurs should eventually save themselves out of their credit constraint.
Real Effects of Corporate Governance and Corporate Ownership

Until recently, financial economists had a very monolithic view of the corporation. Largely set by the classic book by Berle and Means, this view was that of a widely held company, in which ownership is dispersed among atomistic shareholders, and control is in the hand of professional managers unaccountable to shareholders. This view has been challenged empirically: there is a large heterogeneity of ownership structure, even among large, publicly traded corporations. Of course, in the absence of information frictions, the ownership structure of a company should be irrelevant to the company’s behavior. Some of my early work has been devoted to rejecting this claim empirically, by showing how different modes of corporate ownership had effects on firms’ real behavior.

In “Performance and Behavior of Family Firms: Evidence from the French Stock Market” (Journal of the European Economic Association, 2007), joint with David Thesmar, we document empirically the performance and behavior of family firms listed on the French stock exchange between 1994 and 2000. We find that, in the cross-section, family firms largely outperform widely held corporations, a result that holds surprisingly also for firms run by descendants of the founder. While the identification in the paper is essentially cross-sectional, we try to make progress by investigating where this superior performance could come from. First, we use employer-employee matched data to offer evidence of a more efficient use of labor in heir-managed firms. These firms pay lower wages, even allowing for skill and age structure. We also find that descendants smooth out industry-level employment shocks, a result consistent with the existence of implicit labor contracts in family firms. We also present evidence consistent with outside CEOs in family firms making a more parsimonious use of capital, as these CEOs typically employ more unskilled, cheap labor, use less capital, pay lower interest rates on debt and initiate more profitable acquisitions.

Another widely debated form of ownership, both in the academics literature and in the popular press, is ownership by a private equity group. This debate emanates from early results in the literature that shows that part of the efficiency gains following leveraged buyouts (LBO) come from the divestiture of non-strategic assets and the aggressive downsizing of labor demand by target firms. In “Growth LBOs” (Journal of Financial Economics, 2011), we revisit this question in the light of the changing landscape in the private equity industry. Using a data set of 839 French deals, we look at the change in corporate behavior following a leveraged buyout (LBO). We benchmark the target firms by defining “controls” using standard matching techniques over the exhaustive set of private firms in France. In the 3 years following a leveraged buyout, we find that targets become more profitable, grow much faster than their peer group, issue additional debt, and increase capital expenditures. We also provide evidence that private equity funds create value by relaxing credit constraints, allowing LBO targets to take advantage of unexploited growth opportunities. Post-buyout growth is concentrated among private-to-private transactions, i.e., deals where the seller is an individual, as opposed to divisional buyouts or public-to-private LBOs where the seller is a private or a public firm. The observed post-buyout growth in size, debt and capital expenditures are stronger when the targets operate in an industry that is relatively more dependent on external finance. These results contrast with existing evidence that LBO targets invest less or downsize and are thus important in the light of the existing policy debate on the role of buyouts on the economy.

My work on corporate ownership has naturally led me to think harder about corporate governance. The results in my papers on family firms and LBOs both suggest that concentrated ownership has large, positive effects on the efficiency of a company’s management. One can interpret these results in
terms of corporate governance: concentrated ownership is an efficient mode of corporate governance; traditional governance mechanisms used in widely held corporations do not function as efficiently. In fact, the literature on corporate governance has traditionally had a hard time identifying real, positive effects of corporate governance. However, this literature has traditionally focused on the role of external governance mechanisms, i.e. outside institutions designed to discipline the management of a company: board of directors and its various characteristics, corporate charters, etc. In “Bottom-up Corporate Governance” (Review of Finance, 2013, Winner of the IQAM Prize for Best Paper in the Review of Finance in 2013), we shift the focus to “internal” governance mechanism, i.e. organizational mechanisms that can help discipline the company’s management. We propose a new, easily implementable, measure of governance based on the degree of independence of the CEO’s immediate subordinates. We call “independent from the CEO” a top executive who joined the firm before the current CEO was appointed. Firms with a smaller fraction of independent executives have poorer internal governance, in the sense that the executive suite is mostly aligned with the CEO and will have less incentive to constrain her decision making in a meaningful way. In a robust way, firms with a smaller fraction of independent executives exhibit (1) a lower level of profitability and (2) lower shareholder returns following large acquisitions. The interpretation of our empirical results can be best understood in the light of a companion theory paper, “Optimal Dissent in Organizations” (Review of Economic Studies, 2009), joint with Augustin Landier and David Thesmar. In this paper, we model an organization as a two-agent hierarchy: an informed Decision Maker in charge of selecting projects (a CEO) and an uninformed Implementer in charge of their execution (a top executive). Both have intrinsic preferences over projects, so that a governance issue arises. The paper models the costs and benefits of divergence between their preferences, that is, dissent within the organization. We find that dissent, which we measure empirically with the fraction of independent executives, is useful to (1) foster the use of objective (and sometimes private) information in decision-making and (2) give credibility to the Decision Maker’s choices. However, dissent comes at the cost of hurting the Implementer’s intrinsic motivation, thereby impairing organizational efficiency. Empirically, the results found in “Bottom-up Corporate Governance” suggest that the former effects dominate the latter.

Behavioral Finance

The literature on behavioral finance has accumulated empirical evidence on markets’ inefficiencies. However, the link between “anomalies” observed in financial markets and behavioral theories is sometimes tenuous. My research in behavioral finance has focused on highlighting novel empirical facts and relating them precisely to a model of investors’ behavior and asset prices.

I started my research on behavioral finance by looking at the determinants of idiosyncratic volatility. The idiosyncratic volatility of stock returns has traditionally experienced large fluctuations at low frequencies. Following a large and steady rise in idiosyncratic volatility in the 80s and the 90s, volatility has gone down in the 2000s. An often-advanced cause for the rise in idiosyncratic volatility in the 90s is the rise in retail trading. This claim is based on noise-trading models, where retail traders are acting as noise traders and create an additional layer of risk for investors in the market. However, identifying empirically the effect of retail investors on volatility is challenging because retail trading activity in a stock is endogenous and could itself be determined by idiosyncratic volatility. For instance, stocks with high idiosyncratic volatility may grab retail investors’ attention. To overcome this problem, we consider, in “Individual Investors and Volatility” (Journal of Finance, 2011) joint with Thierry Foucault and David Thesmar, a policy change in the French stock exchange that triggered variation in retail trading activity for a subset of stocks without plausibly affecting other possible
determinants of volatility. We propose a new version of a noise-trading model, which is carefully adapted to analyze theoretically the effect of this reform. The model unambiguously predicts that, if retail traders are in fact noise traders, the reform should lead, for the stocks affected by the reform, to a decrease in the volatility of stock returns, a decrease in return reversals and a decrease in the price impact of trades. We test these predictions in the data, using a difference-in-difference analysis, and show that, in fact, retail trading activity has a positive effect on the volatility of stock returns, a finding consistent with the idea that retail investors behave as noise traders. The daily return volatility of the stocks affected by the reform falls by 20 basis points (a quarter of the sample standard deviation of the return volatility) relative to other stocks. For affected stocks, we also find support for the additional predictions of the model: a significant decrease in the magnitude of return reversals and the price impact of trades.

In “Speculative Beta” (R&R at the Journal of Finance), joint with Harrison Hong, we attack a long-standing puzzle in the finance literature, namely the failure of the risk-return tradeoff. While the risk-return tradeoff is the cornerstone of neoclassical finance, it has very little support empirically. Stocks with higher market betas do not significantly outperform lower risk stocks. Classical explanations for this fact rely on difficulty in measuring risk exposure or the inability of agents to lever up their holdings. We propose a different explanation for this well-known fact and offer empirical evidence consistent with our explanation. We start by developing an equilibrium framework for the pricing of a cross-section of assets when agents have heterogeneous beliefs and some agents are short-sales constrained. Our explanation builds on the intuitive idea that high beta assets are more exposed to disagreement about the macro-economy and hence more prone to speculative overpricing relative to low beta ones. More precisely, when investors disagree about the common factor of cash flows, high beta assets are more sensitive to this macro-disagreement and experience a greater divergence-of-opinion about their payoffs. Short-sales constraints for some investors such as retail mutual funds result in high beta assets being over-priced. When aggregate disagreement is low, expected return increases with beta due to risk sharing. But when it is large, expected return initially increases but then decreases with beta. High beta assets have greater shorting from unconstrained arbitrageurs and more share turnover. The paper provides both a simple, static model that emphasizes the intuitions of our theory. It also derives a dynamic version of the model, which is useful for calibration purposes. The calibration shows that one does not need very large levels of disagreement to obtain significant distortion in the Security Market Line (SML). We also provide direct empirical evidence for the main predictions of the model. Using measures of disagreement about stock earnings and economic uncertainty, we verify that when aggregate disagreement is high, high beta stocks experience (1) more disagreement (2) more turnover (3) more shorting. We also show that the SML is more concave when aggregate disagreement is large, a direct and specific prediction of our model.

In “Quiet Bubbles” (Journal of Financial Economics, 2013), joint with Harrison Hong, we have tried to understand what we believe is a distinctive feature of the recent bubble in credit markets over the 2003–2007 period. Classic speculative bubbles are in general “loud”: price is high and so are price volatility and share turnover. However, the credit bubble of 2003–2007 is “quiet”: price is high but price volatility and share turnover are low. This simple observation led us to think about the role of assets payoffs in models of speculative bubbles. The paper develops a dynamic model, based on investor disagreement and short-sales constraints, where agents are valuing claims with different payoff functions. The fundamental idea that emerges from the model is straightforward: since debt upside payoffs are bounded, debt value is less sensitive to disagreement about asset value than equity and hence has a smaller resale option. The smaller resale option leads in turn to lower price volatility and
turnover. Interestingly, an asymmetry emerges from our analysis of equity and debt bubbles: while optimism makes both debt and equity bubbles larger, it makes debt mispricing quiet but leaves the loudness of equity mispricing unchanged.

**The Economics of Banking**

I have recently started to work on the economics of banking. Going forward, I expect to be working more on this area. My approach to banking is similar to the ideas that I developed in my corporate finance research. I want to understand the implications of banks credit constraints for the economy. So far, I have explored two dimensions to this question. In a first paper, I have used the heterogeneous exposure of banks to interest rate risks to highlight how monetary policy affects banks lending capacity. The premise of this analysis is that banks liquidity positions affect their lending decisions, which is a sign of financing constraints. In a second paper, I have looked at the effect of the geographic integration of the banking market on the correlation of house price growth across US states. The null hypothesis underlying our analysis is that credit supply matters for house prices. This hypothesis again hinges on the idea that banks are constrained in their lending capacity.

In “**Banks Exposure to Interest Rate Risk and the Transmission of Monetary Policy**”, (Working Paper, 2013) with Augustin Landier and David Thesmar, we look at one particular source of heterogeneity across banks, namely their exposure to interest rate risk. We show that banks' exposure to interest rate risk plays a crucial role in monetary policy transmission. We measure banks exposure to interest rate risk through the income gap --- the sensitivity of banks assets to changes in interest rate relative to the sensitivity of banks liabilities. While banks have, on average, positive levels of income gap, there is substantial heterogeneity in the cross-section of banks in how exposed they are to interest rate risk. In a first step, we show that the sensitivity of bank profits to interest rates increases significantly with their income gap, even when banks use interest rate derivatives. In a second step, we show that the income gap also predicts the sensitivity of bank lending to interest rates, both for commercial & industrial loans and for mortgages. Quantitatively, a 100 basis point increase in the Fed funds rate leads a bank at the 75th percentile of the income gap distribution to increase lending by about 1.6 percentage points annually relative to a bank at the 25th percentile. The conclusion from the analysis is that banks' exposure to interest rate risk is an important determinant of the lending channel.

In “**Banking Integration and House Price Comovement**”, (Working Paper, 2013), with Augustin Landier and David Thesmar, we document a rise in the correlation of house prices across US states in the last 30 years. Our hypothesis is that this phenomenon is related to the concomitant rise in banking integration in the U.S., and especially the emergence of large banks operating across state lines. This hypothesis gives an important role to the “granularity” of the banking system, similar in spirit to the analysis in Gabaix (2011): idiosyncratic shocks to large banks do not cancel out in the aggregate and instead create a source of co-movement for lending supply in the multiple states where these large banks operate; To the extent that credit supply matters for house price growth, this will create a new source of commonality in house prices across US states. The paper first provides a theoretical analysis that helps us derive an appropriate measure of banking integration across state pairs. We then document empirically that house price growth correlation is strongly related to this measure of financial integration. We use the **bilateral** deregulation of interstate banking as shocks to the level of banking integration of a given US state-pair. Our IV estimates suggest that banking integration can explain up to one third of the rise in house price correlation over the period. In other words, the integration of banking markets significantly reduced the scope for geographic diversification in mortgage lending.
Research on Entrepreneurship:

Several aspects of my research are related to entrepreneurship. In “Housing Collateral and Entrepreneurship”, which I described above, we studied how access to valuable collateral affects entrepreneurial outcomes. In “Entrepreneurship and Credit Constraints: Evidence from a French Loan Guarantee Program” (NBER publication on International Differences in Entrepreneurship), joint with Claire Lelarge and David Thesmar, I have examined how a credit-guarantee program for entrepreneurs affected the entrepreneurial outcomes of the individuals receiving the guarantee. In “Can Unemployment Insurance Spur Entrepreneurial Activity? Evidence from France”, (R&R at the Journal of Political Economy), joint with Johan Hombert, Antoinette Schoar and David Thesmar, we look at another long-standing question related to entrepreneurship: how do barriers to entrepreneurship affect the supply of entrepreneurs? We are particularly interested not only in how these barriers affect the number of entrepreneurs, but also the quality of entrepreneurs. To answer this question, we exploit a large-scale French reform that reduced the risk from small business creation for unemployed workers. The identification comes from cross-industry heterogeneity in the exposure to the reform: in some industries – mostly high fixed cost industries -- unemployed workers are unlikely to start new businesses, so that these industries are less likely to be affected by the reform. Our empirical results are striking. New firms started in response to the reform are, on average, smaller, but have similar growth expectations and education levels compared to start-ups before the reform. They are also as likely to survive or to hire. We also find large crowding-out effects in the data. Employment in incumbent firms decreases by a similar magnitude as the number of new jobs created in start-ups following the reform. These results point to the importance of Schumpeterian dynamics when facilitating entry for entrepreneurs.