My research belongs to three broad fields of economics and finance, (1) corporate finance (2) behavioral finance and (3) macro-finance, and it includes both empirical and applied theory papers.

1 Corporate Finance Research

The overarching theme of my research in corporate finance is to quantify how various frictions—especially frictions in the financing market—affect the real economy, i.e. firms’ capital expenditures or labor demand, entrepreneurial activity, banks’ credit supply decisions, etc. I have divided this work into three distinct but related lines of work.

The role of credit frictions on economic activity

Understanding the effect of credit frictions on real activity is an important agenda for economists. Macro-economists have long recognized that credit frictions can amplify macro-economic fluctuations. Many public policies try to alleviate credit frictions for economic agents. Applied micro-economists have thus taken up the task of quantifying empirically the causal effect of credit frictions on corporate investment. This is a challenging task. An early literature documented a positive correlation between cash-flows and investment. However, interpreting this correlation as evidence of financing friction is not straightforward. Credit constraints may force firms to rely more on internal funds to finance their investment; but cash-flows may also be simply correlated with
investment opportunities. The literature made progress by proposing exogenous shocks to cash flows. However, these seminal contributions rely on some form of local/quasi-natural experiments, raising the question of their external validity. Additionally, these papers only consider shocks to cash-flows, while firms may rely on other sources of liquidity to fund their capital expenditures.

In a series of papers that I describe below, I have introduced a new way to approach this old and important question. This line of research recognizes that real estate collateral is a major source of debt capacity for households and firms alike. In the presence of financing frictions, it is thus credible that variations in housing collateral value will affect real activity. The empirical strategy we developed exploits variations in local house prices as shocks to the value of collateral available to agents that hold real estate assets. This strategy is a novel way to identify the effect of financing frictions on economic activity and can be applied to a large cross-section of firms. Beyond its value as an identification strategy, this empirical methodology also 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 for the economy. 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. The recent boom and bust in house prices experienced in the US during the 2000s illustrates the empirical relevance of this line of research.

In “the Collateral Channel: How Real Estate Shocks affect Corporate Investment” (American Economic Review, 2012, [7]), joint with Chaney and Thesmar, we use variations in local real estate prices as shocks to the collateral value of land-holding firms. We measure how a firm’s investment responds to each additional dollar of real estate that the firm actually owns, and not how investment responds to real estate shocks overall. This empirical strategy uses two sources of identification. The first comes from the comparison, within a local area, of the sensitivity of investment to real estate prices across firms with and without real estate. The second comes from the comparison of investment by land-holding firms across areas with different variations in real
estate prices. The identifying assumption underlying this strategy is that whether firms own or lease their real estate assets is unrelated to how their investment opportunities are exposed to the local housing cycle.

Two sources of endogeneity might affect this empirical strategy: (i) real estate prices may be correlated with the investment opportunities of land-holding firms, and (ii) the decision to own or lease real estate may be correlated with the firm’s investment opportunities. We address the first source of endogeneity by instrumenting house price variations with the interaction of changes in mortgage rates and the local elasticity of land supply. We do not have a proper set of instruments to deal with the second source of endogeneity. We make two attempts at gauging the severity of the bias it may cause. We first control for the observable determinants in the ownership decision, which leaves the estimation unchanged. Second, we estimate the sensitivity of investment to real estate prices for firms that acquire real estate before and after they do so. Before acquiring real estate, future purchasers are statistically indistinguishable from firms that never own real estate. The sensitivity of their investment to real estate prices becomes large, positive, and significant only after they acquire real estate.

Quantitatively, 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: in 1993, among public firms in the US, 59% reported at least some real estate ownership. Among these land-holding firms, the market value of real estate accounted for 19 percent of the firm’s total market value.

Credit constraints have also long been suspected to affect entrepreneurial activity. Most new business owners 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, found large effects of liquidity on the decision to become an en-
entrepreneur. Recent contributions have challenged this view, arguing that the correlation between wealth and entrepreneurial activity is tenuous and could reflect the existence of business connections more than actual credit constraints. The literature is thus still largely debating the importance of credit constraints in explaining entrepreneurial activity. In “Housing Collateral and Entrepreneurship” (Journal of Finance, 2017, [12]), joint with Schmalz and Thesmar, we adapt the methodology developed in our AER paper to address this debate. This methodology is particularly well-suited to look at this question since in many countries, housing collateral is almost a prerequisite for entrepreneurs to access significant amounts of debt financing. This is especially the case in France – the country in which our empirical analysis takes place – where banks often use the entrepreneur’s house as personal guarantee in corporate loan contracts.

Our empirical strategy exploits again variations in local house prices as shocks to the value of collateral available to homeowners. We control for local demand shocks by comparing homeowners to two control groups that live in the same region but do not experience collateral shocks: (i) renters as in the AER paper and (ii) homeowners with a mortgage outstanding, who - in France - cannot take out a second mortgage on their house. Our empirical analysis use administrative data on business starts and firms’ balance sheet. Our results show that an increase in collateral value leads to a significantly higher probability of becoming an entrepreneur, confirming the importance of access to credit on entrepreneurial activity. Going from the 25th to the 75th percentile of the distribution of past house-price growth increases the probability of firm creation by full homeowners, relative to homeowners with an outstanding mortgage, by 28% in the most saturated specification. We also find that 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. These 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.

The Aggregate Effects of Collateral Constraints (Working paper, 2017, [18]) joint with
Catherine, Chaney, Huang and Thesmar, is an important step forward in our agenda to understand the role of credit frictions, in particular collateral frictions, on the economy. The paper’s objective is to develop a quantitative model to estimate the aggregate effects of credit frictions. While several papers in the literature have been developing such quantitative models, the standard approach to calibrate these models is to use moments from the aggregate data. The novelty of our approach is instead to target the reduced-form estimates presented in the AER paper: the underlying premise for this analysis is that quantitative macroeconomic models with financial frictions should be consistent with well-identified “reduced-form” moments estimating the size of these frictions.

In this paper, we first develop a structural model of firm dynamics with collateral constraints: production takes place through a Cobb-Douglas technology with decreasing returns to scale (due to firms’ market power), adjustment costs to capital, and a collateral constraint, which depend on the realization of house prices. The model is estimated using a Simulated Method of Moments, which targets in particular the reduced-form sensitivity of investment to house prices identified in [7]. As we show in the paper, this moment brings significant identifying power to estimate the parameter related to the collateral constraint.

The second innovation in the paper is to nest this structural model into a general equilibrium model that clears the labor and product market. This allows us to perform a series of general equilibrium counterfactual. In particular, we consider the effect of removing entirely the collateral constraint, so that firms get access to their desired level of financing. In this counterfactual, our estimates imply that lifting financing frictions would increase welfare by 9.4% and aggregate output by 11%. Half of this aggregate output gain is due to an increase in the aggregate stock of capital, one quarter is due to a larger aggregate labor supply, while the remaining quarter is due to a higher aggregate productivity from a better allocation of inputs across heterogeneous firms.

In “Aggregate Effects of Collateral Constraints”, we implement a structural approach to convert firm-level estimates of credit constraints into macroeconomic outcomes: we built a fully structural macroeconomic model and estimated the model to be consistent with the regression estimates in
In Aggregating Estimates of Firm-Level Capital Distortions (Working Paper, 2017 [20]), we propose instead a sufficient statistics approach to perform aggregate counterfactuals based on micro-level estimates of capital constraints. The practical problem we consider is the following one: assume that a researcher has access to a well-identified experiment that allows him to measure the effect of credit constraints on firm-level outcome, for instance a randomized control trial with subsidized credit. While this experiment allows to establish the significance of this intervention at the microeconomic level, we are instead interested in measuring its macro-economic effect, and in particular in computing the following counterfactual: what would be the effect on aggregate TFP and output if one were to generalize this treatment to all firms in the economy?

The paper develops a framework to compute this aggregate counterfactuals, without requiring the estimation of a structural model of firm dynamics. Our analysis starts from a standard dynamic general equilibrium model with heterogeneous firms subject to generic forms of capital frictions: adjustment costs, taxes and financing constraints. We show that the model’s equilibrium can be simply characterized through the joint distribution of TFP shocks and capital “wedges”, which in the model can be measured as the average revenue-product of capital.

Our methodology then proceeds in two steps. In a first step, we use the empirical experiment to make unbiased inference on how the treatment affects the joint distribution of TFP shocks and capital wedges. In a second step, we use the model to compute how macroeconomic outcomes would be affected if the joint distribution of TFP and wedges of the entire population of firms were to change as in the experiment. We derive simple formulas for these macroeconomic outcomes that use simple sufficient statistics that can be easily measured in the experiment.

Importantly, this methodology is not valid if the estimated treatment effect depends on the macroeconomic equilibrium: in such a case, the generalization of the treatment to all firms in the economy leads to a change in macroeconomic outcomes, which makes the experimental estimates obsolete. We provide sufficient conditions on the underlying firm dynamics model under which the formulas apply exactly and show that these conditions hold in a generic class of macro-finance models. We use simulation exercises to assess the quantitative performance of our methodology.
when these conditions are not satisfied, for instance when production does not follow a Cobb-Douglas technology.

In “Banks Exposure to Interest Rate Risk and The Transmission of Monetary Policy,” (Working Paper, 2016, [16]) with Landier and Thesmar, we explore the real effects of credit frictions in a banking context. When a bank borrows short term, but lends long term at fixed rates, any increase in the short rate reduces its cash flows; leverage thus tends to increase. If the bank faces credit constraints, it has to reduce lending in order to prevent leverage from rising. The paper is an empirical exploration of this simple mechanism. We measure banks’ exposure to interest rate risk through the income gap – the income sensitivity of banks assets to changes in interest rate relative to the income sensitivity of banks liabilities to changes in interest rates. While this measure is imperfect – in particular, it does not account for positions in derivatives – it is readily available from bank holding company data, which allows for a large sample study.

Our analysis proceeds in two steps. In a first step, we show that, despite its shortcomings, our income gap measure does capture the exposure of a bank’s income exposure to interest rate shocks. To this end, we show empirically that the sensitivity of banks’ profits to interest rates increases significantly with their income gap, even when banks report some use of interest rate derivatives. In a placebo analysis, we also show that the income gap does not explain how banks’ non-interest income reacts to monetary policy shocks.

In a second step, we show that the income gap predicts the sensitivity of bank lending to interest rates, both for commercial & industrial loans and for mortgage lending. 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. We address the endogeneity of the income gap to the unobserved heterogeneity in bank lending in two ways. First, we control precisely for local demand shocks by including quarter-by-state fixed-effects. Second, we exploit the existence of internal capital markets within financial conglomerates. Controlling for a commercial bank’s own income gap, we use the conglomerate-
level income gap as a source of financial constraint exogenous to the lending opportunities of
the local commercial bank. This approach is valid under the identifying assumption that the
lending opportunities of the commercial bank is orthogonal to the conglomerate’s own income gap
– controlling for the commercial bank’s income gap. These additional analyses confirm our main
result, i.e. that banks with a larger income gap expand their lending less when interest rates
decline, and thus that banks’ exposure to interest rate risk can be an important determinant of
the lending channel.

In “Banking Integration and House Price Comovement”, (Journal of Financial Eco-
nomics, 2017, [13]), also with Landier and Thesmar, we consider the implications of households’
credit constraints on house prices in the US. Our starting point is the striking rise in the correla-
tion of house prices across US state-pairs over the 1976-2000 period, which we document in the
first part of the paper. Our hypothesis is that this phenomenon is related to the concomitant rise
in banking integration across US states, and especially the emergence of large banks operating
across state lines. The economic channel underlying this hypothesis relies on two conditions: (1)
some households are credit constrained in their decision to purchase a house, so that credit sup-
ply affects house prices (2) within a bank-holding company (BHC), shocks, e.g., funding shocks,
propagate through through internal capital markets to the different divisions of the BHC. If both
conditions are met, the presence of a large, common lender across two states will create a source of
commonality in lending, and therefore of commonality in house prices across the two states. This
hypothesis gives an important role to the “granularity” of the banking system: idiosyncratic shocks
to large BHCs 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. Since the integration of
banking markets across US states led to the emergence of large lenders operating across state lines,
a plausible hypothesis is that banking integration resulted in an increase in house price correlation.

The paper starts by providing a simple statistical framework that helps us derive an appropriate
measure of banking integration across state pairs. We then document empirically that house price
The role of corporate ownership and governance on firm behavior

Until recently, financial economists had a very monolithic view of the firm: the modern corporation was a widely-held company, in which ownership was dispersed among atomistic shareholders, and control was in the hand of professional managers unaccountable to shareholders. Thanks to the collection of extensive data, this view has been challenged: even in the US, there is a large heterogeneity of ownership and governance structure, and even among large, publicly-traded corporations. However, this heterogeneity is not necessarily relevant for economic outcomes. In the absence of information frictions, the ownership structure of a company should be mostly irrelevant, i.e. it should not affect its investment policy or its hiring policy. Some of my early work focused on showing empirically the relevance of corporate ownership and governance for firms’ real outcomes.

In “Performance and Behavior of Family Firms: Evidence from the French Stock Market” (Journal of the European Economic Association, 2007, [1]), joint with 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. The identification in the paper is essentially cross-sectional and these correlations should thus be interpreted with caution. However, we try to make progress by investigating empirically the origin of this superior performance of family-firms.

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 a heterogeneous skill and age structure. Second, we present evidence consistent with outside CEOs in family firms making a more parsimonious use of capital, as these CEOs typically use less capital, pay lower interest rates on debt and initiate more profitable acquisitions. Finally, we find that firms run by descendants of the founder smooth out industry-level employment shocks, a result consistent with the existence of implicit labor contracts in family firms. This result, which has since been confirmed by additional research in different settings, is the main contribution of the paper. Our interpretation is that managers with a long-term horizon, such as descendants of the firm’s founder, have the commitment necessary to enforce these implicit contracts. It also explains why these firms are able to pay their workers less, since their workers get to enjoy some insurance benefit from working in these firms.

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 by target firms. In “Growth LBOs” (Journal of Financial Economics, 2011, [5]), with Boucly and Thesmar, 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 “control” firms 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 in the economy.

My work on corporate ownership has naturally led me to think harder corporate governance. The results in my papers on family firms and LBOs both suggest that concentrated ownership has large effect on the management of company. 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 had a hard time identifying real, positive effects of corporate governance on firm performance. 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, ...

In “Bottom-up Corporate Governance” (Review of Finance, 2013, [8]), joint with Landier and Thesmar, 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, [2]), also joint with Landier and Thesmar. This paper presents a contract-theoretic model of the firm, where the firm is modeled 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, the costs and benefits of 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.

The determinants of entrepreneurship

A large literature has documented the negative effects of barriers to entrepreneurship on entrepreneurial activity, i.e. on the number of new firms created. This is an important and relevant economic question, given the crucial role played by young firms in the economic performance of a country. However, we also know from the literature that entrepreneurs are heterogeneous in many dimensions, including ambition, risk-aversion, ability, etc. The economic implications of removing barriers to entry depend crucially on how individuals select into entrepreneurship: for instance, if individuals sort into entrepreneurship based on ability, a removal of entry barriers may lead low-talent individuals to start new businesses. In the presence of credit constraints, this may deteriorate allocative efficiency, as scarce resources are diverted toward less productive firms.
Understanding the process of self-selection into self-employment is at the heart of Can Unemployment Insurance Spur Entrepreneurial Activity?*, (3rd round at the Journal of Political Economy, 2017, [15]), joint with Hombert, Schoar and Thesmar. In this paper, we exploit a large-scale reform of the French unemployment insurance system that provided generous downside insurance to unemployed workers that created a new business. The paper starts by providing a standard evaluation of the reform on new business creation. 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. Unsurprisingly, we first report that the provision of insurance to self-employed led to a large increase in the number of new firms, especially in industries “more exposed” to the reform. This result confirms the long literature on the large effect of entry barriers on entrepreneurial activity.

We try to move this literature forward by investigating empirically the characteristics of the entrepreneurs that start a business thanks to the reform, i.e. the marginal entrepreneurs. Our empirical results are surprising. New firms started in response to the reform are, on average, smaller, but their founders share similar growth expectations and education levels with entrepreneurs who started a firm before the reform. These firms are also as likely to survive or to hire in the years following creation than firms created prior to the reform. In other words, the evidence show that providing downside insurance allowed unemployed workers to enter into self-employment without significantly lowering the average quality of the pool of entrepreneurs. This is the first contribution of the paper. It implies that the distribution of perceived entrepreneurial ability at creation is very homogeneous so that there is limited sorting on entrepreneurial talent.

The second contribution of this paper is to consider the equilibrium effect of this large-scale reform. The increased insurance provision led to a massive entry of new, small firms in some industries. We show that this entry led to significant crowding-out effects in the data. Employment in small incumbent firms operating in “treated” industries decreased by a similar magnitude as the number of new jobs created in start-ups following the reform. Overall, the net employment gain
brought by the reform of the unemployment insurance system is not significantly different from zero. However, we also show that the new firms created following the reform are significantly more productive than incumbent firms, so that the reform raises aggregate productivity: the facilitation of entry led to sizable Schumpeterian dynamics at the firm-level.

As described above, an important part of my research has been aiming at measuring the real effects of credit frictions. Entrepreneurship is a natural setting where one can expect significant effects of credit constraints, since many entrepreneurs lack access to outside finance. 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, 2010, [4]), joint with Lelarge and Thesmar, we also provide a quantification of how much credit constraints restrict entrepreneurial activity in a different context. More precisely, we exploit a credit-guarantee program in France specially designed for entrepreneurs: a public agency provide insurance to lenders against borrowers’ risk of default, while the subsidized insurance premium is paid for by the borrower. The main rationale for this type of public intervention is the widespread belief that the lack of collateral hinders the access of new firms to external finance. Our empirical strategy address the endogenous selection of entrepreneurs into the program by exploiting an exogenous regulatory shift in the mid-1990s, which led to an increase in the overall size of the program and to the eligibility of several new industries. Using a detailed administrative dataset with information on all French firms founded between 1988 and 1999, we provide a difference-in-differences estimation of the impact of the loan guarantee program on the creation and growth of start-up firms. At the firm level, getting a loan guarantee helps newly-created firms grow faster and pay a lower cost for their capital. This rejects the null hypothesis that these entrepreneurs are unconstrained prior to the reform. However, the program also significantly increases the probability of default of these new ventures, suggesting that risk-shifting may be a potential cost of loan guarantee schemes.
2 Behavioral Finance Research

Noise Traders and Asset Prices

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 trying to relate them as much as possible to a model of investors’ behavior and asset prices. I started my research on behavioral finance by looking at the determinants of idiosyncratic volatility. We know that excess volatility in financial markets is a source of concern for economic efficiency: excess volatility can impair risk-sharing, prevent the efficient allocation of capital in the economy, or distort incentives based on market prices. Yet, the determinants of idiosyncratic volatility are still debated. The time-series behavior of idiosyncratic volatility provides some useful indication on this question. 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 1980s and the 1990s, volatility has gone down in the 2000s. An often-advanced cause for the rise in idiosyncratic volatility in the 1990s is the rise in retail trading. This claim is based on noise-trading models, where retail traders act 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 the stock’s idiosyncratic volatility. For instance, stocks with high idiosyncratic volatility may grab retail investors’ attention.

To overcome this difficulty, we consider, in “Individual Investors and Volatility” (Journal of Finance, 2011, [6]) joint with Foucault and Thesmar, a policy change in the French stock exchange in 2000 that (1) triggered variation in retail trading activity for a subset of stocks (2) did not plausibly affect other possible determinants of volatility and (3) left a segment of the market unaffected by the policy change. To analyze carefully this reform, we first propose a version of a noise-trading model, which is adapted to the specific institutional setting of this policy change.
The model unambiguously predicts that, under the assumption that 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 short-term return reversals and a decrease in the price impact of trades, relative to the stocks left unaffected by the policy change.

We test these predictions in the data, using a difference-in-difference analysis. One of the contribution of the paper is to bring a careful identification strategy to analyze what we believe is an important question in behavioral finance. Our empirical methodology matches, using observable characteristics, each stock affected by the policy change to stocks in the unaffected group. We then compare the relative evolution of idiosyncratic volatility for the “treated” stocks and their controls. Using this approach, we 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 “treated” stocks, we also find support for the additional predictions of the model: a significant decrease in the magnitude of return reversals and in the price impact of trades.

Are Retail Traders Compensated for Providing Liquidity? (Journal of Financial Economics, 2016, [10]), with Barrot and Kaniel, pursues this line of research by delving further into the trading behavior of retail investors. More precisely, the paper attempts to reconcile two important but contradictory results in the literature: retail investors have been shown to provide liquidity to the market and liquidity provision strategies typically earn positive abnormal returns; yet retail investors have also been shown to trade at a loss.

To get at this question, we use a unique dataset obtained from a leading European on-line broker, which allows us to track the trades of a large sample of individuals over a long sample period (2002-2010). We first show that, consistent with recent literature, aggregate retail buy-sell imbalances are contrarian and positively predict the cross-section of stock returns at a horizon of a few weeks. We then test whether this increase in returns earned by retail investors corresponds
to compensation for liquidity provision. To do so, we construct a weekly rebalanced portfolio that goes long in stocks purchased and short in stocks sold by retail investors and show that the returns on this portfolio increases when the supply of liquidity provided by institutional investors dries up: while a weekly rebalanced portfolio long in stocks purchased and short in stocks sold by retail investors delivers 19% annualized excess returns over a four factor model from 2002 to 2010, it delivers up to 40% annualized returns in periods of high uncertainty. Despite this high aggregate performance, individual investors do not reap the rewards from liquidity provision because (1) they experience a negative return on the day of their trade (they get picked-off), and (2) they reverse their trades long after the excess returns from liquidity provision are dissipated. Our results show that while the trading of retail investors does forecast superior returns, their inability to turn over their position fast enough, as well as the adverse prices at which retail investors get executed, explain why they fail to profit from providing liquidity.

Disagreement, Credit Bubbles and the Risk-Return Trade-Off

My second line of research in behavioral finance is centered around the notion of speculation. It explores how assets with different characteristics receive different exposure to speculative demand and thus experience different levels of mis-pricing. Following a long line of work in this area, speculation in my papers arises through the combination of heterogeneous beliefs and short-sales constraints. Prior to our work, most of the literature on disagreement and short-sales constraints had essentially dealt with single-asset models where agents could only trade an equity claim. This was an important limitation on the empirical predictions that one could derive from these models.

“Quiet Bubbles” (Journal of Financial Economics, 2013, [9]), joint with Hong, specifically considers how speculation affects the pricing of credit claims. The paper builds on the following observation. 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 trading 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 up-side payoffs are bounded, the value of a credit claim 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 mis-pricing quiet but leaves the “loudness” of equity mis-pricing unchanged.

“Speculative Betas” (Journal of Finance, 2016, [??]), joint with Hong, emerges naturally
from our work in “Quiet Bubbles”, although it touches on a different question. In this paper,
we attack a long-standing puzzle in the finance literature, namely the failure of the risk-return
trade-off. While the risk-return trade-off 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 either on measurement (it is difficult to measure
risk exposure) or on the inability of agents to lever up their portfolios. We propose a different
explanation 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. The intuitive
idea underlying the model is 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. 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.
In an important extension, we also show that when cash-flows are heteroskedastic, speculative
mis-pricing only arises when the variance of an asset’s cash-flows is low relative to its market beta.
In this extension of our model, the “speculativeness” of an asset is captured intuitively by the ratio of its beta to its idiosyncratic variance.

Beyond the simple, static model that emphasizes the intuitions of our theory, the paper also derives a dynamic version of the model, which is useful for calibration purposes. The calibration shows that for reasonable parameters, one does not need very large levels of disagreement to obtain significant distortions in the Security Market Line (SML). We also provide direct empirical evidence for the two main predictions of the model: (1) the SML should be more concave when aggregate disagreement is high (2) the effect of aggregate disagreement on the SML should be more pronounced among speculative stocks, i.e. stocks with a large ratio of market beta to idiosyncratic variance. To proxy for aggregate disagreement, we compute a beta-weighted average of disagreement about stock earnings. We then perform a standard Fama-McBeth analysis on 20 beta-sorted portfolio to show that the SML is in fact more concave when aggregate disagreement is large. We then split the sample of stocks based on the ratio of market beta to idiosyncratic variance and compute the monthly slope of the SML on each of these two samples: as predicted by the theory, we find that aggregate disagreement forecasts negatively the slope of the SML only for the sub-sample of “speculative” stocks, i.e. stocks whose ratio of beta to idiosyncratic variance is high enough. These two results confirm two direct and unique predictions that emanate from our model.

“Inflation Bets on the Long Bond” (the Review of Financial Studies, 2017, [14]), joint with Hong and Yu, extends our work in “Speculative Betas” by considering how disagreement about inflation affects the pricing of the cross-section of treasuries. The standard liquidity premium theory of interest rates predicts that the Treasury yield curve steepens with inflation uncertainty. This is because investors demand a larger risk premium to hold long-term bonds. However, in a model where agents disagree on inflation and face short-selling costs in the Treasury market, this prediction does no longer necessarily hold. Since the prices of long-term bonds are more sensitive to inflation than short-term ones, investors also disagree and speculate more about long-maturity payoffs when uncertainty is high. Short-sales constraints then lead long maturities to become
over-priced and the yield curve to flatten. Using the dispersion of inflation forecasts to measure uncertainty about inflation, we do find that dispersion in inflation forecasts is in fact associated with a flatter yield curve. We then exploit variations in Treasury supply to further test our model: when Treasury supply is limited, investors who are optimists about inflation are more likely to end up with all the bond supply, leaving the pessimists out of the market. This leads to overpricing and, because long bonds are more exposed to disagreement, to a flatter yield curve. The data confirms that the effect of inflation disagreement on the yield curve is much stronger in periods where the supply of Treasuries is limited.

3 Macro-finance Research

My recent research has been increasingly dealing with topics at the frontier of macro-economics and finance. This encompasses quite a diverse spectrum, which I describe below.

In “Banking View of Bond Risk Premia” (Working Paper, 2016), joint with Valentin Haddad (my former colleague at Princeton), we explore the role that financial intermediaries play in pricing the Treasury market. More precisely, the core idea for the paper comes from my previous work with Gomez, Thesmar and Landier, 16: in 16, we observed that the aggregate exposure of banks net income to variations in interest rates was quite volatile in the time-series. The paper with Haddad shows that there is a strong link between the financial sector’s aggregate exposure to variations in interest rates and time-varying risk premia in the US Treasury market. The logic behind this result is that financial institutions are large intermediaries in the market for interest-rate risk. When borrowers in the economy increase their demand for long-term or fixed-rate loans, in equilibrium, banks have to hold assets that are more exposed to interest-rate risk. Similarly, when savers increase their supply of saving deposits or variable-rate bonds, value of banks’ liabilities has to become less exposed to interest rate risk. In equilibrium, banks only accommodate these shifts in the demand and supply of interest rate risk if the price of this risk adjusts.

We illustrate this mechanism with a simple model of the yield curve following Greenwood and
Vayanos (2014). In the model, risk-averse banks trade bonds of different maturities to maximize their risk-adjusted expected profits. Long-term bonds are risky not only because they are exposed to interest-rate risk, but also because they are exposed to exogenous demand and supply shocks created by households and firms. To accommodate positive net supply shocks to long term bonds, banks must absorb additional interest-rate risk, which they do only if the expected returns of all bonds in their portfolio increase. In equilibrium, banks’ income gap, i.e. the sensitivity of banks’ profits to variations in the short-rate, is negatively correlated with the bond risk premia. Since long-term bonds are more sensitive to interest-rate risk than short-term bonds, this correlation between banks’ income gap and risk premia is larger, in absolute value, for bonds of longer maturities.

Empirically, we measure banks’ net income exposure using the income gap defined in 16: a financial institution is defined as the difference between the book value of all assets that either reprice, or mature, within one year, and the book value of all liabilities that mature or reprice within a year. This measure can be computed directly from bank holding companies’ call report. We use the average income gap across banks with more than $1bn of total assets as our measure of interest-rate risk exposure of financial intermediaries.

We then run regressions of one-year excess returns on Treasuries — borrow at the one-year rate, buy a long-term bond, and sell it in one year — on the average income gap available at the beginning of the period. The estimated coefficient is significant for all maturities. With this single predictor, we find R-square values of 20% on average across maturities, a result robust to the inclusion of macroeconomic factors known to predict bond returns or to the information contained in the yield curve available at the beginning of the period.

As I explained above, my recent research in corporate finance has also delved deeper into macro-economic questions. In The Aggregate Effects of Collateral Constraints (Working paper, 2017, [18]) joint with Catherine, Chaney, Huang and Thesmar, we explore how one can use micro-economic estimates on the effect of collateral constraints on investment to quantify
the aggregate welfare and output losses due to financial frictions. Similarly, in Aggregating Estimates of Firm-Level Capital Distortions (Working Paper, 2017 [20]), we develop a sufficient statistics to perform such counterfactuals using micro-economic estimates. I believe that these bridges between the applied microeconomics literature, especially in corporate finance, and macroeconomic models will be a very fruitful avenue for future research, and I intend to pursue this line of investigation in the years to come.
4 Bibliography with Citation Statistics and Presentations

4.1 Publications


   - Google Scholar Citations: 542; Web of Science Citations: 131
   - Media: Handelsblatt (in German), Le Figaro (in French), Atlantico.fr (in French)


   - Google Scholar Citations: 94; Web of Science Citations: 21


   - Google Scholar Citations: 16; Web of Science Citations: 5


   - Google Scholar Citations: 84; Web of Science Citations: -

5. “Growth LBOs,” with Quentin Boucly and David Thesmar.

   *Google Scholar Citations: 177; Web of Science Citations: 29*  
   *Media: PR Newswire, Gulfnews.*

   *Google Scholar Citations: 353; Web of Science Citations: 56*  

8. “Bottom-up Corporate Governance,” with Augustin Landier, Julien Sauvagnat and David Thesmar.  
   *Google Scholar Citations: 90; Web of Science Citations: 12*  
   *Media: Strategy + Business*  

   *Google Scholar Citations: 45; Web of Science Citations: 3*  
   *Media: Financial Times*  

10. “Are Retail Traders Compensated for Providing Liquidity?” with Jean-Noel Barrot and Ron Kaniel.  
11. “Speculative Betas,” with Harrison Hong.


- Google Scholar Citations: 126; Web of Science Citations: 1
- Media: Research Magazine

12. “Housing Collateral and Entrepreneurship,” with Martin Schmalz and David Thesmar.


- Google Scholar Citations: 74; Web of Science Citations: 2


- Google Scholar Citations: 12; Web of Science Citations: -


- Google Scholar Citations: 14; Web of Science Citations: -
4.2 Working Papers

   3rd round at the *Journal of Political Economy*
   - Google Scholar Citations: 32
   - Media: Bloomberg View, The Atlantic

   - Google Scholar Citations: 57

   R&R at the *Management Science*.
   - Google Scholar Citations: 59

   - Google Scholar Citations: 7

   - Google Scholar Citations: 8