

Research Statement

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Abstract

My research analyzes strategic interactions between firms, regulators, and governments. Both the methodological as well as the topical aspects are important in linking the various pieces of my research together. In the topics dimension, my research interests have shifted from an international emphasis to the role of financial regulation. Methodologically, I have extensively studied dynamic relationships and contracts, in particular the trade-off between short-term interests and the long-run cost of short-sighted behavior.

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1 Dynamic relationships and contracts

This line of research addresses in multiple related papers a very basic question: What is the optimal design of long-term agreements with an impatient agent? Impatience may either result from inherently short-term preferences or can be interpreted, in reduced form, as the effect of liquidity constraints. In which settings might impatience be empirically relevant? Think about making a large investment in a cash-starving emerging market country with poor legal enforcement, such as Exxon-Mobil’s decision to invest in Venezuela. In these settings, the management of expropriation risk plays a major role in the capital budgeting process. My job market paper “**Expropriation risk and technology**” (*Journal of Financial Economics*, 2012) argues that contracts that are seemingly unfair to the government and ex-post used by government officials to justify the act of expropriation may, in fact, be optimal contracts that “anticipate” high expropriation risk. Expropriation risk is particularly high for firms and sectors where the technology advantage of the multinational relative to the second-best local government technology is low.

The paper “**Impatience versus incentives**” (joint with J. Zhu, *Econometrica*, 2015) builds on my job market paper and extends it to analyze the general implications of repeated interactions with an impatient agent. This is theoretically interesting because the valuation of future cash flows, a central theme in Finance, is pivotal to understanding how agents respond to incentives induced by long-term contracts. We show that optimal dynamic agreements generically feature endogenous cycles. These cycles result from the interplay between the incentive benefits of paying the agent late and the dynamic trading gain from paying the impatient agent early.

In “**Only time will tell: A theory of deferred compensation**,” (joint with Florian Hoffmann and Roman Inderst, *Review of Economic Studies*, forthcoming) we depart from dynamics in terms of repeated actions, but instead focus on a setting in which the consequences of the agent’s action are only observed over time. This is not only relevant in the financial sector, in which risk-taking by employees might only be exposed in downturns, but in many other real-life settings. Should we wait for more precise information or reward the impatient agent early? Our paper provides a complete characterization of optimal contracts regardless of how information arrives over time. We show that the optimal duration of pay resulting from this *impatience vs. informativeness* trade-off is shorter if the agent’s outside option is higher, but may be non-monotonic in the implemented effort level.

While these previous papers have analyzed the dynamics of bilateral relationships, the paper “**Markup cycles, dynamic misallocation, and amplification**” (joint with C. Parlour and J. Walden, *Journal of Economic Theory*, 2014) analyzes the economy-wide implications resulting from strategic behavior at the industry level. We consider a setup with a large number of heterogeneous industries, where each industry consists of a finite number of firms engaging in a dynamic Bertrand pricing game à la [Rotemberg and Saloner \(1986\)](#). Our paper makes two points. First, oligopolistic competition can produce procyclical, acyclical, or countercyclical

markups as soon as one departs from the assumption of risk-neutrality (consistent with empirical evidence by [Nekarda and Ramey \(2013\)](#)). Second, myopic price-setting at the industry level can generate misallocations and result in “endogenous fluctuations” through feedback effects in general equilibrium.

2 Financial regulation

The Great Recession has once more illustrated the special role of the financial sector for the functioning of the overall economy. These spill-over effects have motivated governments across the world to massively support ailing banks. While such interventions may have prevented an even larger scale of the crisis ex post, it is well understood that the expectation of such policies creates ex-ante distortions. Financial institutions have an incentive to take on more risks than would be socially optimal. My research agenda analyzes the effect of policies targeted at taming such risk-taking incentives: capital regulation, the measurement of risk within financial regulation (credit ratings), as well as the regulation of compensation contracts of material risk-takers. This agenda takes the view that the regulatory process is influenced by an array of factors ranging from crude heuristic arguments, industry lobbying and time pressure. Hence, I do not aim to rationalize observed regulation as an efficient outcome. Instead, I try to provide policy advice based on an unbiased analysis of policies’ (unintended) consequences.

In particular, my research studies focuses on the two most commonly discussed policies; higher capital requirements ([Admati et al. \(2011\)](#)) and regulatory restrictions on compensation contracts of material risk-takers. I argue that the case for capital regulation is much stronger than the one for compensation regulation. In “[The economics of clawback and deferral requirements](#)” (joint with Florian Hoffmann and Roman Inderst, *Journal of Finance*, forthcoming), we show that heuristic arguments for compensation regulation along the lines of “compensation contracts are too short-termist” fail to account for the Lucas-critique. Compensation packages are endogenous: It is shareholders (the principal) who design a compensation contract to incentivize the manager (the agent) to take a particular action. The principal rather than the agent therefore effectively “chooses” the equilibrium action. And whichever distortion has led shareholders to incentivize excessively risky actions in the first place, it is still present if they face regulatory constraints on compensation design. So, the question is how shareholders adjust unregulated dimensions of the compensation package in response to such regulation (e.g., by converting bonus to base pay). Using a parsimonious model, our paper derives these optimal contractual adjustments by shareholders and shows that mandatory deferral requirements are only effective at reducing equilibrium risk-taking if competition for the bank manager’s talent is sufficiently high. We also derive conditions when additional clawback requirements are of value and when regulators should not impose any deferral regulation at all. In contrast, the case for capital regulation is much more direct as it targets the root rather than a symptom of risk-taking: By increasing the

shareholders' skin in the game, risk-taking becomes less attractive to shareholders, which makes it in their self-interest to offer compensation contracts that incentivize less risk-taking.

While capital requirements increase each individual bank's incentives, stringent capital requirements may constrain aggregate credit supply (see e.g., [Blum and Hellwig \(1995\)](#)). Yet, such contraction in aggregate lending need not be socially harmful, as it depends on which types of borrowers are rationed. Since borrowers are in reality heterogeneous along a variety of dimensions – including value added, risk, and bank dependence – the composition of credit is first-order relevant, not just the aggregate volume. To this end, our paper “[Bank Capital and the Composition of Credit](#)” develops a framework to fully characterize the credit market equilibrium in an economy with rich borrower heterogeneity. A key methodological contribution is the concept of the borrowers' aggregate demand for bank capital, the scarce resource in the financial sector: Since banks need to themselves fund every loan provided to borrowers partially with equity, borrowing firms effectively demand bank capital. In return, banks' earn a reward for “using up” equity via the return on equity generated by the loan. Based on the resulting aggregate demand function for bank capital by all borrowers in an economy, we are able to obtain closed-form expressions for the composition and pricing of credit. The framework facilitates analyses of macroprudential effects of policy interventions and long-term trends, such as changes in public market development, and sheds light on the determinants of phenomena such as overinvestment in risky assets, credit rationing, and the substitution between bank and public market finance. In particular, by allowing for a disconnect between true asset risk and regulatory risk classifications (e.g., zero risk-weights for Greek sovereign bonds), it can replicate empirically observed “reaching-for-yield” behavior (see e.g., [Becker and Ivashina \(2015\)](#) in the insurance setting).

In pre-crisis regulation, regulatory risk classifications were predominantly based on credit ratings. As a result, ratings serve a dual purpose, information and regulatory certification. The value of regulatory certification to the issuer of bond – the reduction in the yield due to improved ratings (holding information constant) – depends on the risk-taking benefit and capitalization of the banking sector (and is obtained in closed-form in the previous paper). In “[Rating agencies in the face of financial regulation](#)” (joint with C. Opp and M. Harris, *Journal of Financial Economics*, 2013) we analyze the feedback effects of such regulation for the acquisition and disclosure of information provided by private, profit-maximizing credit rating agencies. Our theory shows that the dual role of ratings can lead to the perverse outcome that rating agencies produce no information at all and solely focus on the business of regulatory certification through rating inflation. Our theory rationalizes why rating inflation is more likely to occur for complex, structured securities and why sophisticated institutional investors purchase these assets nonetheless.

Post-crisis, the removal of references to ratings was a central feature of the Dodd-Frank act. In “[Regulatory forbearance in the U.S. insurance industry: The effects of removing capital requirements for an asset class](#)” (joint with B. Becker and F. Saidi, *Review of*

Financial Studies, forthcoming) we analyze the first large-scale attempt to replace ratings. In 2009, the National Association of Insurance Commissioners (NAIC) started using risk-metrics by PIMCO and BlackRock to determine capital requirements for insurers’ asset holdings of mortgage-backed securities (MBS). We expose that this capital reform – to a first-order approximation – eliminated capital requirements for MBS altogether, but not for other fixed-income assets. We trace out the effect of this reform across asset classes and over time and document increased risk-taking, especially by financially constrained (life) insurers. Exploiting discontinuities in the reform’s implementation, we can identify the relevance of the capital-requirements channel, broadly consistent with the theoretical predictions of [Harris et al. \(2021\)](#).

3 Corporate control

Theories suggest that the choice of the medium of exchange in takeovers is related to, broadly speaking, private information (see, for example, [Rhodes-Kropf and Viswanathan \(2004\)](#), [Fishman \(1989\)](#), [Shleifer and Vishny \(2003\)](#)). While it is by definition difficult to test directly for private information, one route to make progress in identifying the information content of merger bids is to carefully examine failed transactions. Based on [Lee and Opp \(2005\)](#), my co-authors Ulrike Malmendier and Farzad Saidi and I document in “[Target Revaluation after failed takeover attempts – cash versus stock](#)” (*Journal of Financial Economics*, 2016) that cash- and stock-financed takeover bids induce strikingly different revaluations among targets. In the sample of unsuccessful takeover bids between 1980 and 2008, targets of cash offers are revalued on average by +15% after deal failure, whereas stock targets return to their pre-announcement level.

We analyze the role of future takeover activities and subsequent changes in operating policies to explain these differences, but find no evidence supporting these two channels. We conclude that the differential revaluations of cash and stock targets are most consistent with a pure information story, in which cash bids reveal a previous undervaluation of the target to the market. We reconcile our conclusion with the one of [Bradley et al. \(1983\)](#) by pointing out a significant sample-selection bias affecting their analysis. This paper won the 2016 Jensen prize for the best paper published in the *Journal of Financial Economics*.

4 International trade

In “[Tariff wars in a Ricardian model with a continuum of goods](#)” (*Journal of International Economics*, 2010), I model the strategic interaction of countries in setting welfare-maximizing import tariffs. My contribution to the literature is to analyze the implications of technology differences between two countries (absolute productivity advantage and comparative advantage) for optimal tariff rates and the resulting Nash equilibrium of tariffs. Within the framework of [Dornbusch et al. \(1977\)](#), I show that the optimal import tariff rate is uniform

across goods. Tariffs are an increasing function of productivity-adjusted relative size, increasing in the potential gains from trade (comparative advantage), and decreasing in transportation cost. If a country is sufficiently large, it will prefer the globally inefficient Nash equilibrium of tariffs over free trade.

In “[Rybczynski’s theorem in the Heckscher-Ohlin world – anything goes](#)” (joint with Hugo Sonnenschein and Christis Tombazos, *Journal of International Economics*, 2009), we revisit one of the fundamental theorems of international trade, the Rybczynski theorem, in general equilibrium. The Rybczynski theorem (see [Rybczynski \(1955\)](#)) makes predictions about how changes in factor endowments, e.g., changes in the labor force in China, would affect its production. In its basic form, the Rybczynski theorem states an increase in labor supply leads to an *increase* in the equilibrium supply of the labor-intensive good and a *decrease* in the supply of the capital-intensive good. We show that the theorem only holds robustly if the home economy is small relative to the rest of the world, so that the world market price is unaffected by changes in factors of a small country. Our main contribution is to show that for a sufficiently large home economy price effects can indeed be so strong that the comparative-statics predictions of the Rybczynski theorem are reversed in sign.

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