

Macroeconomic Externalities

Research Statement by Anton Korinek

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My research focuses on three main areas: (i) international capital flows, (ii) booms, busts and macroprudential regulation and (iii) macroeconomic drivers of inequality. The common theme behind much of my work is the role of macroeconomic externalities: I describe how the collective behavior of private agents may lead to suboptimal macroeconomic outcomes because individual agents do not internalize the aggregate implications of their behavior. I show how to characterize such macroeconomic externalities and how to quantify them in a robust manner to guide policy intervention. Many of my papers study externalities that arise during financial crises and contribute to their severity, in both emerging and advanced economies.

1 Capital Flows, Crises, and the International Monetary System

Financial crises first caught my attention when I witnessed the East Asian crisis of 1997/98 in the frantic trading room of an asset management company. The East Asian crisis was one of the first so-called balance sheet crises, in which large numbers of borrowers went bankrupt because of a mismatch between their assets and liabilities – in the case of East Asia, many corporate borrowers held significant amounts of dollar debt but earned revenue in local currency. I frequently wondered why the invisible hand of the market would lead to outcomes that seemed so costly and inefficient.

A decade later, my dissertation on “Dollar Borrowing in Emerging Markets” identified a new type of externalities at work during such balance sheet crises, which contribute significantly to the risk and severity of crises. The externalities arise because market prices such as exchange rates or asset prices affect the value of the assets and liabilities held on borrowers’ balance sheets, which in turn determine their creditworthiness. Individual borrowers rationally take these market prices as given and do not internalize that they result from their collective behavior. If they choose less risky balance sheets, for example by taking on less leverage, they would collectively generate smaller price fluctuations and thus less variation in their creditworthiness. The described externalities act through market prices, i.e. they are *pecuniary externalities*; they lead to inefficient outcomes when financial markets are incomplete, as is the case when the creditworthiness of borrowers depends on their balance sheets.

Pecuniary Externalities of International Capital Flows Several of my papers analyze the pecuniary externalities that arise from international capital flows. The intuition is that during emerging market financial crisis, when borrowing constraints are binding, each additional dollar of capital outflows triggers a feedback loop of falling domestic consumption, declining exchange rates and asset prices, and tightening borrowing constraints, but individual borrowers do not internalize this mechanism.

In “Excessive Volatility in Capital Flows: A Pigouvian Taxation Perspective” (with Olivier Jeanne, *American Economic Review*, 2010), we show that the described pecuniary externality induces emerging market borrowers who use risky assets as collateral to take on too much debt, exacerbating booms and busts in international capital flows. In “Regulating Capital Flows to Emerging Markets: An Externality View” (R&R at the *Journal of International Economics*), I show that a similar externality also induces borrowers take on liabilities that are excessively risky, such as dollar debt instead of local currency debt or equity finance. In a companion paper, “Foreign Currency Debt,

Risk Premia and Macroeconomic Volatility” (*European Economic Review*, 2011), I show that as a result, foreign currency debt increases macroeconomic volatility as well as risk premia.

My paper on “The New Economics of Prudential Capital Controls: A Research Agenda” (*IMF Economic Review*, 2011) provides a snapshot of the literature at the time that motivates capital controls on the basis of pecuniary externalities and explains the underlying theoretical mechanisms. “From Sudden Stops to Fisherian Deflation: Quantitative Theory and Policy” (*Annual Review of Economics*, 2014) provides an overview of dynamic stochastic models of emerging market financial crises, frequently described as ‘sudden stops’ in international capital flows, and of the associated externalities. I am currently working on a survey “Capital Controls: Theory and Evidence” (extended proposal invited by the *Journal of Economic Literature*) that describes the most recent developments and synthesizes theory and empirical evidence on the use of capital controls.

Learning-by-Investing and Reserve Accumulation In “Undervaluation through Foreign Reserve Accumulation: Static Losses, Dynamic Gains” (with Luis Servén, *Journal of International Money and Finance*, 2016) we analyze a different type of externality arising from learning-by-investing effects. Accumulating foreign reserves increases the net exports of a country. We show that when learning effects occur disproportionately in the traded goods sector, reserve accumulation may act as a second-best intervention to internalize such externalities.

International Spillover Effects An important question that arises when individual countries experience economic shocks or intervene in international capital movements is what spillover effects they generate on the rest of the world economy, and whether these spillovers are associated with inefficiency. “Decoupling and Recoupling” (with Agustín Roitman and Carlos Végh, *American Economic Review*, 2010) examines the mechanism through which emerging economies could at times decouple from the financial shocks in the US around the 2008 financial crises, but were deeply affected when the crisis was at its peak. In “Currency Wars or Efficient Spillovers? A General Theory of International Policy Cooperation” (*NBER Working Paper 23004*) I investigate a broad range of further questions of international spillovers between countries and their social efficiency. I develop an analogon of the first welfare theorem that considers countries with multiple layers of agents (private agents as well as national policymakers) and that allows for a wide range of domestic market imperfections. The paper shows under what general conditions the spillovers of domestic policies are efficient so that no gains from policy cooperation are possible. In several ongoing projects, I am applying these insights to illustrate specific circumstances under which international policy spillovers are inefficient and call for policy cooperation.

2 Booms, Busts, and Macroprudential Regulation

The 2008/09 financial crisis demonstrated forcefully that balance sheet crises also occur in advanced economies such as the US. This led me to broaden my research focus to macroeconomic externalities in advanced economy settings.

Pecuniary Externalities and Macroprudential Regulation In contrast to emerging economy settings, pecuniary externalities in advanced economies involve borrowers and lenders in the same economy and arise mainly from fluctuations in asset prices rather than from the exchange rate. In “Pecuniary Externalities in Economies with Financial Frictions” (with Eduardo Davila, *Review of Economic Studies*, 2017; formerly entitled “Systemic Risk-Taking”), we provide a definitive description of the two different types of pecuniary externalities in economies with financial frictions,

arising from prices in financial constraints and from incomplete risk markets, respectively, and of how to remedy them. In “Managing Credit Booms and Busts: A Pigouvian Taxation Approach,” (with Olivier Jeanne, *NBER Working Paper 16377*) we demonstrate how to incorporate pecuniary externalities from asset price fluctuations in a dynamic stochastic setting of an economy in which borrowing constraints bind occasionally. We use this to derive a framework of optimal counter-cyclical macroprudential regulation. “Macroprudential Regulation Versus Mopping Up After the Crash” (with Olivier Jeanne, R&R at the *Review of Economic Studies*) analyzes the interplay of macroprudential regulation, used during good times to contain the buildup of crisis risk, with ex-post policy instruments to contain the fallout from crises, i.e. “mopping up after the crash” in the terminology of Alan Greenspan. Since ex-post policy measures mitigate crises, they reduce the need for macroprudential regulation. At the same time, they introduce moral hazard that needs to be addressed if macroprudential tools are price-based.

Connecting my macroprudential research with my work on capital flows, “Capital Controls or Macroprudential Regulation?” (with Damiano Sandri, *Journal of International Economics*, 2016) compares the pecuniary externalities of domestic financial transactions and transactions with foreigners. In a financial crisis, repayments to foreigners reduce domestic demand more than repayments to domestic creditors. As a result, they generate larger externalities and justify regulation of international capital flows that is stricter than regulation of domestic financial flows.

Aggregate Demand Externalities In “Liquidity Trap and Excessive Leverage” (with Alp Simsek, *American Economic Review*, 2016), we analyze a macroeconomic externality that arises because individual agents do not internalize that their financial market allocations influence aggregate demand. This constitutes a separate externality from pecuniary externalities but also gives rise to excessive borrowing and risk-taking. Specifically, when a tightening of credit markets occurs, borrowers are forced to cut spending in order to pay down their debts, but lenders who receive the repayments are not forced to spend it, and so aggregate demand declines. When the central bank cannot counteract this effect because interest rates already are at zero, each additional dollar of debt reduces aggregate demand in the economy. Since individual borrowers do not internalize their impact on aggregate demand, their borrowing choices give rise to an externality.

Empirics of Credit Booms In an ongoing empirical project on “Accounting for Debt Service: The Painful Legacy of Credit Booms” (with Mathias Drehmann and Mikael Juselius), I am analyzing the output effects of credit booms and busts using cross country data. During credit booms, we find that positive net cash flows from lenders to borrowers stimulate output. However, over time, borrowers accumulate growing debt service obligations. Net cash flows between borrowers and lenders reverse on average three to four years after the peak in credit booms and drag down aggregate spending and output. After completing this empirical project, we plan to follow up with a formal theoretical model to describe the long-lasting lead-lag relationships between borrowing and debt service that we identified in the data, and to analyze how to conduct monetary and financial policy in such a setting.

Evolutionary Dynamics in Financial Markets My ongoing project on “Risk-Taking Dynamics and Financial Stability” (with Martin Nowak) examines systemic risk and macroprudential regulation from a novel evolutionary perspective. When financial market participants are heterogeneous, then aggregate financial market dynamics depend on the distribution of wealth across market participants, which can be described as following evolutionary dynamics. We identify a novel role for financial regulation in such settings: to counteract the procyclical tendencies of financial markets and keep

the wealth distribution more balanced, for example via limits to asset growth. We also identify novel deleterious effect of policies that interfere with the natural selection effects of the market, for example bailouts.

3 Macroeconomic Drivers of Inequality

Financial Crises and Inequality A new research area of mine analyzes the connections between financial crises and inequality and identifies negative spillovers from Wall Street to Main Street that lead to increases in inequality.

My paper on “The Redistributive Effects of Financial Deregulation” (with my former graduate student Jonathan Kreamer, *Journal of Monetary Economics*, 2014) shows that financial deregulation redistributes resources from Main Street to Wall Street because it raises the risk of financial crises, and crises allow the financial sector to extract two different types of rents: scarcity rents that arise from binding financial constraints, and bailout rents. In ongoing work on “Financial Innovation for Rent Extraction,” I describe how to design financial innovations so as to concentrate risk-taking on states of nature in which financial institutions will receive bailouts. I show that such financial innovation increases the rents that financial institutions can extract from public safety nets by an order of magnitude, and I describe a list of innovations that occurred over the past two decades and are best explained by financial innovation for rent extraction.

Measurement of Inequality Earlier in my career, I also made a contribution to the measurement of inequality. My papers on “Survey Nonresponse and the Distribution of Income” and “An Econometric Method of Correcting for Unit Nonresponse Bias in Surveys” (with Johan Mistiaen and Martin Ravallion, *Journal of Economic Inequality*, 2006, and *Journal of Econometrics*, 2007) document that higher-income individuals are less likely to respond in income surveys and, as a result, income surveys significantly understate inequality.

Automation and Inequality Ongoing work on “The Macroeconomics of Superstars” (with my graduate student Ding Xuan Ng) focuses on the implications of increasing automation for inequality. We describe how recent technological changes such as digitization have transformed a growing fraction of sectors of the economy into so-called superstars sectors, in which a small number of entrepreneurs or professionals with the greatest skill can distribute their services widely to the rest of the world. Examples include sports, the music industry, management, finance, the high-tech sector etc. As a result, the superstars reap enormous rewards, whereas the rest of the workforce is increasingly relegated to easy-to-replace routine activities, leading to stark increases in inequality. We show that superstars enjoy natural monopolies that generate inefficient rents, which could be distributed more evenly across society.