Abstract: The composition of corporate borrowing between bank loans and market debt varies substantially, both across countries and over the business cycle. This paper develops a new model of firm dynamics, where firms choose both the scale and composition of their borrowing, in order to understand the aggregate implications of variation in debt structure. Banks are assumed to differ from markets in their ability to restructure debt payments when a firm is in financial distress; however, banks' flexibility in distress comes at the expense of tougher lending standards. The steady-state of the model is consistent with key cross-sectional facts about debt composition: in particular, firms simultaneously use bank loans and market debt, and the share of bank loans in total debt is negatively related to its net worth. Over the business cycle, I show that asymmetric shocks to banks' lending costs generate substitution from bank loans to market debt, as in the US during the 2007-2009 recession. Additionally, these shocks have magnified effects if the economy is initially more bank-reliant. For example, the recession they generate is 15-30% deeper in a version of the model calibrated to Europe than in one calibrated to the US. I then study the macroeconomic effects of corporate finance policies aimed at encouraging market debt financing by small and medium-sized firms. While these policies stimulate investment of small firms, they also induce mid-sized firms to adopt a debt structure that increases their vulnerability to financial distress.

Working Papers:
“What do inventories tell us about news-driven business cycles?” (with Hyunseung Oh), October 2013

Abstract: Are news shocks, which change agents' expectations about future fundamentals, an important source of business-cycle fluctuations? The existing literature has provided a wide range of answers, finding that news shocks can account for 10 percent to 60 percent of the
volatility of output. We show that looking at the dynamics of inventories, so far neglected in this literature, cleanly isolates the role of news shocks in driving business cycles. In particular, inventory dynamics provide an upper bound on the explanatory power of news shocks. We show, for a broad class of theoretical models, that finished-good inventories must fall when there is an increase in consumption and investment induced by news shocks. When good news about future fundamentals lowers expected future marginal costs, firms delay current production and satisfy the increase in demand by selling from existing inventories. This result is robust across the nature of the news and the presence of different types of adjustment costs. We therefore propose a novel empirical identification strategy for news shocks: negative comovement between inventories and components of private spending. Estimating a structural VAR with sign restrictions on inventories, consumption and investment, our identified shock explains at most 20 percent of output variations. Intuitively, since inventories are procyclical in the data, shocks that generate negative comovement between inventories and sales cannot account for the bulk of business-cycle fluctuations.

“Firm investment and the composition of debt.” June 2013

Abstract: I propose a static model of the joint determination of debt structure and the scale of investment. An entrepreneur finances a project of variable size using internal funds and external borrowing from two types of creditors: banks and public debt markets. The key distinction between the two is that, when liquidation looms, bank loans are easier to restructure than market debt. Absent deadweight losses in liquidation, debt structure is irrelevant to the investment choices of the entrepreneur, and projects are financed by whichever lender has the lowest marginal lending cost. With liquidation losses, I show that investment is financed by a combination of bank and market finance so long as 1) banks have higher marginal lending costs than markets and 2) entrepreneurs' internal resources are sufficiently small. In that case, the share of bank finance in total investment depends non-monotonically on internal resources: firms with very limited internal resources are increasingly reliant on bank finance to expand investment, while medium-sized firms reduce the contribution of bank finance for each additional marginal unit of equity. I show that, as a result of firms adopting mixed debt structures, asymmetric changes in lending costs lead to large changes in investment at the firm level.

Work in Progress:
“Understanding inventory volatility: the role of customer markets” (With Hyunseung Oh)
“Income predictability and consumption inequality during the Great Moderation”

Teaching assistantships:
Spring 2013 Intermediate Macroeconomics (S. Schmitt-Grohé)
Fall 2012 Intermediate Macroeconomics (R. Reis)
Fall 2011 Macroeconomic Analysis I (Ph.D. core; B. Preston, S. Albanesi)
Fall 2010 Macroeconomic Analysis I (Ph.D. core; R. Reis, S. Schmitt-Grohé)

Research assistantships:
Spring 2011 M. Woodford
Spring 2009 R. Reis
Honors and Awards:
2011 Wueller Award for best graduate teaching assistant, Columbia University
2010 Harris Prize for best 2nd year paper, Columbia University
2008-Present Doctoral Fellowship, Columbia University

Conference and Seminar Presentations:
2012 Midwest Macroeconomics Meetings (co-author).

Professional Activities:
Referee for Journal of Monetary Economics, Journal of the European Economic Association

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