# Research Statement

Siqiang Yang

University of Pittsburgh

## Overview

I have a broad interest in the areas of macroeconomics and international finance. My research ranges from sovereign default and reserve accumulation, to household portfolio choice and intergenerational transfers. These topics can be thought of different portfolio choice problems for different types of agents: countries (sovereign debt and international reserve), households (risky and risk-free investment), and parents (education investment and later cash transfer to kids). Since different assets have different properties, my research allows me to think deeper of the underlying trade-offs and to apply quantitative structural models, especially with multiple assets.

## Current Research

In my job market paper, "Nominal Exchange Rate Volatility, Default Risk and Reserve Accumulation," I investigate how the nominal exchange rate volatility affects a sovereign's default risk and its incentive to accumulate reserves. First, I document a positive correlation between nominal exchange rate volatility and sovereign default risk, and shows that the correlation becomes stronger when more of the external debt is in foreign currency. This finding suggests that nominal exchange rate volatility and foreign currency debt is important in understanding the default risk. To further explore its link with reserve accumulation, I build a sovereign default model with nominal debt and reserve in foreign currency. The model considers an environment where the sovereign faces a currency mismatch problem and is subject to volatile exchange rate fluctuations. It implies that whenever exchange rate depreciates, debt burden in terms of domestic currency increases, leading to higher default risk and borrowing cost. To insure the risk, the sovereign can optimally accumulate reserves to smooth consumption when borrowing becomes costly, to hedge against the depreciation of the exchange rate, and to reduce the volatility of the exchange rate. The model is then calibrated using the data from Mexico (1991-2015). The model can replicate the positive association between nominal exchange rate volatility and sovereign default risk. It can also generate more than half of the reserve holdings in Mexico. Moreover, all the three channels of reserve accumulation are shown to be quantitatively important.

The second chapter of my dissertation, "Household Portfolio Accounting" (joint with Sewon Hur and Chris Telmer) tries to understand why there is a large heterogeneity in household portfolio composition in the United States. We consider a standard life-cycle model with labor income risk and portfolio choice, augmented with a savings wedge that lowers the return on saving and a risky wedge that lowers the relative return on risky assets. Using the U.S. survey data (2004-2016), we compute household-level wedges that rationalize the data. This paper has two main contributions. First, it uses the wedges to guide plausible frictions that researchers should consider. Second, it analyzes the extent to which household characteristics can account for the wedges.

In the third chapter of my dissertation, "Parental Education Investment and Money Transfers to Adult Children," I document and analyze how parents allocate resources among their children, and how the composition of these resources regarding education investment and adult money transfers differs across families. The standard altruistic model predicts that parents should give more education investment to the better-endowed kid, and give more adult money transfers to the less-endowed kid for compensation. Therefore there should be a substitution pattern in allocating education and money transfers to different kids. However, using a sample of matched parent-child pairs from the Wisconsin Longitudinal Study, I find only 14% of the families have this transfer pattern. Motivated by the empirical evidence, I build a life-cycle altruistic model to investigate the important channels that could rationalize the data. Specifically, I consider whether the labor market risk can quantitatively resolve this inconsistency. Due to higher return to education, the better-endowed kid should receive more education investment. However, because of the uncertain labor market realization, his labor market outcome could be worse than other kids, which results in larger money transfers from parents for compensation. Understanding these transfer motives is essential to evaluate the families' role in shaping income and wealth inequality, and also their response to government redistribution policy.

**Future Research**

Moving forward, I plan to follow up on my current papers by extending them in meaningful directions. In "Local Bankruptcy, Contagion, and State Takeovers" (joint with Sewon Hur and Daniele Coen-Pirani), we study the local government defaults in the United States. We extend the sovereign default models by including labor mobility across cities and local bankruptcy laws that do not exist in the international framework. Using the calibrated model, we plan to investigate the quantitative tradeoffs for adopting the Chapter 9 bankruptcy law at the local and state level, the implications for defaulting of underfunded pension plans, as well as whether bailouts are quantitatively desirable and how large bailout packages should be.

Another objective for future research will be to further study the motives behind parental transfers to adult children. Recent Literature has shown that there is not much insurance within the family. Given the significant amount of money transfer to the adult children, I want to investigate whether most of the parental transfer is coming through durable goods because parents can offer help with purchases of home and vehicles. The hypothesis implies that it is the children that smooth out their income shocks when it comes to non-durable consumption, but families help smooth out durable consumption to relax children's credit constraint. The data from Health and Retirement Study and Wisconsin Longitudinal Study can provide relevant information for me to explore the answer.