Macroeconomic Effects of International Capital Flows: Lessons from Japan's Foreign Reserve Investment

Kenji Abe

Large increases in foreign capital flows into the U.S. caused by foreign central banks or oil-exporting countries have stimulated research as to their effect on U.S. interest rates. My thesis seeks to shed light on this topic by studying the relationship between Japan's foreign reserve investment, which was propelled by its world record intervention, and U.S. interest rates. Additionally, I study the macroeconomic effects on the global economy due to the declines in U.S. interest rates caused by Japan's foreign reserve investment. This research provides important lessons for understanding the current global economy, where large capital flows from China and oil-exporting countries influence macroeconomic variables through changes in asset prices.

1 International Capital Flows and U.S. Interest Rates (job market paper)

This paper studies the dynamic relationship and the direction of causality between Japan's foreign exchange policy and U.S. interest rates. I find that the declines in Treasury yields associated with Japan's policy are temporary and hump-shaped, and that the causality runs from Japan's investment in securities to Treasury yields. Japan's continuous investment held down long-term interest rates significantly and persistently from 2003 to 2004, with the maximum impact being 1.4% for March 2004.

2 Japan's Foreign Reserve Investment and the Global Transmission of Interest Rates (in progress)

This paper examines how declines in U.S. interest rates caused by Japan's foreign reserve investment were transmitted to foreign interest rates and, in turn, affected the exchange rates of the U.S. dollar. The result is that the transmission of interest rates was significant, though most of the declines in foreign interest rates were smaller than those for U.S. interest rates. The resulting differentials between U.S. and foreign interest rates put a depreciating pressure on the U.S. dollar against foreign currencies.

3 International Capital Flows and the Dynamics of Output and Inflation (in progress)

This paper studies the macroeconomic effects of Japan's foreign reserve investment quantitatively using a modified version of the three-country model constructed by Coenen and Wieland (2002). Preliminary results suggest that the declines in long-term interest rates could have stimulated the U.S. and the euro area economies, but had little impact on the Japanese economy. These results contrast sharply with the literature, where Japan's foreign exchange policy is considered as only having a beggar-thy-neighbor effect.

Aggregate Implications of Firm Heterogeneity in Open Economies

Silvio Contessi

The value of global sales by Multinational Firms (MNFs) is twice the value of world exports. Yet, the implications of the presence of MNFs in Dynamic Stochastic General Equilibrium (DSGE) models of the open economy have been neglected. The main goal of this dissertation is to address this void in the literature, by proposing a framework to study the aggregate effects of firm heterogeneity when firms can engage in Foreign Direct Investment (FDI) instead of, or in addition to, exporting.

1 What Happens when Wal-Mart comes to your Country? On the Dynamic Macroeconomic Effects of Multinational Firms' Entry

I develop a two-country DSGE model of endogenous MNFs entry under the assumption of heterogeneous firms à la Ghironi and Melitz (2005). I show that firms that self-select into multinational activities have larger sales and profits and charge lower prices than local firms. I map these results onto a macroeconomic structure that allows me to study how policy variables and business cycle conditions interact with the composition of the multinational sector. I find that the entry and pricing decisions of MNFs alter the way shocks are transmitted across countries, increase the volatility of the real exchange rate, and generate cross-country output correlations that are larger than consumption correlations. The last result makes the model with MNFs' entry a promising candidate to explain the consumption-output puzzle in open economy macroeconomics.

2 International Macroeconomic Dynamics, Endogenous Tradability and FDI with Heterogeneous Firms, *Job Market Paper*

I adapt the model developed in the first chapter to a context in which both exports and MNFs production are endogenized as possible business strategies. By characterizing the dynamics of the trade-off between proximity to final markets and concentration of scale-intensive production in DSGE, I can address three issues. First, I clarify the implications of horizontal FDI for international co-movement and show that the consumption-output anomaly disappears once MNFs and exporters are introduced concurrently. Second, I study the general equilibrium effects of international technology transfer within multinational networks and suggest that the sorting of MNFs according to own productivity might explain the conflicting evidence on the relationship between FDI and growth. Third, I show how the pricing policies of MNFs and exporters can affect price indexes, bring the simulated volatility of the Real Exchange Rate in line with the data, and possibly alter the direction of the Harrod-Balassa-Samuelson effect when MNFs are more productive than exporters.

3 The Cyclical Properties of Disaggregated Capital Flows (with Johanna Francis), *in progress*

We measure the volatility of the components of international capital flows (FDI, portfolio investment, bank loans) and evaluate the degree of co-movement with output, investment and interest rates for the group of industrialized countries comprising the majority of outward flows as well as for a selection of emerging markets that dominate inward flows. We focus on formal tests to detect changes over the last 25 years, allowing for breaks in mean and variance as suggested by Doyle and Faust (2005) in the case of G-7 economic growth.

Essays on Monetary and International Economics

Witold Czubala

1 Can Signal Extraction Explain the Shifting Phillips Curve? (job market paper)

This paper studies, in the context of signal extraction, the impact of trend changes in productivity growth on the inflation-unemployment tradeoff. The prolonged adjustment to productivity growth change is a result of slowly adjusting expectations. We use real income expectations of the University of Michigan Survey of Consumers as a proxy of productivity growth expectations. We estimate the speed of adjustment of expectations to changes in productivity growth with agents facing a signal extraction problem. We assume two alternative models for productivity growth: random walk with noise and regime switching. Under a random walk agents face uncertainty about whether a shock is permanent or transitory. Under a regime switching model, agents face uncertainty about the current regime. In both cases uncertainty slows the adjustment of expectations to a permanent shock. The speed of adjustment in the models is close to expectations data from the Michigan Survey. This slow adjustment could explain the impact of productivity growth change on the inflation-unemployment tradeoff, as observed in the US in the late 1990s. Our estimates of the Phillips curve with an unexpected productivity growth shock support this idea.

2 The Role of Product Standards in International Trade (with Ben Shepherd and John Wilson from the World Bank, in progress)

This paper examines the impact of technical standards on international trade. We analyze impact of European Union technical standards on exports from Africa. We use EU standards database (Shepherd 2006) for 1995-2003. The goods are divided according to HS 2 digit level system. This allows for a panel data analysis. The findings indicate that taking into account all standard variables in a gravity model, the higher technical standards, the lower are exports from African countries to EU in each good category. This could be a result of information and compliance costs, which standards impose on exporters. This is especially true for developing countries were standards might substantially differ from those in the developed countries.

3 Measuring the Integration of Financial Markets with Jump Components of Market Return Volatility (in progress)

This paper studies cross-correlation of jumps in the financial markets as a measure of their integration. It follows a framework for non-parametric measuring of the jump components in asset return volatility developed in Andersen et al. (2005). They find the jump components to be directly associated with macroeconomic news announcements. The economic integration of European Union centralized the vast majority of macroeconomic news in the European markets. These developments should have direct implications for cross-correlation of jumps in financial markets in Europe compared to US and Japan. Evolution of cross-correlation of the non-jump component across the markets is also examined.

External Capital Flows and Welfare in Developing Countries.

Anubha Dhasmana

1 Welfare Gains of Aid Indexation (job market paper)

Aid is the main source of foreign capital for many developing countries lacking access to international capital markets. However, highly volatile and unreliable aid flows deter investment and make fiscal planning difficult in addition to increasing the volatility of consumption. Few papers in the aid literature study welfare implications of aid volatility in a general equilibrium setting and even fewer study the potential for innovative restructuring of aid flows to improve welfare. In this paper I quantify potential welfare gains of indexing aid flows to exogenous Terms of Trade (T.O.T.) shocks while keeping the average level of aid constant. I use a dynamic general equilibrium model of a Small Open Economy (SOE) facing productivity and T.O.T shocks and receiving a stochastic transfer of tradeable goods, known as aid. The SOE can not borrow abroad but it can invest in the domestic capital stock. In this set up indexing aid to the T.O.T shocks reduces the cost of business cycle fluctuations in the recipient country by 25 to 30 percent. Further, by indexing aid donors could reduce aid flows by 3 percent without reducing the level of welfare.

2 Coffee Prices and the Colombian Economy (work in progress)

This paper looks at the potential of using innovative debt instruments to reduce the probability of costly sudden stops - the sudden reversal of capital flow resulting in a sharp reduction in output and welfare. Looking at the case of Colombia I study how indexing debt repayments to exogenous shocks (the price of coffee in case of Colombia) can reduce the endogenous probability of default in any given state and hence reduce the possibility of sudden stops. I use the model of a small open economy facing borrowing constraint. Borrowing constraint in the model arises endogenously as a result of risk neutral lenders lending to risk averse borrowers who optimally decide to default when the cost of temporary exclusion from financial markets is higher than the direct cost of repayment. Under this scenario the use of indexed debt can lower the endogenous borrowing constraint and reduce the probability of sudden stops by lowering the probability of default in any given state.

3 Commodity Price Fluctuations and Debt Sustainability (work in progress)

The debilitating impact of debt burden faced by Highly Indebted Poor Countries (HIPC) on their growth prospects has regained attention recently. Several of these countries face the prospect of having "un-sustainable" debt burden, defined by the revised HIPC initiative as a Present Value of Debt (PVD) to exports ratio of less than 150 percent or PVD to budget revenue ratio of less than 250 percent, even after reaching the 'completion point'(the point where the indebted country, having successfully completed all the requirements laid out under the HIPC program, becomes eligible for full and irrevocable debt relief). In this paper I define debt sustainability in terms of probability of default under realizations of negative income shocks. I then study the extent to which indexation of debt repayments to external shocks can make debt more sustainable in terms of above definition.

Persistence of Technological Leadership: Emerging Technologies and Accumulated Advantages

Christopher Metcalf

Studies of industries, such as computer hard drives, earthmoving equipment, and steel milling, indicate that entrants often overturn an industry leader by innovating in an emerging technology. This paper explores theoretically and empirically the circumstances under which an entrant can displace the market leader in such a manner with the objective of enhancing our understanding of how innovation affects industry outcomes.

Previous theories have found that equilibrium may entail entrants leapfrogging the incumbent firm by spending more on R&D in the established technology. They do not allow for the possibility of an entrant pursuing an emerging technology. The modeling innovation of this paper is to formalize the idea of an emerging technology as a means of industry entry. A firm can either focus on the established technology or instead pursue a new undeveloped technology. A Markov Perfect Equilibrium has the entrant pursue the new technology, while the incumbent firm chooses to persist with the established technology and collect higher short-run profits.

A prediction of the model is that the bigger is the initial advantage of the established technology over the emerging technology, the more likely it is that there will be a change in industry leadership. Hard drive industry data from 1980 to 1996 is used to verify this prediction. Then the model is calibrated to four episodes, two of which had a permanent change of leadership and two that did not. The data confirm the model's prediction as to when there will be a change in leadership.

Future directions to widen the scope of the mechanism in this paper include allowing learning by doing in research and a numerical exploration of the model with R&D expenditure and choice of technology.

Two Essays on the Economics of the Family

Steffen Reinhold

1 Reassessing the Link between Premarital Cohabitation and Marital Instability (job market paper)

It has become a stylized fact that premarital cohabitation is positively correlated with the likelihood of marital dissolution. This is counterintuitive because economists expect that couples learn about each other during cohabitation and would only get married if they anticipated a successful marriage. One prominent explanation for the antithetic empirical evidence is self-selection of individuals with lower prospects of successful marriages into premarital cohabitation. In this essay, I address this problem both theoretically and empirically.

In a theoretical search model of marriage and cohabitation, the true effect of cohabitation on marital instability is negative because of learning. But because women require a lower reservation satisfaction with their partner in order to cohabit before marriage, couples who cohabit have lower expected marital success, leading to a spurious positive self-selection.

Using U.S. data from 1988 to 2002, I demonstrate that the positive relationship between premarital cohabitation and marital instability has weakened over time, and that the two are no longer associated with each other. I estimate models of marital stability as a function of cohabitation using proportional hazard methods and causal modeling. The proportional hazard models show a marked decline in the coefficient of cohabitation. A strong decline in the coefficient within the group of more educated women drives this result. I hypothesize that a decline in the benefits of marriage has led to greater cohabitation and hence less self-selection within this group. Matching of cohabitors and non-cohabitors serves as another way to control for observable differences. Finally, random and fixed effects models uncover a negative causal effect of cohabitation on marital instability and no indication of positive self-selection into premarital cohabitation.

2 Economic Consequences of Unwed Motherhood: An IV Approach (in progress)

Unwed motherhood is often associated with economic hardship for mothers and their children. It is difficult to say whether unwed motherhood causes economic hardship or whether women with adverse economic prospects are more likely to have children out-of-wedlock. Due to a lack of good instruments, the literature on the economic consequences of unwed motherhood has mainly used two methods to deal with the endogeneity of the decision to have children out-of-wedlock. One way is to compare the economic outcomes of sisters who gave birth at different ages to account for unobserved heterogeneity in family background. The other approach is to use twin births as a natural experiment for the effect of an additional child. This paper uses non-surgical infertility as an instrumental variable to deal with the endogeneity of the decision to have children out-of-wedlock.

Essays on Durable Goods Oligopolies: The Case of the Japanese Condominium Market in the 1990s

Migiwa Tanaka

My dissertation studies the Tokyo condominium market starting in the 1990s, which is characterized by a surge of output and a persistent price decline throughout the decade. As land is the most expensive factor in the production of condominiums, a major cause of the deflationary price trend is thought to be the decline in land prices resulting from the bursting of the asset price bubble. Indeed, two price series show a high correlation. However, since 1995, the speed of deflation in these two price indices have been diverging: land prices have depreciated significantly more rapidly than condominium prices.

These observations motivate the first essay which has as its objective to identify the primary factors determining the relative decline in condominium prices. The factors considered are changes in competition among condominium developers and changes in the cost of construction cost relative to the cost of land. As condominiums are durable goods, demand will be driven by consumers' expectations as to prices and the possibility of engaging in intertemporal substitution. It is well-known since Coase (1972) that this substitution can erode the market power of a durable good producer. In addition, the presence of a secondary market means that a producer can influence the current and future value of the product through its current production decision on the future stock. However, this effect will depend on the presence of competing suppliers as one firm's current production will impact the secondary market that affects all firms. The observed increase in condominium production in the Tokyo market may then be a consequence of strategic interaction among firms rather than solely due to forces on the demand side.

In order to address those questions, I employ a dynamic oligopoly model of durable goods market. Using market level supply data, the structural parameters are recovered. Estimation is performed through the use of a nested GMM procedure that solves each oligopolist's dynamic optimization problem. The study finds that there is evidence of market power in this industry though there is no strong evidence that changes in market power contributed to the spike in production. Instead, the movements in condominium prices seems to be best explained by increased competition coming from the entry of small fringe developers.

The second essay casts light on the demand side of the Tokyo condominium market. For durable assets like housing, the consumers' response to a price decline is ambiguous as durability creates the possibility of intertemporal substitution and future resale: If the lower price today makes consumers expect lower price tomorrow, they might postpone their purchase. The response of consumers to the persistent price deflation and unprecedented low mortgage rates in the 1990s is examined. In contrast to the first essay, it includes consumers' transaction cost and has a more developed model of consumer expectations. The model's parameters will be recovered with consumer panel data and the effects of the tax preferential system for housing purchase implemented in 1999 are evaluated with counterfactual experiments.

Essays on Consumption - Evidence from U.S. State Data

Xia Zhou

Regional data has seldom been employed in the consumption literature. This is unfortunate since regional variation could potentially help avoid problems of both macro and micro data. This thesis contributes to the literature by constructing new stock wealth and consumption data at the U.S. state level. These data are then used to study wealth effects, interstate risk sharing and regional business cycles.

1 Measuring Wealth Effects Using U.S. State Data (job market paper)

This paper describes a new panel data set of financial wealth for U.S. states constructed from anonymous proprietary account-level records on geographic wealth holdings. The new dataset is more comprehensive and representative than existing alternative measures. The paper also constructs significantly improved state-level consumption data, then combines these datasets to provide new estimates of effects on consumption from changes in stock and housing wealth. I find large but sluggish housing wealth effects. The estimated response of consumption to a one dollar change in housing wealth that happened two years ago is about 6.5 cents. Surprisingly, the data show no evidence for significant stock wealth effects, although large standard errors mean that the differences from housing wealth effects are statistically insignificant.

2 Excess Sensitivity and Risk Sharing Across States (in progress)

This paper further explores the dynamics of state-level consumption documented in the first paper. Using a framework related to that of Ostergaard, Sorensen, and Yosha (2002), the same question can be addressed using my improved consumption data and including lagged housing wealth and stock wealth in the tests. In preliminary tests, state-specific consumption growth is still very sensitive to lagged state-specific income and housing wealth growth, opposite to the findings of Ostergaard, Sorensen, and Yosha (2002).

3 Economic Indexes for the US States (in progress)

Although there is a considerable body of work on characterizing national business cycles, little corresponding work has been done on the regional or state level despite rising interest in regional fluctuations. But the choice of variables in the construction of state indexes is always restricted to wages, employment, and GSP. This paper will adopt the Stock-Watson methodology and incorporate state retail sales, housing wealth and stock wealth to help estimate a consistent set of indexes to characterize state business cycles, and examine how these added variables would make a difference in terms of deciding the turning points of state-level business cycle movements.