May 2013

Abstracts of Selected Papers by Hibiki Ichiue

Publication in Refereed Academic Journals

"Financial Markets Forecasts Revisited: Are They Rational, Stubborn or Jumpy?" (with Ippei Fujiwara, Yoshiyuki Nakazono, and Yosuke Shigemi), ***Economics Letters,*** **forthcoming**

This paper evaluates professional forecasters' behavior using a panel data of individual forecasts. We find that (i) professional forecasts are behavioral, and (ii) there exists a stock-bond dissonance: forecasting behavior seems to be stubborn in the stock market, but jumpy in the bond market. Even in the same country, forecasting behavior is quite different by market.

"Inflation Dynamics and Labor Market Specifications: A Bayesian Dynamic Stochastic General Equilibrium Approach for Japan's Economy" (with Takushi Kurozumi and Takeki Sunakawa), ***Economic Inquiry*** **51(1), 273–287, 2013**

Which labor market specification is better able to describe inflation dynamics, a widely used sticky wage model or a recently investigated labor market search model? Using a Bayesian likelihood approach, we estimate these two models with Japan's data. This article shows that the labor market search model is superior to the sticky wage model in terms of both marginal likelihood and out-of-sample forecast performance, particularly regarding inflation. The labor market search model is better able to replicate the cross-correlation among inflation, real wages, and output in the data. Moreover, in this model, real marginal cost is determined by both hiring cost and unit labor cost that varies with employment fluctuations, which gives rise to a high contemporaneous correlation between inflation and real marginal cost as represented in the New Keynesian Phillips curve.

"Regime Switches in Exchange Rate Volatility and Uncovered Interest Parity" (with Kentaro Koyama), ***Journal of International Money and Finance*** **30(7), 1436-1450, 2011**

We use a regime-switching model to examine how exchange rate volatility is related to the failure of uncovered interest parity. Main findings are as follows. First, exchange rate returns are strongly influenced by regime switches in the relationship between the returns and interest rate differentials. Second, low-yielding currencies appreciate less frequently, but once it occurs, their movements are faster than when they depreciate. Third, depreciation of low-yielding currencies and low volatility are mutually dependent on each other. Finally, these three findings are more evident for shorter horizons. The second and third results are consistent with a market participants' view: short-term carry trades in a

low-volatility environment and their rapid unwinding substantially influence exchange rates. We consider the effects of funding liquidity to explain these results.

"Real-time Analysis on Japan's Labor Productivity Dynamics" (with Naoko Hara), *Journal of the Japanese and International Economies* 25(2), 107-130, 2011

This paper analyzes the revision to Japan's labor productivity, measured using Japan's System of National Accounts (SNA) data. We draw three main findings from our analysis. First, SNA data has been substantially revised in and after the second comprehensive revisions, as well as at the earlier stage of revisions. We find that the past absolute revisions to the annual growth rate of labor productivity often went beyond 1% point. Second, the annual growth rate of labor productivity has been revised upward by 0.4% points on average. We show that part of its upward revisions reflects an underestimation of employment through an increase in 'non-response people,' people who do not respond in the Population Census. Third, revisions to source data such as the Population Census and the Employment Status Survey are helpful to predict revisions to labor productivity growth. Our regression results suggest that labor productivity is likely to be revised upward during expansions or with low real-time estimates of value added. We conclude that the three findings indicate that labor productivity during the 2000s will experience substantial revisions in the future. This conclusion takes into account the fact that the SNA after 2000 has experienced at most one comprehensive revision. The upcoming revisions to labor productivity can be positive rather than negative.

"Using Survey Data to Correct the Bias in Policy Expectations Extracted from Fed Funds Futures" (with Tomonori Yuyama), *Journal of Money, Credit and Banking* 41(8), 1631-1647, 2009

Many studies estimate risk premiums on federal funds futures to extract monetary policy expectations by assuming that average forecast errors of the expectations are zero or that survey forecasts are good proxies for the expectations. These assumptions, however, may fail due to an unanticipated declining trend in the federal funds rate and to survey respondents' strategic behavior. Consequently, the premiums estimated under these assumptions may be biased. We propose a new method to estimate the premiums and find that the premiums have been often negative since 2000, which is generally consistent with the negative betas observed in the 2000s.

Working Papers

"Estimating Term Premia at the Zero Bound: An Analysis of Japanese, US, and UK Yields" (with Yoichi Ueno)

This paper estimates an affine term structure model (ATSM) and a shadow rate model (SRM) using Japanese, US, and UK data until March 2013. These models produce very different results, which are attributable to the ATSM's neglect of the zero lower bound (ZLB). The 10-year term premium estimated by the ATSM occasionally deviates from that estimated by the SRM by around 2 percentage points, and the deviation has recently widened in the US and the UK. The ATSM consistently overestimates the

long-run level of the short rate, which appears to contribute to the tendency to underestimate the term premium.

“Determinants of Long-term Yields: A Panel Data Analysis of Major Countries” (with Yuhei Shimizu)

We utilize cross-country panel data to investigate determinants of long-term forward rates. We find that the partial effect of net government debt is comparable to that of net foreign debt. This implies that when an increase in net government debt is financed entirely by foreign borrowing, the increase in the forward rate is approximately twice that when financed domestically. We also find that expectations for aging contribute to lowering the forward rate. On the other hand, gross government debt provides no additional information beyond net government debt. The effects of primary balance and current account are insignificant. We discuss implications of these findings for Japan’s yields.

“Measuring Potential Growth with an Estimated DSGE Model of Japan's Economy” (with Takuji Fueki, Ichiro Fukunaga, and Toyoichiro Shirota)

In this paper, we calculate the potential output and the output gap using a Bayesian-estimated DSGE model of Japan’s economy. The model is a two-sector growth model that takes into account growth rate shocks including investment-goods sector-specific technological progress. For bridging the gap with conventional measures, we define our measure of potential output as a component of the efficient output generated only by growth rate shocks. Our potential growth displays a high degree of smoothness and moves closely with conventional measures. Moreover, the output gap from our measure of potential output has forecasting power for inflation. We analyze the sensitivity of our measure to the specifications of monetary policy rules, labor supply shocks, price and wage markup shocks, and technology shocks as well as the robustness with respect to data revisions and updates.

“Equilibrium Interest Rate and the Yield Curve in a Low Interest Rate Environment” (with Yoichi Ueno)

Equilibrium nominal interest rates are useful indicators for both monetary policy authorities and market players. However, there are few studies which estimate Japan’s equilibrium rate because of its persistent low interest rate. We overcome this challenge by using survey forecasts of interest rates and macroeconomic variables to estimate a two-factor yield curve model, which takes the bound of zero interest into account. We found that: 1) the equilibrium rate is roughly approximated with the long-run expected nominal output growth rate; 2) the Bank of Japan’s commitments successfully lowered yields even at zero interest; and 3) the term premium of 10-year yield has had a downtrend since 2004.

“Monetary Policy and the Yield Curve at Zero Interest”

In contrast to affine term structure models, Black’s (1995) model of interest rates as options has properties suitable to examine the yield curve when the short-term interest rate is near zero. We estimate a Black’s model with Japan’s data to extract market expectations about duration of zero interest. We find

that expectations about duration have substantially varied, which contradicts with the assumption often utilized in the literature. We also find a tight link between expectations about duration and survey measures of inflation expectations, which appears to be attributable to the Bank of Japan's commitment conditional on inflation.

"Which Risks Are Paid for with the Term Premium?"

Analytical solutions for term structures of nominal term premium, real term premium, and inflation risk premium, which are consistent with a new Keynesian model, are derived. Any of these premia are represented as a sum of three elements, each of which is a premium paid for risk of time-variation in each of IS shock, cost push shock, or monetary policy shock. The decomposition helps prove some counterintuitive properties of premia. For instance, a higher volatility of cost push shock or monetary policy shock, which is accompanied by a higher volatility of inflation, results in a lower inflation risk premium under plausible conditions.

"Why Can the Yield Curve Predict Output Growth, Inflation, and Interest Rates? An Analysis with an Affine Term Structure Model"

The literature provides evidence that term spreads help predict output growth, inflation, and interest rates. This paper explains these predictability results by using an affine term structure model with observable macroeconomic factors. The results suggest bond holders are willing to receive lower term premia during higher inflation regimes. This negative correlation causes term spreads to react to inflation shocks, which have persistent effects on the variables and prove useful for prediction. We also find that term spreads using the short end of the yield curve have less predictive power than many other spreads. This is attributed to monetary policy inertia.

Other Articles

"Supply and Demand for Safety Assets and Scarcity Premia on Government Bonds" (with Takeshi Kimura, Toshifumi Nakamura, and Hikaru Hasebe), Bank of Japan Review 2012-J-1, 2012 (in Japanese)

Investors hold government bonds issued by major advanced countries, not only because they are safe but also because they provide benefits such as securing liquidity in case of turmoil and meeting financial regulations. The "scarcity premium" is the reduction in the return which investors are willing to sacrifice for such benefits. The scarcity premium is determined by the balance between supply and demand for safety assets including government bonds. Demand for safety assets from emerging countries, which experienced currency crises in the 1990s, and from financial institutions in advanced countries, which have coped with regulations, has increased. On the other hand, supply of safety assets has decreased because the creditworthiness of private asset backed securities and government bonds issued by European periphery countries has worsen since the global financial crisis occurred. Under such demand and supply conditions, the scarcity premia on government bonds issued by major countries have widened

in recent years.

"Measuring Potential Growth in Japan: Some Practical Caveats" (with Takuji Fueki, Ichiro Fukunaga, Toshitaka Sekine, and Toyoichiro Shirota), Bank of Japan Review 2010-E-1, 2010

Economists at central banks and in academia have made various efforts to measure potential growth, something that cannot be observed directly. This review introduces some of these estimation techniques and applies them to the Japanese data. The estimates of the potential growth rate can differ considerably, depending on the methods used; all of these estimates are subject to substantial errors; and the reliability of the estimates is severely hampered whenever turbulence is rife in the economy. Although all approaches introduced in this review suggest that the potential growth rate in Japan has recently declined, significant uncertainty remains regarding the magnitude of its fall. Substantial margins of error must be taken into account with any estimates of the potential growth rate.

"Practical Use of Macroeconomic Models at Central Banks" (with Naoko Hara, Satoko Kojima, Koji Nakamura, and Toyoichiro Shirota), Bank of Japan Review 2009-E-1, 2009

Macroeconomic models are effective tools for central banks in economic projection, including risk assessment. In recent years, a multiple-model approach called the "Suite of Models" has become popular with central banks. This approach advocates the use of multiple models for several purposes, including checks of the robustness of projections. This idea has encouraged major central banks to use different types of models. These include hybrid-type models, which pursue short-run empirical coherence and long-run theoretical consistency, and Dynamic Stochastic General Equilibrium (DSGE) models, which place greater emphasis on theory. At the Bank of Japan, a new hybrid-type model named Q-JEM (Quarterly-Japanese Economic Model) has been recently added to the Bank's suite of models. A suite of models is useful for forecasting and for policy analysis. The use of models, however, requires sufficient understanding on the properties and limitations of each model.

"Macro Factors Influencing Credit Spreads" (with Eiko Ooka and Yoichi Ueno), Bank of Japan Review 2007-J-8, 2007 (in Japanese)

We regress corporate bond credit spreads on various possible determinants. We find that government bond yields, interest rate uncertainty, and corporate profits have relatively large effects on credit spreads of bonds with high, intermediate, and low credit ratings, respectively.

"Development of Japan's Credit Markets," BIS Papers Chapters, in: BIS (ed.), ***Developing Corporate Bond Markets in Asia*** **26, 88-95, 2006**

This paper examines the development of the corporate bond market in Japan. Other credit markets (syndicated loans, asset backed securities, yen-denominated foreign debts, and credit derivatives) are also reviewed because they are important for understanding the bond market.