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CITIZENSHIP: Republic of Korea, H1 VISA Holder.

EDUCATION

Ph.D. in Economics

Yale University, New Haven, CT, 2003

Dissertation title: Monetary Policy in Business Cycle Models with Nominal Rigidities

M. Phil in Economics

Yale University, New Haven, CT, 1998

Thesis title: Real Business Cycles and Reality

M.A in Economics

Yale University, New Haven, CT, 1996

B.A. in Economics

Magna Cum Laude, Seoul National University, Republic of Korea

RELEVANT WORK AND RESEARCH EXPERIENCE

Associate Economist

Federal Reserve Bank of Minneapolis, Minneapolis, MN August 2003-present

Financial Analyst

Federal Reserve Bank of Minneapolis, Minneapolis, MN 2001-2003

Researcher

Korea Institute of Finance, Seoul, Korea 1994

PUBLICATIONS AND WORKING PAPERS

(For papers available online, see http://minneapolisfed.org/pubs/bsdpapers/)

1. "Alternative Nominal Anchors: A Welfare Comparison", manuscript submitted to *Journal of Macroeconomics*, September 2003.

   Abstract: This paper compares the performances of three alternative nominal anchors, i.e., price inflation, nominal income growth, and money growth in an estimated monetary business cycle model. The representative household's lifetime utility is used as a natural welfare metric, and the welfare effects of the non-linear dynamics are captured by a quadratic approximate solution method. Strict inflation targeting is a feasible and desirable choice only when the economy has to run high rates of long-run inflation. When the long-run inflation rate is close to zero, strict targeting of the other two anchors yields comparably higher welfare level than a feasible inflation targeting, since the efficiency gains from lower long-run inflation and nominal interest rates outweigh the welfare effects of short-run inflation stabilization.

2. "A note on the comparison of the first-and second order approximation methods to DSGE models", manuscript, September 2003.

   Abstract: This note compares two solution methods for dynamic rational expectation models: the conventional first-order approximate solution method (i.e., log-linearization around deterministic steady state) and a second-order approximate solution method by Sims (2000). I solve and simulate a full-pledged monetary business cycle model and compare the accuracy of simulations by checking the martingale difference properties of the simulated endogenous expectation errors under alternative solution methods. I also examine whether the welfare ranking of three fixed targeting rules (i.e., inflation targeting, money growth targeting, and nominal income growth targeting) for monetary policy is invariant to the order of approximation. The results suggest that the accuracy gains from higher order of approximation are considerable, and the welfare ranking is *not* invariant to the solution methods. These findings cast doubt on the welfare analysis derived from a model solved by linearization methods.

3. "Welfare Evaluation of Monetary Policy Rules in a Model with Nominal Rigidities", under revision for resubmission to *European Economic Review.*

   Abstract: This paper examines the welfare implications of alternative monetary policy rules in a monetary business cycle model with nominal rigidities. The expected present discount utility of a representative household is used as the performance metric, and the welfare effects of the non-linear dynamics of the model are captured by the quadratic approximation method by Sims (2000). When the monetary authority aims at fixed paths of nominal variables, rules for fixed nominal income and money growth outperform fixed inflation rule. The former two rules in turn rank below variants of Taylor rules, under which the implicit target variables are adjusted gradually. The comparison of alternative rules also reveals that long run deflationary rules increase welfare. The welfare maximizing

rule among a class of Taylor-style rules is characterized by i) super-inertial adjustments in interest rate; ii) strong short run anti-inflationary stance coupled with long run deflation, and iii) increasing nominal interest rates (i.e., leaning against the wind) in response to higher real output in both growth rates and levels.

4. "Are Banking Supervisory Data Useful for Macroeconomic Forecasts?" jointly with Ron J. Feldman, Preston J. Miller, and Jason E. Schmidt**,** *Contributions to Macroeconomics,* Vol. 3: No. 1, Article 3, 2003.

   Abstract: Some argue that central banks can improve monetary policy by including confidential supervisory assessments of banking organizations in their forecasts of inflation and unemployment. In this study we examine the extent to which forecasts of these variables would have been improved with the inclusion of supervisory data. We begin by reproducing the earlier results used to support the claim. We critically examine them and extend the analysis from in-sample to out-of-sample testing. Finally, we check the robustness of our findings by extending the analysis period, using a different methodology to determine the contribution to forecasts, and substituting a different measure of supervisory information. Our analysis does not support claims that confidential supervisory information would have improved forecasts of inflation. Confidential supervisory information improved forecasts of unemployment in some periods. It is unclear, however, if the frequency or level of improvement would have altered monetary policy in a nontrivial way.

5. "Estimating and Forecasting Capital Gains With Quarterly Models", jointly with Preston J. Miller and Larry Ozanne, prepared for *Congressional Budget Office Technical Paper Series,* March 2003.

   Abstarct: At the end of each year, the Congressional Budget Office (CBO) estimates capital gains for the year ending and forecasts them for the next decade. The decade forecast is made using CBO's forecast of GDP and an assumption that gains revert from their current size to their historical size relative to GDP. Our objective in this paper is to improve on CBO's forecast method, particularly for the first year ahead.
   We settled on two procedures to forecast gains one year ahead. The first is similar to CBO's method for forecasting gains. It uses an equation to forecast gains given forecasts of economic and financial variables. This procedure requires a prior step to forecast the economic and financial variables. The second procedure integrates the forecasting of gains and other variables into a single model. In this model we found it advantageous to work with quarterly data, so we interpolate the reported annual series on capital gains to a quarterly frequency. In order to get an annual forecast of capital gains we average the forecasts for the four quarters in the year. Forecasting in the prior step of the two-step method and the integrated quarterly method was based on Bayesian-restricted vector autoregressions (BVAR). Both of the procedures abstract from the effects of tax changes on realizations. Aside from the difficulty of forecasting legislative acts, CBO's baseline is required to assume

that current law continues. We abstract from tax changes by constructing a series of capital gains realizations that assumes taxes remained at their 1998 level throughout the 1948-2000 period used for model development. Although we compute errors at all horizons, we base our model comparisons on their root mean squared errors (RMSE) in 1-year-ahead out-of-sample forecasts of tax-adjusted gains over the period 1971-2000. Our application of CBO's mean reversion method found a RMSE of 18.7 percentage points. The two-step forecasting method reduced the RMSE to 14.8 percentage points, and the integrated quarterly method reduced the error to 11.9 percentage points.

Two related findings from our investigation may be useful to CBO. First, the models we developed may help CBO improve its estimates of gains in the year ending. Second, the models may provide some help in forecasting a second year ahead, but after that, either mean reversion or a simple random walk model with drift appears to be as good or better.

6. "Staggered Contracts Models of Business Cycle: How Much Nominal Rigidity Do We Have?" manuscript, 2002.

   Abstract: This paper presents a monetary business cycle model embodying arbitrary degrees of nominal rigidities in goods and labor markets. Nominal rigidities are introduced in the form of staggered contracts. The structural parameters of the model go through formal reconciliation with data series via maximum likelihood estimation. The estimation results stand in favor of wage stickiness, in the sense that i) the average duration of contracts is longer in labor market; and ii) nominal wage rigidities are crucial for the model's performance in fitting actual U.S. data.

7. "Contract Multiplier Revisited: Solving the Persistence Problem in a Model with Staggered Contracts", manuscript, 2000.

   Abstract: In a standard dynamic stochastic general equilibrium model with deterministic price staggering, Chari, Kehoe, and McGrattan (1998) find that staggered price contracts in the spirit of Taylor (1979,1980) cannot generate persistence in real effects of monetary disturbances. This paper reconsiders the ability of staggered contracts to generate persistent effects of monetary disturbances. In a model with price and wage contracts in the spirit of Calvo (1983), I demonstrate that the "contract multiplier" is generated by nominal rigidities in both labor and goods markets. Other features of business cycles, such as the hump-shaped responses of output, real wage acyclicality, and the persistence in inflation rate are also well explained by the model. Calibration exercises and analytical solutions of stripped-down versions of the model suggest that wage stickiness is more effective in generating persistence, since it directly controls the marginal cost of firms and thereby dampens the incentive for firms to raise prices after expansionary monetary shocks. Comparing stochastic and deterministic staggered contracts, I find that the oscillatory responses (hence, no persistence) in output in CKM is due to a counterintuitive nuisance feature of

deterministic staggered price contracts (i.e., the initial overshooting of prices reset after monetary disturbances), and that, free of such nuisance feature, stochastic staggering is in principle capable of generating persistence even if marginal costs are highly procyclical.

RESEARCH IN PROGRESS

a) **Friedman Rule Meets the Zero Bound (**Jointly with Preston Miller).

What inflation rate should FOMC target? One common policy prescription is that it should follow a Friedman Rule; that is, for long-run efficiency, it should seek a rate of deflation equal to the real rate on safe assets in order to make their nominal rate zero. Another prescription is that it should seek a positive rate of inflation to keep the nominal rate on safe assets comfortably above zero, so that monetary policy can stabilize the economy. We quantitatively examine the trade-off around the long-run rate of inflation using an estimated DSGE model in which monetary policy has both efficiency and stability effects. The analysis finds that the efficiency effect dominates: that is, in maximizing the utility of a representative agent, the optimal policy implies a steady-state rate of deflation.

b) **Rethinking the Role of Transportation Costs in the New Open Economy Macroeconomics**.

In a highly simplified model, Obstfeld and Rogoff (2000) show quantitatively plausible resolution arising from costs to trade to the so called six major puzzles in international macroeconomic. I construct a full pledged two-country dynamic model with nominal rigidities and re-examine whether such costs can provide a solution to those puzzles without the expense of introducing new puzzles.

TEACHING INTERESTS

Undergraduate: Macroeconomics, Monetary Economics, Statistics and Data Analysis, Econometrics.

Graduate: Macroeconomics, Econometrics, Time Series Analysis.

AWARDS & HONORS

Dissertation Fellowship, Yale University, 1999.
Graduate Student Fellowship, 1995-1998
University Scholarship for graduate students, Seoul National University, 1993.
Magna cum laude, Seoul National University, February 1990.
University scholarship for the advanced students, Seoul National University, 1988,1989.

Korea Electric Power Company Scholarship, 1989.
Scholarship for distinctive freshmen, Seoul National University, 1986.

TEACHING EXPERIENCE

Teaching Fellow, Advanced Macroeconomics (undergraduate), Yale University, Spring 2001.
Teaching Fellow, Econometrics and Data Analysis (undergraduate), Yale University, Fall 2000.
Teaching Fellow, Intermediate Macroeconomics (undergraduate), Yale University, Spring 2000.
Teaching Fellow, Intermediate Macroeconomics (undergraduate), Yale University, Spring 1999.
Teaching Fellow, Principles of Macroeconomics (undergraduate), Yale University, Fall 1998.
Teaching Fellow, Econometrics and Data Analysis (undergraduate), Yale University, Spring 1998.
Teaching Fellow, Econometrics and Data Analysis (undergraduate), Yale University, Fall 1997.
Teaching Assistant, Econometrics (undergraduate), Seoul National University, 1991.
Teaching Assistant, Economic Forecasting (undergraduate), Seoul National University, 1990.

REFERENCES

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