

MONEY DEMAND FUNCTION IN JAPAN THROUGH COINTEGRATION ANALYSIS

YOSHITAKA SAWADA¹, YOJI MORITA^{2,*} AND SHIGEYOSHI MIYAGAWA²

¹Research Fellow

Kwansei Gakuin University
Uegahara, Nishinomiya, 662-8501, Japan
yoshimitu98em05@kwansei.ac.jp

²Department of Economics
Kyotogakuen University

Sogabe 1-1, Kameoka, 621-8555, Japan

*Corresponding author: morita-y@kyotogakuen.ac.jp; miyagawa@kyotogakuen.ac.jp

Received February 2009; revised August 2009

ABSTRACT. *We analyze a money demand function in long-run equilibrium relation that is defined by a cointegration property among money, gdp and interest rate. A wide sense of money "M₂ + CD" consists of narrowly defined money "M₁" and widely defined one "quasi-money + CD". Previous researchers considered the relationship of (M₁, gdp and call rate), (M₂ + CD, gdp and call rate) and (M₂ + CD, gdp and spread interest rate), where call rate is a representative short-term interest rate and where spread is a difference between long-term interest rate and short-term one. It is obvious that M₁ should be coupled with short-term interest rate and quasi-money + CD with spread interest rate. We showed that in cointegration analysis money demand function of M₂ + CD is represented by GDP and two kinds of interest rates, i.e., short-term interest rate and spread one.*

Keywords: Money demand function, Cointegration, M₂+CD, M₁, Quasi-money+CD, Rival rate, Own rate

1. Introduction. When the central bank wants to do an adequate monetary policy, the stable relationship is necessary among macro economic variables like the real money demand, real income and interest rate. That is, the stable money demand function should be obtained in the form of $M/p = f(y, r)$, where real money demand (M/p) is a function of the real income (y) and the opportunity cost of holding money (r). y is positively related to the money demand, because real income means the transactions and wealth effect. One of the most important aspects of modeling the money demand is the choice of opportunity cost variables. The previous literatures measure the opportunity cost by the difference between return on money (own rate) and returns on alternative assets (rival rate).

One of the famous money demand models was given by Goldfeld (1973) [1], where M_1/p is regressed by regressors of real GNP, short-term interest rate and M_1/p itself with the first lag. Since variables under consideration are nonstationary in many cases, Goldfeld's model was criticized as a spurious regression. Although nonstationary variables are differenced in order to generate a stationary model, Engle and Granger (1987) [2] showed that cointegration property has to be taken into consideration for long-run equilibrium relationship among nonstationary variables. Their model is called "Error Correction Model". However, in their model, a number of cointegrating vector is assumed to be 1. Johansen (1988) [3] and Johansen and Juselius (1990) [4] detected a rank of matrix in order to