

Research Reviews of Stability of Broad Money Demand

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Abstract. In recent decades, the stability of money demand function is on the core position of monetary economics for monetary policies will be very ineffective if the demand of money is unstable. Besides, the steady-state relationship between the determinants and money demand decides whether the monetary policy is successful. This study has reviewed previous researches and the key factors and their relationships with stability of broad money demand are disclosed by theoretical and empirical results.

1. Introduction

In developed countries, financial reforms emerged in the early 1970s and had great influence on money demand equations. It has been argued by Kumar and Webber (2013)[1] that this disproportion in money demand equation affected inflation and the interest rate policies, as well as the output gap's utility in the long term. The rise of competition in financial markets and international capital liquidity's strengthening were attributed to these financial reforms and the extended apply of money alternates for transactions. Economies of scale in money demand across economies may lead to the decrease of the income elasticity, meanwhile, the utilization of market-oriented interest rate policy may rise the interest elasticity's rate in the same period.

The fame of the demand function for real money balances had drop straight down since it was regarded as the mainstay of macroeconomic models in early 1980s and this phenomenon may due to the impact of financial revolution's instability and the deregulation in many countries. It is postulated by Boughton (1990) [2] that as the result of those methods, traditional payment models have transformed and it was not possible to recognize the boundary of money and other liquid assets. Nevertheless, with economists' sustained efforts of discovering the stability on the money demand equations, the co-integration literature has had the high-speed expansion which has increased the feasibility of models with a combination of traditional steady-state equation and a complicated series of dynamics may have considerable stability even over periods of enormous system change (Chowdhury, 1995[3]).

2. Importance of Stability for Money Demand

Due to the understanding of causes and consequences of money demand's stability can be effectively informed the enactment of monetary policy, it has gained great academic concern and an endless stream of empirical studies has been conducted all over the world in the past few decades. The wrong measures will make income unstable and may lead to large undulations in output so the selection of monetary policy instrument is significant. It is argued that the stability of money demand equation offers a dependable and anticipated relationship between changes in total amount of money and changes in variables included in the money demand function which makes it play a critical role in macroeconomic (Deadman and Ghatak, 1981[4]). Furthermore, Poole (1970)[5] supported this view that it is essential for monetary policy instruments choice to make the money demand stable. Specifically, Poole provided when money demand is stable and the relationship of investment-savings is unstable, the money supply should be aimed. While the liquidity preference is unstable, the rate of interest should be aimed by using Investment Savings-Liquidity Money (ISLM) analysis.

3. Previous Research Review

Some doubts of the financial reforms' fulfillment about the use of total amount of money to stabilize inflation rates were raised in many countries. Because of the following innumerable policies of liberalization and deregulation, a lot of developed countries' central banks varied monetary policy's instruments. They chose those policies which have influence on the bank interest rate instead of being away from policies that affect the supply for money. Enormous case studies of advanced nations prove that the money demand instability is a result of financial reforms and then sustain the aiming of the interest rate by central banks (following Caporale & Gil-Alana, 2005[6]; Haug, 2006[7]; Maki & Kitasaka, 2006[8]).

Examination of money demand's stability is critical since supply for money is one of the main tools of monetary policy. Particularly, the money supply is the most proper monetary policy measure when demand for money is stable while interest rate will be the most appropriate instrument activity of monetary policy for central bank when money demand function is not stable. In addition, for Formulating monetary policy, the stability of money and prices is always considered as a condition for the application of monetary aggregates and this kind of stable relation is often examined in a equation of money demand. For examples, in the research by Bekx and Tullio (1989) [9] and Kremers and Lane (1990)[10], there was accumulation of a number of empirical literature on demand for money in Europe. It has high possibility to assess stable money demand models for a number of European countries although these studies have some differences in many ways, such as national coverage, data definitions and econometric methods. Moreover, some recent researches by ECB have the conclusion that it is possible to build broad money demand model in the Europe with a stable equation of prices, GDP and interest rates.

Brunner and Meltzer (1960s), cited in Yin (1985, p.64) [11] found that money demand function was stable in the long term. In the narrow or broad sense of the definition of money, no matter how huge the changes are from the institutional, social and political perspective, money demand function is quite stable. Goldfeld (1974) [12] makes use of the empirical study on the data from WWII to support the conclusion that money demand equation was stable. By the early 1960s, the economics of Keynes basically supported the above conclusions from monetarism. When the stability of money demand function became a well-identified fact, from 1974, money demand function demonstrated severe derivations in the predicted money demand. Take the US for example, in the 1970s. It seemed that the money demand function moved downward, while it was the opposite in the 1980s. During the 30 years from the 1970s to 1990s, the realistic money holding amount obviously deviated from the predictions of the money demand estimation models. In terms of the velocity of circulation, M1 circulation accelerated in the 1970s and reduced in the 1980s, which were not predicted by the models. Goldfeld called the phenomenon that money demand function was unstable as mystery of "missing money", i.e., the predicted money demand according to money demand function largely exceeded the actual money aggregates held by the public. The fact proposes severe challenges on how the monetary policy operates and the effects of price estimation on economy. For this reason, the academic field makes a lot of relevant studies.

Until now, the study on money demand function is still hot in the academic field. In particular, the studies on money demand functions in developed countries occupy a very important position. In terms of theoretical studies, Baumol (1952) [13] and Tobin (1956)[14] start from the trading motivation of money and conclude the principle of square root of average money holding. Different from money holding motivation theory proposed by Keynes, Friedman (1956) [15] delves into money demands function from the perspective of opportunistic trading cost. He drew another expression of the quantity theory of money. However, he overlooked the effects of uncertain factors on money demand equation. Tobin (1958)[16] considers the motivation of currency speculation and concluded in the asset portfolio theory: Suppose that the efficacy is maximized, investors will allocate the investment between currency and risk asset according to the allocation function of efficacy function, total quantity of wealth and earning rate of risk asset. Miller and Orr (1966) [17] analyzes the optimal average cash holding amount under the condition of random changes of cash flow. Ando and Shell

(1975) [18] completes Friedman's study, they explored into the relationship between average holding amount and trading cost under the condition of uncertainty of cost. They concluded that money demands were not affected by the total quantity of wealth, earning rate of risk asset and expected price. Carr and Darby (1981) [19] also considers the effects of external shocks on money demands in their study. They summarized that when the money holder conducted asset portfolio, the unexpected change of quantity of money merely affected the fluctuation of price, but exerted no or little effect on other variables because the short-term changes of actual money balance could absorb the effects, i.e., the money balance served as shock absorber or buffer. Milbourne (1983) [20] focuses on the preventive demands of money and the uncertainty decides the increase of preventive money demands. The study also concludes that the income elasticity of money demands might be positive or negative. Take the subject with economic richness as an example, the money demands might reduce on the contrary after the increase of income because they transforms more currency to investment, i.e., the money is re-allocated between currency and risk assets.

In terms of empirical analysis, most scholars adopted co-integration and error correction mode. In the formula of short-term demand for money functions, Feige (1967) [21] introduces lagging factors. The adaptive expectations of economic subjects on income decides whether lagging factors could appear as explanatory variables. Moreover, he also put forward that the formula of long-run money demand equation should involve the expectations on income and interest rate (adaptive expectations) instead of the actual aggregate. Hendry (1980) [22] elaborates on Britain's money demand and adds long-run factors in the error correction model. His research results showed that because of the frequent fluctuations of income and the gap between demands on spot money and long-term balanced money, economic subjects often adjust the currency balance. Fair (1987)[23] studies the money demands in countries of OECD (Organization for Economic Co-operation and Development), such as Canada, Japan and so on and the empirical results show that except Germany, other countries' money demand functions are characterized with intensive instability like the US. In addition, the elasticity of the money demand functions in the countries and "average" long-term income elasticity were also close to those in the US. Engle and Granger (1987) [24] introduced co-integration test and the results of the research indicate that nominal GDP and M2 had a co-integration relation while absence of co-integration relationship between the M1 and M3. But Granger's research involves only a limited macroeconomic variables such as nominal GDP, so the study on the co-integration between the macro economic variables and financial variables are a little in lack of persuasive power. Hsfter and Kutan (1994), cited in Zhang (2011, p. 4) [25] adopts error correction model, selected the data from 1952 to 1988, and tested China's money demand function. Their results imply that money demand had co-integration relation with actual national income, one-year fixed-term deposit's interest rate and expected inflation rate.

At the same time, some scholars also set up partial adjustment model in the studies. Goldfeld (1976) [26] selects the quarterly data in the US from 1952 to 1986, sets up partial adjustment model, and conducts empirical analysis of money demand functions. Empirical analysis showed that the money demand function of the US was not continuous in the interval. However, the structure of money demand changed a lot after 1974. Thornton (1982) [27] applies maximum likelihood method in the study, proving that Goldfeld's partial adjustment mechanism was effective. Additionally, it was found that after adaptive expectation of interest rate and income was introduced, the previously slow adjustment of actual money balance accelerated. On the basis, Hwang (1985) applies quadratic cost function to simplify partial adjustment model but there are still two points not certain yet. First, when the parameter was not certain, nominal adjustment mechanism could not be compared with actual adjustment mechanism to see which one was better. Second, it could not be confirmed whether inflation affected the actual money balance demands.

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