



# ‘Home’ Base and Monetary Base Rules: Elementary Evidence from the 1980s and 1990s

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This paper evaluates the quantitative importance of removing U.S. currency held abroad from the monetary base. We find that a simple macroeconomic model that uses home base has more explanatory power for changes in nominal income than when the total base is used. Moreover, proposed base rules for the conduct of monetary policy perform better when the model for home base is employed. The evidence from our elementary exercises suggests that accounting for foreign holdings of U.S. currency may be important in other contexts also. © 2000 Elsevier Science Inc.

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## I. Introduction

This paper evaluates the quantitative importance of removing the stock of U.S. currency held abroad from the monetary base. Porter and Judson (1996) reported that more than 50 percent of measured currency in circulation outside banks in 1995 was held abroad. The foreign stock corresponds to the net annual flows calculated by Porter and Judson from 1977 through 1995. Subtracting the accumulated net foreign flows from total currency outstanding yields the domestic currency stock. When combined with total reserves, the domestic currency stock defines a monetary aggregate we refer to as the domestic monetary base or “home base” for short.

There are several reasons why studying foreign currency flows may be important. First, these flows can distort the relationship between narrow monetary aggregates and domestic economic activity. Such distortions could have particularly grievous consequences for the

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conduct of monetary policy. Second, the destination of these flows reveals the source countries of U.S. seigniorage revenue.<sup>1</sup> And third, potential areas of monetary instability outside of the United States can be identified by tracking these flows.

Issues relating to the first of these reasons are the focus of this paper. Friedman (1960) argues that a constant growth rate rule for a narrow monetary aggregate would, in the long run, provide the greatest degree of price stability. His analysis presumes that relatively stable relationships between the base, broader monetary aggregates, and nominal income exist. These presumptions have come under considerable scrutiny as a result of the financial innovations, regulatory reforms, and now apparent foreign currency flows of the last two decades. The apparent breakdown of stable relationships between traditional monetary aggregates and output (nominal or real) has led to a de-emphasis of the aggregates in the conduct of monetary policy.<sup>2</sup> McCallum (1993) updates the case for base rules in the conduct of monetary policy by proposing a more flexible rule than Friedman's for base growth. His rule would gradually adjust base growth for changes in base velocity and allow feedback from deviations of the level of nominal income from a prescribed target path. In subsequent work, McCallum (1995) examined the robustness of his rule to variations in the econometric model of the economy.

Our interest, however, is in quantitative differences that are attributable to differences in base measures. Therefore, we employ a single elementary macroeconomic model. Its specification is that of McCallum (1987, 1988a). The model is used to examine (1) the implications for the path of nominal income of base rules using the home and total bases; (2) which base measure provides more consistent subsample performance; and (3) the information content of the levels relationship between the respective base measures and nominal income. Outstanding questions are Does "correcting" the monetary base for foreign holdings of U.S. currency matter for its relationship with income? and If so, how much does it matter? Our results provide initial answers to these questions. Significant differences in quantitative results across base measures would suggest that differentiating between home and total narrow money measures may be important in other contexts also.

The remainder of the paper is organized as follows. Section II contrasts home base and the total base. A replication of McCallum's (1987) concrete example using home base and total base over the complete sample for which both variables exist (1977 through 1995) is conducted in Section III. The breakdown of the macroeconomic model in the 1984 through 1995 subperiod is documented in this section also. Section IV shows that a slight modification of the model that incorporates readily available levels information rehabilitates the model. The rehabilitation is particularly robust for measures of home base. Section V concludes.

## II. 'Home' and Total Bases

The basic data used in this study are nominal total monetary base, nominal foreign holdings of U.S. currency, and nominal GDP. The data are quarterly spanning from

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<sup>1</sup> Jefferson (1998), for example, documents that the rest of the world has contributed a larger percentage of U.S. seigniorage revenue than domestic residents in recent years.

<sup>2</sup> Interest in the use of rules in the conduct of monetary policy, however, remains high. Proposals by Taylor (1993) and Hall and Mankiw (1994), for example, have received considerable attention.

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