

The role of foreign exchange markets and policy reforms in the economy.

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Abstract

Foreign exchange market is very important. In emerging market economies, under-development of financial markets leads to goods hoarding and foreign currency accumulation as forms of investment. In this paper, an asset market model, supplemented by explicit treatment of smuggling and second-economy activity, is used for studying the paths of black-market exchange rates, second-economy prices, hoarding stocks, and privately held dollar balances following policy reforms. We discuss conditions for overshooting and related dynamics of exchange rates and prices following: official exchange-rate adjustments, price reforms, and altered risks of monetary confiscation or currency reforms.

The Foreign Currency Exchange Services industry was aided over the five years to 2018 by continued growth in international trade and travel. Downstream corporate clients rely on industry operators for business-to-business payment services, while downstream individuals generally use credit and debit card processing services and currency exchange offerings. Moreover, technological change, in the form of improved debit card offerings and mobile apps, have made industry services more convenient. Most industry operators are small in size and handle a correspondingly small number of transactions. Annual gross foreign currency exchange transactions exceed $500,000 for a small minority of industry operators. However, there are a few large players that operate in the industry, including Travelex Group, which has locations throughout the United States. Over the five years to 2023, the factors that affect downstream demand levels, including trade and travel, are anticipated to continue improving during the five-year period.

Keywords: Black Markets, Exchange Rate, Hoarding, Overshooting etc.

Introduction

In emerging markets and some developing economies, restrictions still hamper free-market transactions in some goods and financial assets. Financial markets remain under-developed and few investment assets and outlets for savings are available to individuals. The existence of pervasive shortages, rigidities, and the vestiges of central planning and controlled prices, lead second-economy or black-market production structures to operate in tandem with secondary markets for fully-convertible foreign currencies. In this context, characterized by a paucity of financial instruments and uncertainty regarding future consumption-goods availability, one form of investment and intertemporal transfer of wealth has been through purchases of storable consumption goods. In the present paper, these features of the transition economy are shown to bear upon the dynamic effects of various policy initiatives, such as official price reforms, official exchange rate devaluations, and monetary reforms. With

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investment opportunities available to the consumer/ investor consisting of hoarded goods, accumulated hard currency, and domestic-currency savings, we trace the dynamics of adjustment of the stocks and prices of domestic currency assets and foreign exchange. An explicit treatment of overshooting is provided. These dynamics of exchange rates and prices depend on events in both financial and goods markets. An important implication is that demand for second-economy goods arises from both investment and consumption motives, rather than purely from consumption motives. Thus, a broader range of reform initiatives have significantly richer effects on exchange rates and prices than those predicted by more conventional approaches. Moreover, we highlight a role for hoarding activity beyond that typically cited as important in discussions of policy credibility and "big bang" approaches to reform during transition [van Wijnbergen (1992)]. The key theoretical contribution of the present paper arises from the simultaneous treatment of exchange rate *and* price dynamics, coupled with an explicit treatment of smuggling activities. While the methodology and dynamic treatment of the problem per se are not novel, the specific application is: its solution provides useful insights for transition and developing economies. By explicitly studying the likelihood of overshooting of exchange rates and prices, we provide insights into the observed pattern of relatively high volatility of nominal and real exchange rates in emerging markets. Our results support criticisms of the use of black market exchange rates as a guide to equilibrium fixed exchange rates in transition economies. Both real and nominal black market exchange rates can overshoot in response to goods market events, in addition to overshooting in response to actual or pending foreign exchange market reforms.

The theory that we present complements two other important approaches to modeling exchange rate and price dynamics. First, we contribute to the theory of black-market exchange rates. This prior literature was motivated mainly by the experiences of Latin American economies, wherein black-market currency demands are treated as arising from "portfolio" motives: changes in the risk, return and stocks of various financial assets drive the currency price. Recent applications include Pinto's (1991) analysis of the fiscal ramifications of unification of black and official market exchange rates, and Lane's (1992) study of Polish household behavior in money markets during the 1980s.

However, when there are underdeveloped financial and goods markets the theory requires modification. Useful steps in this direction are taken by Calvo and Frenkel (1991) in their analysis of the implications of financial market reforms, and by Agenor and Flood (1992) and Goldberg (1995) in their analyses of exchange rate unification. However, unlike the present paper, all of these papers maintain the assumption of distinct dynamics in foreign exchange and goods markets.

Finally, our analysis provides insights into the meaning of "monetary overhang". According to the traditional view for socialist and in emerging market economies, money holdings are, in part, involuntary. Instead, we maintain that, in an environment with under underdeveloped financial markets, money balances are held as part of an optimizing decision by households. Therein, individuals take into account the variances

and covariances among the returns on alternative savings vehicles, in addition to considering the pure expected values of these returns. In this treatment, the risk-adjusted returns on money may not be dominated by those adjusted returns on alternative investment assets. The theoretically "optimal" demand for money balances are distinct from those generated by current transactions motives and are not related exclusively to set-asides for stochastic future consumption opportunities.

The organization of the paper is as follows. First, Section II develops the model of the black-market for foreign exchange and hoarding of real goods. Section III analyzes the adjustment paths of black-market exchange rates, second-economy goods prices, dollar balances in private portfolios, and hoarding stocks, in response to a set of announced and unanticipated policy initiatives. Section IV concludes.

II. The Model: Black Markets for Foreign Currencies and Goods Hoarding

Two aspects of the demand and supply for (black) foreign exchange and for second- economy consumer goods are modeled. The first aspect is derived from "financial" or investment motives for holding foreign currency and hoarding goods, and is subsumed under the heading of "portfolio" or speculative currency-demands. The second aspect is related to current consumption needs and is subsumed under the heading of transaction demands with smuggling.

A. Portfolio Demands in the Black Market.Nominl effective exchange rate.

The consumer/investor chooses an optimal division of his wealth among domestic savings, foreign savings, and hoarding of goods. The investment assets have some trend rates of return, and each of these returns have a stochastic element (represented by a Brownian- motion diffusion term). Given the choices available to consumer, we derive their optimal portfolio allocations, and later use these mean /variance computations to motivate a more general asset market model. Specific formulas resulting from the portfolio problem are meant to be suggestive, since asset prices may not precisely follow the Brownian motion processes as specified in our derivations.

Domestic savings, denoted by *B*, have an expected nominal return of i_b equal to the

interest paid on domestic-currency savings deposits.

Example of such events abound in emerging market economies, and include: the treatment of savings by East German households savings in the process of German unification; the January 1991 Russian invalidation of cash holdings outside of the savings accounts; and the July 1992 Russian announcement that ruble notes issued prior to 1993 were to be invalidated.

The notion of the nominal effective exchange rate was initially developed by Hirsch and Higgins (1970) with the concept of nominal (weighted) effective exchange rate for a given currency. The latter was assumed to represent the total (evolving) relationship between the actual value of the currency expressed in terms of a

numeraire and the aggregate value of a relevant composite of currencies expressed in terms of the same numeraire. As such, the index was deemed to "illustrate one particular influence—that emanating from exchange rate changes—on international competitiveness" (Hirsch and Higgins (1970), p. 458). The latter concept and its measurement were subsequently spelled out by Artus and Rhomberg (1973), Thakur (1975), and Rhomberg (1976). In particular, they stressed the necessity for a link to be established between the policy question that the index is expected to answer and the weighting system to be appropriately used in the index. In this respect, Rhomberg (1976, p. 88) pointed out that even if the economic meaning of the selected indices is sufficiently clear, the calculated values could differ with regard to the base period used, the partner countries (or competitors) included, the calculation of proportionate changes in exchange rates, the weights used in averaging these changes, and the type of averaging formula employed.

Conclusion

The use of effective exchange rate indices started with nominal indices but was subsequently expanded to include real indices. In their most standard formulation, such indices are nominal effective exchange rate indices "deflated" by (or adjusted for) corresponding indices of relative prices. The use of the real indices started with the perception that much of the variation in the nominal indices was due to inflation differentials between countries. This latter concern was taken into account by deflating the nominal index by an index depicting relative inflation rates. Specifically, the price effects on the exchange rate movements indicated by the nominal index were removed, and it was assumed that the resulting "real" counterpart would adequately measure the "real effects" of exchange rate changes on real phenomena, for example, the trade balance.

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