

## *IS THE VIRUS OF INTERNATIONAL MACROECONOMIC INTERVENTIONISM INFECTIOUS? AN ABCT ANALYSIS*

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*ABSTRACT:* According to Austrian business cycle theory (ABCT), there is no macroeconomic market failure. Under laissez faire capitalism, with extremely limited or no government, there will be no credit-induced business cycles. However, suppose one part of the world engages in credit expansion, which, according to ABCT *creates* the business cycle, while another does not. Will the former infect the latter? Or will the latter be impervious to the governmental depredations of the former? We take the position that although the free market society will not remain impervious to the government failure of the interventionists, it will be sheltered from the full impact of the boom-bust cycle. Do the residual malinvestments constitute a market failure? After all, a free market, in

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this case, is indeed “failing” to bring about the greatest satisfaction of consumer preferences. We deny this claim.

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Even though various countries have “independent” monetary systems... inflation taking place in any one nation may have—and often does have—repercussions which go beyond that country’s confines.... Thus, even in the absence of an international monetary system, important economic units can transmit the “virus” of inflation to other countries (Heilperin, 1939, p. 164).

## I. INTRODUCTION

Austrian economists often advocate a free market monetary system—one that operates without credit expansion or monetary inflation. Such a system is advocated because it would provide greater economic stability, as it would eliminate the Mises-Hayek-style credit-induced business cycle. At the same time, it is admittedly unlikely that one could expect the entire world to immediately change from the current fiat, expansionary monetary system to free market money. So, given that most of the world operates on a fiat basis, could a single country protect itself from credit-induced business cycles by adopting a free market money and banking system? Or, would the existence of credit-induced business cycles in the rest of the world continue to have an impact on a country that adopted a free market regime? This paper suggests that credit-induced business cycles would indeed transmit to a country with a free market monetary system, but that the misallocative effects of these business cycles from abroad would be significantly dampened. In short: the adoption of a free market money in a fiat money world is beneficial, even if it does not completely insulate the country that adopts this system from credit-induced business cycles originating elsewhere.

This paper draws from two existing literatures. First, from the literature on international business cycle transmission. Second, we base our analysis on Austrian business cycle theory, which

place a strong emphasis on credit-driven distortions in the capital structure and economic calculation.

An extensive literature exists on how business cycles transmit across political boundaries—going at least as far back as the specie-flow mechanism described by David Hume in the 18<sup>th</sup> century. In examining the transmission of monetary disturbances, neoclassical literature has adopted an expenditure-flow approach in which real production is asserted to move in lockstep with movements in aggregate demand. Within this framework, Frederic Mishkin (1995) summarizes four so-called channels of transmission from monetary disturbances to real production: via interest rates, foreign exchange, asset prices, and credit.

We combine these four channels with Austrian business cycle theory, with its emphases on the capital structure and economic calculation. Following the work pioneered by Carl Menger and Eugen von Böhm-Bawerk, we depict production as a capital structure and changes in production as driven by the profit and loss calculations of entrepreneurs.<sup>1</sup> Specifically, we postulate a conjectural case of a worldwide division of labor and capital structure constructed, maintained, and improved by entrepreneurs operating private enterprises within an international market economy. This construction permits us to explore the particular manner in which resources will be reallocated and the capital structure altered across the world economy by monetary disturbances arising in one geographical area and transmitted to another.

Neoclassical attempts to overcome the confining character of the basic Keynesian model have been limited to modifications of minor assumptions of the framework, instead of augmenting the expenditure-flow model with the microeconomics of production and investment in the market. By introducing elements of complexity in the basic model, neoclassical economists have sought to generate more robust explanations and predictions. The neoclassical synthesis of the 1950s developed the IS-LM model which grafted onto the basic Keynesian framework limited

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<sup>1</sup> Capital structure analysis appears in Carl Menger (1976), Eugen von Böhm-Bawerk (1959), Richard Strigl (2000), F. A. Hayek (2008), Ludwig von Mises (1998), Murray Rothbard (2004), Ludwig Lachmann (1978), Roger Garrison (2001), and Jesús Huerta de Soto (2006).

behavioral assumptions. Within the context of the neoclassical synthesis, Robert Mundell developed his work on the international economy. Mundell (1963) and Marcus Fleming (1962) launched open economy macroeconomics by extending a basic Keynesian macroeconomic model to include international trade. In keeping with its Keynesian framework, the dynamics of the system operate through expenditure flows, which now include net exports along with consumption, investment, and government spending. While such models incorporate the exchange rate along with the interest rate as explanatory factors affecting real production, they still exclude the array of prices of consumer and producer goods and the structure of production. As neoclassical macroeconomics worked toward the new neoclassical synthesis, the extended behavioral assumptions generated more complex macroeconomic models.<sup>2</sup> The New Open Economy Macroeconomics (NOEM) began with the work of Obstfeld and Rogoff (1995) who modified the more complex, closed-economy Keynesian models of that period. More recently, the dynamic stochastic general equilibrium models widely used in macroeconomics have become the basis for NOEM. Despite their greater sophistication, NOEM models incorporate neither the interrelated array of prices throughout the economy nor its integrated structure of production. Mainstream economists tend to continue to use their models to analyze the same problems of system dynamics and the consequences of policy variations among countries. We find this approach inadequate for the discovery of the cause-and-effect structure of a changing international economy.

Meanwhile, Austrian macro-theorists have generally considered business cycles within a domestic context. In recent years, several economists working in the Austrian tradition have sought to move the Austrian business cycle into an international context. As a few recent examples: Hoffman and Schnabl (2011) consider the impacts of credit expansion in large “center” economies on smaller “periphery” economies. Cachanosky (2014) extends the Mises-Hayek theory from the original context of the classical gold standard to a world of open economies and fiat currencies, considering both fixed and floating exchange rates in that context.

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<sup>2</sup> On the new neoclassical synthesis, see Goodfriend and King (1997).

Bilo (2018) places credit-driven business cycles in an international framework, focusing on the coordinating roles of interest rates and exchange rates.

These analyses provide important insights into how Austrian business cycles transmit in the current monetary regime, and, in that way, provide an update to, and expansion of, the work of Mises and Hayek. Our paper builds on the recent literature in three ways: first, drawing from Mishkin (1995), we introduce additional potential channels of transmission to the Austrian analysis. Hoffman and Schnabl (2011) focus primarily on the interest rate channel. Cachanosky (2014) adds exchange rates to the analysis, and Bilo (2018) also focuses on these two channels. We add the asset price channel and credit channel as well. Second, we are explicitly considering a case where one country is operating on a fiat basis while the other is operating on a market-chosen monetary system. Hoffman and Schnabl (2011) and Bilo (2018) do not take a stand on the monetary systems in the countries not currently engaging in credit expansion. In contrast, Hayek (1989) analyzed international aspects of three possible monetary regimes, but assumed that each country adopted a similar policy (commodity, national reserve, or fiat). Similarly, Cachanosky (2014) is quite explicit that the analysis in that paper applies to fiat currencies. Third, we introduce the role of economic calculation, which receives no explicit attention in any of the recent work (though economic calculation certainly underlies the coordination failures described by Bilo (2018)).

In the present paper, we explore a conjectural case not found in the literature, which we call a dichotomous monetary regime. The extant literature postulates a homogeneous monetary regime across the international economy, e.g., fiat money produced by the state in each country. We postulate an international economy consisting of a *laissez-faire* monetary regime in one area and fiat money in the other. This arrangement permits us to develop a complementary conclusion to the one reached by Hayek. He (1989, p. 4ff) began his analysis, conceptually, with an international commodity money and showed that moving toward a monetary nationalism of fiat currencies generated more monetary volatility, a result counter to the claims of proponents of monetary nationalism. Our analysis, in contrast, demonstrates that the process of beginning with an international system of fiat currencies moving toward

monetary decentralization based on a commodity standard leads to superior results for the countries adopting the latter. In the period of transition, a dichotomous monetary regime exists, one sector with market money and the other with a state monetary system. Nor is this case interesting only theoretically; it also has relevance for international monetary reform movements toward a pure market economy. It demonstrates that even unilateral adoption of a commodity money standard in a world economy with fiat currencies will, at least partially, insulate a commodity money country from the effects of monetary inflation and credit expansion arising in the rest of the world.

In section II, we describe the channels of transmission. In section III, we report on the two dimensions of the international structure of capital. In section IV, we review F. A. Hayek's work on the transmission of monetary disturbances in uniform, international monetary regimes. Section V stipulates the conditions for our analysis and draws the implications from these stipulated conditions. In section VI, we assess the claim of market failure in the *laissez-faire* sector of the orthogonal monetary regime international economy. We state our conclusions in section VII, along with suggestions for further research.

## II. CHANNELS OF TRANSMISSION

Mishkin (1995) provides a summary of four channels through which business cycles can transmit internationally from one country to another as a result of expansionary monetary policy, within an expenditure flow framework.

First, the interest rate channel transmits the effects of monetary inflation by lowering interest rates, which increases investment spending, resulting in a stimulus to production. The interest rate channel can operate internationally through capital-funding arbitrage. If monetary inflation in country B pushes down interest rates in B, then some of the additional credit will be arbitrated via international financial markets into country A, reducing interest rates and increasing investment spending there also. Hoffman and Schnabl (2011), Cachanosky (2014), and Bilo (2018) provide similar arguments, and apply this channel to Austrian business cycle theory.

Second, the exchange rate channel operates as monetary inflation in country B devalues B's currency relative to that of country A. *Ceteris paribus*, net exports in B rise, stimulating production in B, and in country A net exports decline, suppressing production in A. Cachanosky (2014), and Bilo (2018) apply this argument to the heterogeneous view of capital present in Austrian capital theory.

Third, the asset price channel works via a wealth effect. Monetary inflation in country B increases asset prices in B as interest rates are lowered. Investment and consumption expenditures in country B increase in response and production is stimulated. With world-wide asset markets and international financial markets, the same sequence of effects will occur in country A from monetary inflation in country B. In country A, we can explain the asset price effect on two bases: first, the interest rate effect described above leads country A's interest rates to fall as country B's do, which raises the present discounted value of assets paying future cash flows. In addition to this, the wealth effect in B leads some market participants in B to purchase consumer goods, capital goods, and financial assets in A. So, this international arbitrage simultaneously affects interest rates and asset prices. Thanks to the increased value of domestic assets, people in country B will also increase their investment and consumption expenditures.

Fourth, the credit channel transmits the effects of monetary inflation in country B through a rise in bank reserves and consequently bank lending in B. The additional credit finances more investment and consumption which, in turn, stimulates production in country B. With an international system of banking, the central bank purchase of securities in B can expand bank reserves not only in B but also in A, leading to more investment and consumption in A with the concomitant increase in production in country A. This channel works in concert with the interest rate channel, amplifying the effects. The interest rate channel focuses on the direct impacts of the interest rate on investment decisions, while the credit channel focuses on the impacts of the availability of credit. When monetary policy is expanding credit, both effects typically happen hand-in-hand.

### III. INTERNATIONAL CAPITAL STRUCTURE

In contrast to other business cycle theories, Austrian business cycle theory placed the capital structure (as described by Menger [1976]

and Böhm-Bawerk [1959]) at the very center of the analysis. Böhm-Bawerk's framework has been further expanded by later Austrians, especially Hayek (1966), Rothbard (2004), and Garrison (2001). Garrison (2001) suggests that Austrian business cycle theory can be thought of as the "capital-based" explanation for the business cycle.

In the Austrian view, capital is best thought of as concrete capital goods that are somewhat specific in their use in the structure of production. Unlike most other theories, which either omit capital almost entirely or which simplify capital to a single homogeneous variable,<sup>3</sup> in the Austrian tradition, capital is thought of as being arranged based on its relationship to its ultimate purpose: transforming the original factors of labor and land into specific, final consumer goods.

The international capital structure brings together two different dimensions in terms of which entrepreneurs must economize: time and space. Each is open to mal-investments, and may potentially be affected by monetary policy.

First, capital has a time dimension. All action is geared toward the future fulfillment of some want—or "consumption." However, immediate want-fulfillment is typically not possible using only the original factors of production, or is less productive of satisfaction than somewhat delayed round-about methods of want-fulfillment. We can arrange capital based on how far removed from consumption it is. Consumption goods (or goods of the "first order") are directly useful in satisfying human wants. Capital goods require some period of time—typically because of the need for some physical transformation—before they will be capable of satisfying a direct want. (As an example of the simplest case: wine must have time to age for it to attain the greatest value for consumers.) Capital goods then can be divided between lower order capital goods—which are closer to consumption and higher order capital goods—which are further removed from consumption. For example: finished products in transit to retail outlets are very low order capital goods. Raw, unprocessed iron still in the ground is a higher order capital good.<sup>4</sup>

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<sup>3</sup> All too often perfunctorily depicted as "k" and then almost ignored.

<sup>4</sup> Garrison, 2001 speaks of earlier (higher) and later (lower) capital goods; Barnett and Block, 2006, in terms of interest elasticities.



Second, capital is arranged in space. Resources and consumers are not evenly distributed across the terrain, and so capital tends to be geographically concentrated based on ensuring access to resources by consumers. While we are not particularly interested in the spatial allocation of capital in and of itself, we are concerned with the fact that spatial allocation leads capital to be placed in different currency areas. Because of the spatial distance that often separates resources and consumers (as well as complementary capital goods!), inter-regional trade is quite common—and, at times, the regions involved are located in countries that use different currencies. The spatial dimension can also carry with it a financial component. Investors are generally not constrained to only invest in local capital. Rather, through the use of financial assets like stocks, investors can invest in physical capital in a country that uses a different currency than their own. So, while physical capital is more location-bound, the ownership of that physical capital is typically not.

When making investments, entrepreneurs consider these two dimensions of time and space. As in all profit-oriented decision-making, businessmen engage in economic calculation to determine the best temporal and spatial location of capital investments. In their calculations, entrepreneurs will consider the interest rate—which impacts their decisions regarding the time axis, and will also consider currency exchange rates (and especially expected changes in those rates)—which will impact their decisions regarding in which country to locate physical capital or in which nation to invest in financial assets. Since monetary policy can affect both interest and exchange rates, it has the potential to alter entrepreneurs' economic calculations—and therefore decisions—along both the time and space dimensions.<sup>5</sup>

#### IV. UNIFORM INTERNATIONAL MONETARY REGIMES

In his book, *Monetary Nationalism and International Stability*, Hayek (1989) compared and contrasted the inter-connectedness of

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<sup>5</sup> The Austrian business cycle literature—from Mises (1953) through de Soto (2006)—has emphasized the role of interest rates on the time dimension. The new international Austrian business cycle literature has added a consideration of exchange rates, as seen in Cachanosky (2014) and Bilo (2018).

the economies in various countries under three different monetary regimes: a homogeneous commodity standard; a national reserve system (e.g., the classical gold standard); and independent national currencies (e.g., fiat monies during the decade before the Bretton Woods system).<sup>6</sup>

In a Homogeneous Commodity Standard, there are no monetary disturbances. Neither monetary inflation (deflation) nor credit expansion (contraction) is possible. Instead, the production of money is regulated by profit and loss in the same manner as that of any other good. If demand for money increased (decreased) relative to other goods, then the revenue of money production would rise (fall) relative to its costs of production. In response, entrepreneurs would expand (contract) production of money which would lower (raise) the price of their output and raise (lower) the price of their inputs eventually making even further expansion (contraction) of output unprofitable. Increased (decreased) production of money would be balanced by diminished (augmented) production of other goods. Moreover, the calculation of profit and loss for every item in every location would be in the same monetary unit, allowing entrepreneurs to make direct, worldwide comparisons to determine the most economizing use of resources. Likewise, entrepreneurs would be able to directly compare their appraisements of assets in different lines of investment across the entire worldwide capital structure. All production and investment decisions would survive only by passing the market tests of economic calculation. The result of free enterprise and free trade within such a monetary regime would be the greatest degree of satisfaction of consumer preferences via the most extensive development of the division of labor and of capital accumulation. Goods, including money, would move across borders from territories in which they had lower value into those in which they had higher value.

<sup>6</sup> Milton Friedman (1953) also examines three international monetary regimes: fixed, flexible, and pegged exchange rates. The first corresponds to Hayek's National Reserve System and the second to his National Fiat Monies (with Independent National Currencies). Hayek does not consider Friedman's third case of pegged exchange rates, the prominent example of which, Bretton Woods, occurred after Hayek's book was published. The case Hayek favored, a Homogenous Commodity Standard, is conspicuously absent from Friedman's analysis.

In a Homogeneous Commodity Standard, Hayek (1989, pp. 17–25) showed that the movement of money from one country to another would occur in response to differences in money demand. As would be the case for any good, entrepreneurs earn profit by moving money from the hands of those who value it less and into the hands of those who value it more. Far from disruptive of production processes, such movements of money, as with any other good, adjust the supply that has been produced to accommodate people's preferences. Trade, then, augments the division of labor, increasing the efficiency with which resources satisfy people's preferences. In this system, international trade is similar to domestic trade. In the latter, a change in demand leads to an alteration in the distribution of goods according to the consumers' new preferences. The same occurs with international trade under this system, with the monetary system causing no specifically monetary disruption to the adjustment process.

While there is a common commodity money used in every country in a National Reserve System, it serves as a reserve for each country's currency which consists of fiduciary media issued by each government or its privileged banks or both. Production of money itself, in such a system, can still be regulated by profit and loss since it entails production costs rendered by the market. Moreover, by defining its currency in terms of commodity money, each country fixes the ratio between its own currency and that of every other nation. Without the issue of fiduciary media in each country, this arrangement would not differ in operation from the Homogeneous Commodity Standard.

The issue of fiduciary media, however, is not regulated by profit and loss, but rather always generates seigniorage for every amount issued up to the point at which the currency is destroyed in hyperinflation.<sup>7</sup> Because it is not regulated by profit and loss, generating seigniorage introduces inefficiency into the operation of the market economy. And when privileged banks issue fiduciary media via credit expansion, it not only is indefinitely

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<sup>7</sup> The term *seigniorage* has been used to describe several distinct phenomena. For examples, see Neuman (1992) and Rolnick (1997). We will use the term *seigniorage* to refer to the net income generated by exercising a legal privilege in the production of money and money substitutes.

profitable to the point of hyperinflation, but sets in motion the boom-bust cycle with its attendant malinvestments of capital investment and misallocations of resources.<sup>8</sup> Because its issue is not constrained by demand for money relative to demand for other goods, any issue of fiduciary media introduces an alien element into the market economy. We can call this alien element monetary inflation (deflation) when fiduciary media increases (decreases). In addition to the disturbances to the economy in each country from monetary inflation and deflation, the disparate issue of fiduciary media in each nation can cause monetary disturbances in one country to be transmitted to another. Monetary inflation and credit expansion in one jurisdiction sets in motion a domestic boom. As prices rise domestically and the exchange rate stays anchored to the underlying commodity price ratio, the purchasing power of the currency becomes higher elsewhere. Imports increase relative to exports. When foreigners obtain the currency of the inflationary country, they redeem it for the commodity reserve and it moves from the inflationary country to others. The outflow of commodity reserve, then, collapses the boom in the inflationary country and the inflow of commodity reserve abroad stimulates a boom there.

As Hayek (1989, pp. 25–34) argued, these twin effects in the supply of money are not, however, identical to those brought about by changes in the demand for money in the two countries. The collapse in one area does not translate into expansion in the other area because the movement of money does not occur to satisfy differences in money demand through voluntary exchange. Instead, the adjustment falls upon a different set of people apart from those with differing money demands. Money moves into the hands of investors in the boom area, not those who desire to hold more money. If the exchange rate does not adjust downward to restore purchasing power parity of the inflationary country's currency across other countries, then profit can be earned by moving the commodity reserve in the inflationary country to other countries, even though this does not satisfy a greater demand for money in the latter relative to the former.

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<sup>8</sup> On Austrian business cycle theory (ABCT), see Mises (1953, 1998), Hayek (2008), and de Soto (2006).

The system of National Fiat Monies consists of government-directed production of currency which serves both as money and as reserve for fiduciary media issued by commercial banks. The government directs monetary inflation by printing additional currency and thereby, increasing bank reserves upon which these firms issue more fiduciary media. In such a system, neither money production nor the movement of money is brought forth exclusively by differing extents of money demand relative to other goods among people in different places. Without any change in people's demand for money schedules (and hence, no demand-induced increase in money's purchasing power to justify more production of money), the government and commercial banks can generate monetary inflation by expanding bank reserves and thus the accompanying credit expansion. Even though this activity is not regulated by profit and loss, it does generate seigniorage for the government and commercial banks. As the purchasing power of money is driven downward by its increased supply and interest rates are suppressed by the expansion of credit, people respond by increasing the quantity they demand of both money and credit. The process over time of the lowering of money's purchasing power will be uneven across persons, places, and times because the new money produced will come into the hands of particular people in particular places sooner and other people in other places later. During this process, money will tend to be moving out of the hands of people in places for which its purchasing power has already been lowered and into the hands of people in places for which its purchasing power has not yet been lowered. Because the production of money is not economizing and therefore, leads to artificial volatility in real production processes, the movement of money from the earlier recipients in some places to the later recipients in other places is not economizing overall either. Instead it transmits artificial volatility, bringing more people and places under its effects.

With National Fiat Monies there are two variations. The first, which is the case Hayek examined, may be called Independent National Currencies. In this system, none of the currencies of the various countries serves as a reserve for any other currency. There is no integration of currencies themselves across the various national borders. Changing conditions of demand for and supply

of each currency adapt to demand and supply changes of every other currency through movement in exchange rates. Monetary inflation and credit expansion in one country that lowers the purchasing power of its currency domestically will not result in the movement of its currency to less-inflationary countries. Instead, the exchange rate of its currency will devalue relative to the currency of less-inflationary regions. If the exchange rate devalues before the purchasing power of money declines (rises) domestically, the monetary inflation and credit expansion will increase net exports (net imports) in the more-inflationary (less-inflationary) country and thereby, impose changes in real production processes in less-inflationary countries.

As Hayek (1989, pp. 35–53) pointed out, then, in a regime of Independent National Currencies, the movement of money cannot perform its economizing function at all. He argued that in such a system, actual imbalances between money demands among countries will be dealt with politically. Monetary policy in each country will result in fiduciary expansion and contraction, which brings with it cyclical volatility. This is the very consequence that monetary nationalists claimed to avoid with their program of monetary nationalism. In light of these consequences, Hayek rejected the regime of National Fiat Monies in favor of a worldwide Homogeneous Commodity Standard.

The second variant of a system of National Fiat Monies might be called an International Reserve System. Bretton Woods after the Second World War serves as an example. The currency of one country serves as reserve for those of other countries. Each government pegs its exchange rate with each of the currencies of every other government and buys and sells currencies in foreign exchange markets when necessary to maintain the pegged exchange rates. Monetary inflation and credit expansion of the reserve currency will put pressure on it to devalue against other currencies. Other governments respond with monetary inflation and credit expansion of their currencies in an effort to maintain the pegged exchange rates. As Hayek said about the case of Independent National Currencies, in this case as well neither money production nor its movement can perform the economizing function that entrepreneurs attain in the production and movement of commodity money and other goods. Unlike the case

of Independent National Currencies, however, devaluation that would have occurred as a consequence of sufficient monetary inflation of one currency relative to another will be preempted by monetary inflation of the other currency. Instead of real production processes in the second country being affected solely by the rise in its net imports, it will suffer its own domestic boom from its domestic monetary inflation and credit expansion.

In summary, applying Hayek's analysis demonstrates: (1) both the production and movement of commodity money in a Homogenous Commodity Standard is economizing; (2) the production of commodity money can be economizing under the National Reserve System, but the movement of commodity money set in motion by fiduciary issue in one country generates a boom in foreign lands; (3) the production of fiat money cannot be economizing in a regime of National Fiat Monies; instead there will be monetary inflation and either (3a) the movement of the reserve currency from its country of origin into other countries as a result of monetary inflation will generate booms across them (the sub-case of an International Reserve System) or (3b) the impact of monetary inflation in one country on the money stock of other countries will be determined by politics since the movement of money cannot perform its economizing function (the sub-case of Independent Fiat Currencies).

## V. THE DICHOTOMOUS MONETARY REGIME

All the cases that Hayek considered involved a "uniform" international monetary system. That is, he considered examples in which all countries adopted the same type of system. In contrast, we examine a dichotomous international monetary system, in which two countries have adopted different monetary systems. Country A has a market-based commodity money, where the production of money is decided by entrepreneurs engaged in economic calculation of profit and loss, and banks do not issue fiduciary media.<sup>9</sup> Country B has a fiat money and regulates the issue of fiduciary media by commercial banks, but is, otherwise, a

<sup>9</sup> With this structure, credit-induced business cycles would not occur. See Rothbard, 1962a, 1962b, 1963a, 1963b, 1969, 1983, 1988.

free market economy.<sup>10</sup> Our goal is to analyze the precise manner in which monetary disturbances are transmitted from a fiat money country like Country B into a commodity money country such as Country A, a case Hayek did not study. Given the precise manner of transmission in such an example, we consider a system of “private-enterprise protection” to limit the malinvestments of capital and misallocations of resources in A in response to monetary inflation and credit expansion in B.<sup>11</sup>

Because of international trade linkages, people in Country A would have a limited demand to hold the money of Country B, while those in Country B money would have a limited demand to hold Country A’s money. So, international transactions could occur in either currency, allowing for an exchange rate to be established between these currencies (Mises, 1953).

Unlike either the National Reserve System or the National Fiat Currency system with International Reserve Currency, monetary inflation in B does not directly affect the supply of money in A. The money of B cannot become a part of A’s money stock. Instead, monetary inflation in B would lead to an appreciation of A’s money against that of B as traders in B increase their demand to hold A’s money. Even if this appreciation of A’s money against B’s leads to an expansion of money production in A, the additional production would itself be regulated by profit and loss. With economizing production of money reserve and no issue of fiduciary media, there can be no domestic credit expansion in A. The credit channel’s impact is minimal.

Shielded from the possibility of generating its own domestic monetary inflation and credit expansion in concert with the rest of the world, business cycles emanating from B can be transmitted to A

<sup>10</sup> Austrian business cycle theory describes how this structure leads to business cycles. Keynesianism in its various forms drives this process onward. For critics of Keynesianism, see North, 2013; Block, 1999; Rothbard, 2002; Wapshott, 2012; Cochran and Glahe, 1999; Dempster, 1999; Garrison, 1985, 1992, 2010; Hoppe, 1992; Hutt, 1979; Rostan, 2010; Rothbard, 1992; Skousen, 1992; Hammond, 2012; Ritenour, 2000, Murphy, 2008; Anderson, 2009.

<sup>11</sup> Our literature search included the following, none of whom addressed this possibility, even though all of them write widely and deeply about international economics and macroeconomics: Haberler (1936), Heilperin (1939), Machlup (1943), Roepke (1959), Viner (1937).



by one or more of the other three channels: exchange rates, interest rates, and asset prices. Within the framework of the international division of labor and worldwide capital structure, however, these channels operate, not through expenditure flows themselves but, via the patterns of trade of particular goods and services. As well, resource and capital capacity used in their production according to the economizing position of production and investment that A occupies in the international economy play a role.<sup>12</sup>

Consider first the exchange rate channel. Monetary inflation and credit expansion in B distorts economic calculation, generating a boom in B. The money relation in A, however, is only minimally affected since B's currency is held only to a very limited extent in A's economy. Instead, the pending imbalance in the purchasing power of B's currency in B compared to A will lead to a devaluation of B's currency relative to A's. Entrepreneurs in A, therefore, are in a better position than their counterparts in B to limit the misallocation of resources and malinvestment of capital. Why? This is because the supply of A's commodity money would only increase in response to the increased demand for that money, leaving the purchasing power of A's money relatively stable. Traditional profit and loss accounting is backward-looking. And, generally speaking, there is a temporal gap between when costs are incurred in the purchase of resources and when the revenues from selling the resulting product are earned. If there is a significant change in the money relation—specifically, if the purchasing power of money falls significantly over time, then accounting profit will be overstated. Economic calculation, though forward-looking, is informed by past experience, and when that experience is misrepresented, economic calculation becomes less reliable. Because of the relative stability of the money relation in A, economic calculation in A is more reliable as a guide to production and investment decisions than it is in B. Unless devaluation of country B's currency against that of country A occurs synchronously with the decline in the purchasing power of B's currency domestically, however, the balance of trade will be distorted between the two countries. In the typical case, the devaluation of B's currency

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<sup>12</sup> The effects on the prices and production of particular goods during monetary inflation are attributed to Richard Cantillon (1931). On his contribution to ABCT, see Hülsmann (2001), Rothbard (1995), and Thornton (2006).

occurs sooner than domestic reduction in the purchasing power of B's currency causing net exports (imports) in B (A) to rise. This effect is then reversed as the domestic purchasing power of B's currency falls to parity with its purchasing power in A, given the already devalued exchange rate. The particular goods affected will be those in line with the latent comparative advantages of the two countries.

One would expect B's exports to increase in two ways: first, some goods that B would otherwise consume domestically may now be sent abroad, as the alteration in exchange rates makes exporting look relatively more attractive. Assuming that nominal prices remain nearly the same at first, then the depreciation in B's currency will raise the B-currency price that businesses can receive from exporting simply because a single unit of A's currency has a higher B currency value than previously. Second, non-specific resources initially placed in less export-oriented industries may move into those that are more export-oriented, for similar reasons. This point is emphasized in Cachanosky (2014). Changes in production and investment in the two countries will move along the lines of the worldwide capital structure. Because the exchange rate channel sets in motion a self-reversing effect on profit in particular lines, the effect on production in A depends on the anticipations of entrepreneurs in those lines of production. Just as entrepreneurs in particular lines of production can anticipate<sup>13</sup> other types of cyclical variations in demand for their products, they may be able to keep malinvestments of capital and misallocations of resources within manageable limits. Although the exchange rate channel is not entirely closed, its flow can be mitigated by entrepreneurship exercised in a free market economy.

Consider next the effect of movements of interest rates. As described by Hoffman and Schnabl (2011), credit expansion in B will suppress interest rates in credit markets in that nation. Arbitrage opportunities would arise for financiers who shift investment away from credit markets in B into those in A. As with the exchange rate channel, however, interest rates will operate

<sup>13</sup> Wagner (1999) argues that businessmen will tend to anticipate the machinations of the Fed which would otherwise create the Austrian Business Cycle, and thus the ABCT is incorrect. For an alternative view, see Block (2001).

through investment in particular lines of production across the capital structure according to latent comparative advantage in A. These investments will increase the prices of assets along particular lines of the capital structure in country A. Unlike the asset channel that operates from monetary inflation and credit expansion within B, however, in A the increased prices of assets will be countered by the decreased prices of other goods. Because any rise in demand for A's commodity money in B will be met by money producers increasing the supply of that money, and there is no other reason for either the demand for A's money relative to other goods or the supply of A's money to alter, the overall purchasing power will change little. Only minimal overall wealth effects will occur. The asset price channel's impact is minimal.<sup>14</sup>

Even though the asset price channel is weak, prices of particular assets in country A will rise along the lines of the boom generated in country B. The extent and timing of asset price inflation will depend upon the anticipations of entrepreneurs who are appraising the realized market price of assets in the future. Alongside these entrepreneurs are investors in financial markets, including foreign exchange, who are, likewise, forming anticipations of the realized market price of future financial assets and currencies. Given an economizing distribution of entrepreneurial acumen across the different lines of entrepreneurial activity in production and investment, the asset price inflation in country B and the devaluation of its currency against that of country A should reflect a similar accuracy relative to the relevant realized market prices. Currency devaluation and asset price inflation set in motion by a given episode of monetary inflation and credit expansion should be roughly synchronous or, at least, more synchronous than currency devaluation and the reduction in its domestic purchasing power. The rise in asset prices in region B, however, will still generate some profit for investors who shift their purchases to A. The extent of the resulting arbitrage, however, will be blunted by devaluation of country B's currency. The more synchronous the devaluation is with the rise in asset prices, the less monetary incentive there will be for such arbitrage.

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<sup>14</sup> As income is reallocated from asset price inflation, distributional effects on wealth may occur. On wealth effects during the business cycle, see Salerno (2012).

To some degree, then, the interest rate channel and exchange rate channel generate offsetting effects on A.

Dornbusch (1976) speaks to the question of timing and how effects on interest rates and exchange rates interrelate. Assuming uncovered interest parity (that is to say: assuming international financial arbitrage), if the interest rates in country A do not immediately and fully adjust when interest rates in country B do, then the exchange rate will “overshoot.” Since interest rates are lower in B than in A, the only way for this to be consistent with arbitrage is if B’s currency depreciates immediately and severely—so much so that the currency is expected to appreciate over time, to make up for the difference in interest rates. If this is not the case, then investors will continue shifting investments from B to A, which increases the interest rate in B, decreases it in A, and leads to further depreciation of B’s currency. This implies that the strength of the interest rate effect and the power of the exchange rate effect are inversely related. If interest rate effects are large, then little overshooting will happen—so the exchange rate effect will be somewhat smaller. If interest rate effects are small, then significant overshooting will occur, resulting in exchange rate effects greater than otherwise would have occurred.

Whatever the residual extent of asset price inflation remains in A, its effect on the broader array of economic activity will depend upon the response of entrepreneurs in the lines of production experiencing asset price inflation. If they resist expanding production, then other lines of production will likewise experience neither significant misallocation of resources nor malinvestment of capital. Whether or not entrepreneurs can provide “private protection” against infection from business cycles generated externally, and if so, in what way they can do this, will be taken up in the next section.

In preparation to addressing this issue, let us summarize the manner in which the virus attempts to spread from B to A. Monetary inflation and credit expansion in country B will generate a boom in B. The money of country A, however, cannot be inflated. Neither can credit in A be expanded. The virus cannot spread significantly through the credit channel. The malinvestment of capital and misallocation of resources in B will be driven by suppressed interest rates and asset price inflation in B and devaluation of its currency against that of A.

Investors in B, who wish to earn the now higher interest rates in A, may do so by purchasing assets and claims to assets in A, which further suppresses the value of B's currency in comparison to A's. Although the asset price inflation in B can have a wealth effect, resulting in further malinvestment and misallocation in B, since the purchasing power of money changes very little in A, only a minimal wealth effect occurs there from the asset price inflation in A. The virus cannot spread significantly through the asset price channel. To the extent that devaluation occurs synchronously with the lowering of the domestic purchasing power of B's currency, the balance of trade between A and B will not change and the asset price inflation infecting A will be limited to the difference between the asset price inflation in B and the decline in purchasing power of B's currency. In the typical case, in which devaluation occurs prior to the lowering of the domestic purchasing power of B's currency and synchronously with asset price inflation in B, net exports (imports) in region B (A) will rise along with the increased demand for assets in area A by investors in B. These effects would then be reversed as the purchasing power of B's currency domestically fell into line with its devalued purchasing power internationally. On net, then, the exchange rate and interest rate channels have offsetting effects on A. In short, the virus of monetary inflation and credit expansion in B does indeed infect country A through changes in the prices of particular goods produced in A along the lines of its comparative advantage. Contrary to the cases of uniform international monetary regimes, in which a boom in one country can lead to a general boom in the other, the transmission of monetary disturbances from fiat money countries into a commodity money country are strictly limited and readily identifiable.

## VI. DOES *LAISSEZ FAIRE* FAIL?

Although a commodity money economy would be largely insulated from monetary disturbances generated in fiat money economies, Cantillon effects would occur from the residual asset price inflation in the commodity money country. The consequences for real production processes, however, depend on entrepreneurial anticipations. Entrepreneurs with superior foresight in the lines of production experiencing Cantillon

effects will be less prone to malinvest capital and misallocate resources.<sup>15</sup> They will assess more accurately the extent of asset price inflation and exhibit proper restraint in expanding capital capacity and resource use in production during the boom so as to avoid the losses during the bust. By cutting off the spread of rising entrepreneurial demand for resources and capital capacity at the source, the malinvestment and misallocations associated with the boom-bust cycle can be contained within a narrow scope in country A. Moreover, during the course of the boom-bust cycle, resources and capital capacity tend to move out of the hands of the less insightful and into the hands of those more able to anticipate the future course of events. The less insightful entrepreneurs malinvest capital capacity during the boom and liquidate during the bust. The more insightful ones, by restraining from malinvestment during the boom, put themselves in a position to acquire capital capacity cheaply as the less insightful entrepreneurs liquidate their assets during the bust.<sup>16</sup>

This market process of transferring command over resources and capital capacity away from less insightful and toward more insightful entrepreneurs could be institutionalized into a system of “private enterprise protection.”<sup>17</sup> But, here, “protectionism” would take on a very different meaning than that usually accorded to this policy. Entrepreneurs in A would be the agents offering protection to others from the losses of the boom started by B. In contrast with bureaucrats who rely on the ability of the state to punish those who do not comply with regulations, entrepreneurs persuade others to join them in their ventures by finding and offering them mutually advantageous terms for their cooperation. In this case, they would offer protection by persuading others to join them in sustainable lines of production and to avoid the harm to those who might otherwise succumb to the temptation to participate in the boom. Entrepreneurs could form voluntary trade associations to increase the incentives to refrain from short-term gains so as to avoid malinvestments. Voluntary unions among workers could

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<sup>15</sup> On the spectrum of entrepreneurial foresight, see Engelhardt (2012).

<sup>16</sup> John D. Rockefeller’s acquisition of oil-refining capacity during the volatility of the 1870s provides an example of the process. See DiLorenzo (2005, pp. 121–130).

<sup>17</sup> On Rockefeller’s use of the institution of the trust, see Folsom (2004, pp. 88–89).

reinforce the entrepreneurs' decisions to avoid participation in B's boom.<sup>18</sup> During the boom, entrepreneurs who refrain from increasing production and expanding capital capacity, can still earn profit from higher output prices and equity from the asset price inflation. By forestalling misallocation of resources and malinvestment of capital investment, they can also largely avoid the losses and consequent liquidations of the bust. And although economic calculation is made more difficult by credit expansion elsewhere, movements in foreign exchange rates between the inflated monies and the commodity money provide information that entrepreneurs can use to aid economic calculation which would not be available in absence of at least one country using commodity money. Entrepreneurs have a firmer basis on which to form anticipations of the lines of the boom that might tempt residents of country A into making malinvestments of their capital and misallocations of their resources. Adherence to a free market regime of commodity money would be critical for entrepreneurs to sharpen their anticipations to judge between the lines of production and investment that will prove to be sustainable and those that will not.

Even accounting for "private protection" from the ill effects of monetary inflation and credit expansion generated externally, some residual effects of the boom-bust will remain in the *laissez faire* territory. The final issue, then, is whether or not the residual misallocation of resources and malinvestment of capital investment occurring in A constitutes a market failure.

The main "players" in the market failure literature are monopoly, externalities, public goods, and informational asymmetries.<sup>19</sup> The question now arises: does the fact that economic "infection" can indeed infect economy A constitute a market failure? We deny that this is the case. Why? It is simple. It is not *market* failure that

<sup>18</sup> Voluntary associations have a long and fruitful role in American life, see Bradley (1965), Dekker and Broek (1998), Gamm and Putnam (1999), Merton (1957), Olasky (1992), de Tocqueville (2003 [1835])

<sup>19</sup> There are literally dozens, scores, maybe even hundreds of others. Here are some of the critiques of this material: Anderson, 1998; Barnett, et. al, 2005; Block, 2002; Callahan, 2000; Cowen, 1988; DiLorenzo, 2011; Guillory, 2005; Higgs, 1995; Hoppe, 2003; MacKenzie, 2002; Rothbard, 1985; Simpson, 2005; Tucker, 1989; Westley, 2002; Woods, 2009a, 2009b.

undermines the economy of A. Rather, it is the *government failure* of B that leads to this result.<sup>20</sup>

Even with the success of voluntary associations to moderate the malinvestments and misallocations arising from Cantillon effects, entrepreneurial errors will occur in A. Some residual malinvestments and misallocations will remain. We agree with Hayek that a country whose economy is an integral part of the world's cannot be entirely isolated from inefficiencies emanating outside its borders. However, what impairs efficient production in country A is not a market phenomenon but rather one of government intervention in the economy in B, in this case. It is a general conclusion of economic theory that entrepreneurs economize on the use of resources for consumers as best they can in the face of barriers established by government intervention. The reaction by entrepreneurs to government obstacles result in the secondary effects that Mises (1998) demonstrated lead to the tendency for government interventions to accumulate. If the overall result of government intervention and the ensuing entrepreneurial reaction is sub-par compared to the *laissez faire* starting point, the fault lies with the government in B, not the market, in A.<sup>21</sup>

A similar claim can be made about monetary inflation and credit expansion within a given country. It is not a *market failure* that entrepreneurs in A, striving to economize anew in the face of a B central bank driven credit expansion malinvest capital and misallocate resources. The former are, to the contrary, economizing as best they can, given the barriers to doing so instituted by B's central bank policy. Because having a money independent of the inflationary and expansionary process of the central bank would allow them to economize even more fully, entrepreneurs, if given the freedom to choose<sup>22</sup> would establish their own sound money system to insulate

<sup>20</sup> Contrary to the tendency among neoclassical economists to see market failures everywhere, however, we maintain the Austrian view on this matter that there is no such thing as market failure.

<sup>21</sup> For example, the unemployment of the least productive workers under an effective minimum wage is not caused by the inability or unwillingness of free enterprise to employ such workers absent the legally imposed wage. Instead, the blame rests with the state.

<sup>22</sup> Milton Friedman (1990) argues in favor of being "free to choose." Yet, he was a bitter opponent of the gold standard, something "chosen" by the marketplace,



their operations somewhat from the ill-effects of expansionary monetary policy. One of the key insights of this paper is that, at times, the blame does not rest on the government of the country that feels the ill effects, A in this case. In some circumstances, one must be willing to look abroad to find the original government failure.<sup>23</sup>

Assume that areas C and D both have a policy of total free trade on a unilateral basis. Whereupon D suddenly imposes protectionist measures on imports from C. Will the economy of C be negatively impacted by this unwise measure? Of course it will be. Specialization and the division of labor will no longer be as thorough and all-encompassing as they once were, before protectionism was introduced by D. Would we then acknowledge that “market failure” had overcome C? Of course not. Matters would be clear. We would maintain, instead, that the reason for C’s economic plight had nothing to do with *free markets*. Rather, we would lay the blame at the door of D, the originator of tariffs and other interferences with full free trade. In like manner, we arrive at the same conclusion for A and B, and the monetary inflation and credit expansion of the latter. Both of these were examples of government failure, not market failure.

Just as unilateral free trade results in the most economizing use of resources for a country adopting it within an international economy of protectionism in other countries, unilateral movement to commodity money will insulate a country as much as possible within an international economy of fiat money inflation and credit expansion. Such monetary reform improves the economizing operation of the market economy within the country that adopts it.

## VII. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

Stated very briefly, we conclude that economic “infection” is indeed possible. A, despite its market-based commodity money,

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whenever economic actors were, you guessed it, free to choose. See on this Rothbard (2002); Block (1999).

<sup>23</sup> The South Park Movie featured a song called “Blame Canada.” We adopt this as our own, only we substitute “Blame B.” See on this: <https://www.youtube.com/watch?v=bOR38552MJA>

can still “catch” the disease of the Austrian business cycle from B. However, A will be less susceptible to the spread of this sickness than would otherwise be the case. And, this does not constitute any “market failure.” Rather, this is yet another example of *government failure*.

Before we move to consider directions for future research, we should consider one question that our analysis has assumed away: why don't the two countries in question use the same money? We have built an argument—centered on the reliability of economic calculation—for why entrepreneurs would prefer a commodity money without credit expansion. So, it is no mystery why Country A limits its use of Country B's money. But, why wouldn't the entrepreneurs in B simply begin using A's money? There are two answers. First, we note that, in the short run, a particular money experiences significant network effects. If most of my trade relations are with those who use B's fiat money, then a market actor would likely hold B's money in his portfolio and would probably keep financial records in B's currency. In our analysis we consider a time frame in which Country B simply has not yet adopted Country A's money. Another possibility is that Country B's fiat money may be supported by interventions such as legal tender laws, which provide a domestic advantage to using B's currency which would not apply to A.

What are our suggestions for further research?<sup>24</sup> One possibility is that we pursue evidence of the insulating effect of sounder money. We recommend for all those interested in pursuing it, an analysis of the severity of the boom-bust across different countries with varying degrees of expansionary monetary policy during the recent boom-bust cycle. For example, Zimbabwe, Argentina and Venezuela would be at one end of this spectrum, the U.S. would occupy a position somewhere in the middle of it, and Switzerland would be located at the other end of the spectrum.

Another possibility would be to consider just one country, say Switzerland, which had a floating currency against the Euro before 2011 and a pegged currency from 2011 to early 2015. Under which system did Swiss entrepreneurs do better, *ceteris paribus*? E.g., under

<sup>24</sup> Unhappily, the answers to these research proposals are beyond the scope of the present paper.

which regime was the ABC more powerful? Cachanosky (2014) provides a good resource for those considering empirical work in relating Austrian business cycles to exchange rate policy regimes.<sup>25</sup>

A third suggestion is to reconsider the experience of those countries that maintained the gold standard during the Great Depression relative to those that abandoned it. The counterclaim that countries that left the gold standard earlier recovered faster than those that left later, may be, in turn, offset by the fact that nations less integrated into the U.S. economy, like Sweden, suffered less during the depression than those more integrated, for example Canada.<sup>26</sup> In short: the present paper suggests that assuming a strong connection between the domestic monetary system and business cycles, without consideration for international impacts, can lead to misleading conclusions.

Our hope is that this paper provides a theoretical grounding for those looking to do this historical work, and an encouragement to those who do it to look at the impacts of the international monetary system on national economies, since, in some cases, solving the mystery of poor economic performance in a generally free market economy requires looking over the border.

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<sup>25</sup> Other empirical studies of ABCT include the following: Bisman and Mougeot, 2009; Butos, 1993; Carilli and Dempster, 2008; Cochran, Yetter and Glahe, 2004; Cochran, 2011; Gallaway and Vedder, 1992; Hughes, 1997; Keeler, 2001; Montgomery, 2006; Mulligan, 2002, 2005, 2006; Murphy, 2009; Murphy, Barnett and Block, 2010, 2012; Powell, 2002; Wainhouse, 1984; Young, 2005.

<sup>26</sup> On France during the Great Depression, see Irwin (2012).

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