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The Portfolio Theory of Inflation (and policy effectiveness)

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Abstract
The Portfolio Theory of Inflation (PIT) proposed in this study investigates the role of global financial markets in determining the effectiveness of macroeconomic policy in open and fully financial integrated economies. The PIT adopts a modified version of the portfolio balance approach to exchange rate determination and incorporates intertemporal optimal choices from global investors. These investors allocate resources across national economies based on local investment opportunities and policy credibility: when a country's credibility is low, they hold its economy to a tighter intertemporal budget constraint and the issuance of what they deem as "excess" public sector liabilities causes the country's currency to depreciate and inflation to rise due to a large exchange rate pass-through, with limited or no impact on output. On the other hand, high credibility creates space for effective and noninflationary macro policies but, if such space is abused, credibility gets dissipated and higher inflation reflects such dissipation.

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Keywords Credibility; exchange rate; financial integration; global investor; interest rate; intertemporal budget constraint; money, bonds and assets; pass-through

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THE PORTFOLIO THEORY OF INFLATION
(AND POLICY EFFECTIVENESS)

> "I used to think that if there was reincarnation, I wanted to come back as the president or the pope…But now I would like to come back as the bond market. You can intimidate everybody."
>
> James Carville[1]

1. INTRODUCTION

In a recent contribution, I have argued that an open and fully financially integrated economy with large public debt and poor policy credibility (in the eyes of the market) would not stand to gain much in terms of shock insulation and policy autonomy from either issuing liabilities in its own (rather than a foreign) currency or adopting a flexible (rather than fixed) exchange rate regime (Bossone, 2018, 2019a,b).

Key to the above conclusion is the assumption of full integration of the economy into the global financial markets, as further reinforced by the high incidence of institutional investment over domestic savings and the large concentration of domestic wealth. All these factors cause relevant shares of domestic savings to be managed as global portfolios, driven by the expected dynamics of international asset prices. As a result, if the economy's policy authorities were to use their macro levers actively, in an attempt to benefit from the floating nature of the underlying exchange rate regime, they would in fact cause capital to flee the country, the nominal exchange rate to depreciate, and domestic inflation to rise. They would ultimately be forced to reverse their course of action, much as if they had committed to maintaining a fixed exchange rate rule.

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[1] Lead strategist of the successful 1992 presidential campaign of then-Arkansas governor William J. Clinton.

Aside from the various implications following this conclusion and discussed in the cited work, in this study I explore what looks like a new theory of inflation, which, as the study's title suggests, will be referred to as the "portfolio theory of inflation" (PTI). According to the PTI, in a nutshell, investors operating in globally integrated financial markets allocate resources across national economies based on the latter's credibility – when investors deem a country's credibility to be low, the economy is tied to a tighter IBC and the issuance of "excess" public sector liabilities (money or debt, under any currency denomination) causes the domestic currency to depreciate and domestic inflation to rise as a result.[2]

The theory is therefore consistent with – and indeed it can explain – different economic outcomes deriving from similar policies adopted in different country contexts. Moreover, much better than the prevailing theories of inflation, the PTI can reflect the dominant role of global finance in defining the space available for national authorities of open and financially integrated economies to undertake active, effective and non-inflationary demand management policies. In fact, the PTI might prove relevant especially (though not exclusively) to investigate the policy space of small and open economies, in particular those that are highly indebted, and to identify the circumstances where (and the reasons why) their active macro policies are ineffective, irrespective of whether their liabilities are denominated in the domestic currency and their exchange rate is flexible.

More broadly, the PTI aims to investigate the central role of global financial markets in determining the effectiveness of macroeconomic policy in open and fully financial integrated economies.

This study is organized as follows. Section 2 relates the PTI to the existing relevant literature. Section 3 discusses the importance of financial integration and policy credibility in determining the

[2] The concepts of credibility and excess liabilities will be clarified below.

effectiveness of the nominal exchange rate under specific economic circumstances, as a fundamental premise for the PTI. Section 4 postulates the PTI, provides a formal representation of the theory and discusses its main results, including on macro policy effectiveness. Section 5 considers the strengths of the PTI as a theory to explain inflation in contemporary economies. Section 6 concludes the study.

2. RELATIONS WITH THE LITERATURE

As the PTI exposed in this study represents a new proposal, there is no previous literature to which it can be referred. Yet, as the theory rests on two pillars, reference is made in this section to research that is pertinent to each pillar and to how the PTI relates to it. The pillars are i) the portfolio balance approach (PBA) to exchange rate determination, as modified to incorporate intertemporal choices from global investors, and ii) the relationship between policy credibility, exchange rate and inflation.

Consider, first, the first pillar. In the PTI, the exchange rate is determined as in the PBA,[3] where financial markets cerate demand for predetermined stock supplies of domestic and foreign assets (such as money and bonds), based on current wealth, and where assets are imperfect substitutes. The PTI, as the PBA, assumes that assets are part of the investor portfolios and that changes in asset supplies oblige investors to re-balance their portfolios upon risk-return considerations, setting in motion an adjustment process that influences the exchange rate via demand changes for assets. The PTI moves beyond the PBA in that it assumes a highly integrated world capital market driven by investors who act globally and allocate resources across countries based on intertemporal optimization criteria (see Sections 3 and 4). The PTI, also, gives prominence to governments' intertemporal budget constraint (IBC) as one essential determinant of the value of national public debts. Furthermore, the PTI model developed in

[3] For references, see Branson (1985) and Wang (2009).

this study encompasses a central role for money, both as a monetary policy tool and as one of the economy's assets.

In as much as the PTI relies on a micro-founded model with intertemporal decisions, it draws inspiration on the Modern Open Economy Macroeconomics (MOEM).[4] However, the PTI departs from the latter in some important respects. First, while the MOEM's main building block consists of individual countries acting as intertemporally optimizing agents, the PTI centers on the role of "global investors" as allocators of funds across countries. Second, and related, whereas the MOEM's perspective is that of a country facing the rest of the world that generates external shocks to which the country economy adapts, and sometimes reacts to spillovers from shocks transmitted from the country (Trautwein, 2015), the PTI takes on the perspective of global investors and studies how the their portfolio choices determine exchange rate and inflation dynamics, and affect the effectiveness of country macroeconomic policies, in different country contexts. Finally, while the MOEM provides a grand analytical framework to evaluate all relevant aspects of open macroeconomies, the ambition of the PTI is confined to determining exchange rate and price level changes in open and fully financially integrated economies and to evaluating the effectiveness of their macro policies.

As regards the second pillar – on policy credibility, the exchange rate, and inflation – the relevant literature is mostly empirical and covers both the analysis of the pass-through effect from the exchange rate to inflation and the relationship between policy credibility and the intensity of the exchange rate pass-through (ERPT). On the ERPT effect, in light of the importance given by this study to the openness and international integration of national economies, a relevant reference to mention is the work by Benigno and Faia (2016), which, based on US data, shows and measures the various channels through which globalization (especially in trade) has raised the degree of ERPT both in the

[4] Obstfeld and Rogoff (1995, 1996).

short and the long run, as a result of trade openness, greater competition, and the increasing share of foreign products sold domestically. In 2016, the central bank of Sweden found that, since 2014, inflation had shown a rising trend in the country and the depreciation of the krona that had taken place over the period was deemed to have contributed to this development (Sveriges Riksbank, 2016). More generally, however, as a study from the Bank for International Settlements has recently found, while the ERPT effect in emerging market economies has decreased following the 2008-09 financial crisis, the effect in advanced economies has remained relatively low and stable over time (Jašová et al., 2016). In Canada, where exchange rate movements do have a material impact on the prices of consumer goods, the ERPT effect has been shown to have only a transitory influence over the rate of inflation, since the long-run inflation expectations are anchored near the Bank of Canada's inflation target and thus play a mitigating role on the pass-through (Savoie-Chabot and Khan, 2015). This argument suggests, that policy credibility – ceteris paribus – weakens the link between the exchange rate and inflation.[5] This causal relationship seems to be supported by a number of studies. Aleem and Lahiani (2014) show that a lower ERPT is associated with a credible monetary policy aiming at controlling inflation and find evidence that the EPRT is higher in Latin American countries than in East Asian countries, where it has declined since the adoption of an inflation targeting monetary policy.[6] A similar result was

[5] While not all country studies on the ERPT effect may be reviewed here, some that cover emerging market economies are worth mentioning. Zelealem and Musila (2018) examine the temporal relationships between inflation and exchange rate changes, and their implications for the trade balance, and find that in the long run a real depreciation leads to an increase in inflation. Suleiman et al. (2018) estimate the quantitative effects of exchange rate depreciation on budget deficit and inflation in Nigeria and find that the impact of the exchange rate on inflation is positive, although it is not statistically significant. Also, a fairly substantial ERPT effect, although incomplete and slow, has been found for Egypt by Helmy et al. (2018), who attribute the reason for the incompleteness and slowness to the circumstance that the consumer price index in Egypt include a relatively large number of subsidized commodities and goods with administered prices.

[6] In other words, the more credible the central bank, the quicker inflation returns to its steady-state level from before it suffered a shock.

observed by Edwards (2006) examining emerging market economies, and by Takhtamanova (2008) analyzing OECD countries. Carrière-Swallow et al. (2016) and Lopez-Villavicencio and Mignon (2016) identify strong links between the ERPT and the monetary policy regime's performance in delivering price stability in several emerging economies. This result is further corroborated by Kabundi and Mlachila (2018) for South Africa and by Winkelried (2014) for Peru. Looking at the Brazilian experience, Ferreira de Mendonça and Tostes (2014) find that not only monetary but also fiscal policy credibility matters for reducing the pass-through on inflation of market prices and inflation expectations.

3. FINANCIAL INTEGRATION, CREDIBILITY AND EXCHANGE RATE (NON)NEUTRALITY

The effectiveness of the exchange rate as an adjustment mechanism in a given country depends critically on three key variables (Bossone, 2018). These include the country's degree of financial integration into the global markets,[7] the size of its public debt (irrespective of currency denomination), and its level of policy credibility.[8] To see how these factors interact with each other, let's take a fully financially integrated country, suffering from weak policy credibility, and assume that its policymakers adopt a floating exchange rate regime and commit to expanding public liabilities (debt and/or money)

[7] As generally understood, in a fully integrated financial market, asset prices would be determined competitively, each country and institution operating in the market would be a price taker, and interest rates (net of risk premia) would be equalized everywhere across markets. Full integration would correspond to each asset being traded in a single global market.

[8] "Credibility" is henceforth defined broadly as based on the country's past policy track record, its resolve to pursue pre-announced policy commitments and targets, and the adherence of its policy framework to what markets consider to be sound financial stability criteria (such as, typically, low inflation, stable asset prices, high liquidity and solvency of financial institutions, low leverage of key sectors, etc.).

as much as necessary to stabilize output and employment at full capacity. With persistent expansion of the public liabilities, the policymakers would soon be faced with a dilemma:

- they may either be forced to set the interest rates on debt liabilities high enough to prevent the exchange rate from falling at levels that would make the liabilities unsustainable, or
- or they may decide to monetize the debt as needed to keep interest rates low and to guarantee debt service.

Under the first option, the country would have to abandon its policy objective of stabilizing output to full-employment level, and the resulting endogeneity of the interest rate would, de facto, amount to bringing back through the window the fixed exchange policy that was thrown out of the door. Under the second option, the country would fail to achieve the objective anyway. In ex-ante (equilibrium) terms, and from the standpoint of the liabilities' holders, the two options are equivalent since the expected losses from the risk of debt default (as compensated ex ante by higher interest rate premia) would equal the expected losses from currency depreciation (a form of default of its own).

Indeed, if the liabilities consist of public debt denominated in a foreign currency, investors face the risk of the country defaulting on its debt obligations at some future date and thus protect their investments by requiring an appropriate premium on the debt interest rate. On the other hand, if debt is denominated in the domestic currency, investors are protected against the risk of default (since the issuer can always monetize the debt), yet they are exposed to the risk of future currency depreciation based on the authorities' commitment to unbounded debt monetization. Thus, all else equal, both options carry the same probability of triggering a contractionary sudden stop, and the flexibility of floating exchange rates plays no role in influencing the economy's real variables.

Globalization

A crucial assumption underpinning this conclusion is the country's full integration into the global financial markets, which removes systematic differences between the intertemporal behavior of

resident and nonresident agents and between their valuations of the country's liabilities. Under such conditions, when faced with the prospects of the country issuing "excess" liabilities,[9] residents and nonresidents alike would replace at the relevant margin *both* domestic debt and money holdings with foreign assets deemed to be safer stores of value. It should be emphasized that the concept of excess liabilities here refers to a sustained issuance of public liabilities by a poorly credible economy, not to the financing of short-run budgetary policies to address transitory output gaps.[10]

This effect of financial integration would be further reinforced if i) the incidence of institutional investment over total domestic savings were high and ii) the distribution of domestic wealth were largely unequal, since both features reduce "home bias" factors in investment strategies. In particular, as exchange rates often diverge considerably and persistently from purchasing power parities, institutional investors and the owners of large wealth are typically more sensitive than small savers to the need to protect their assets not just from domestic inflation but also from losses due to exchange rate dynamics. Such investors optimize their portfolios by taking a more global view of asset risks and returns than small savers, and much more easily than small savers can (re)direct their investments

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[9] The concept of "excess" liabilities may be understood in circumstances such as when public liabilities exceed the value of nominal aggregate output and both grow at the same rate, causing the difference between the two variables to grow indefinitely, beyond the point at which the holders of the liabilities might no longer be willing to absorb them, except perhaps at exorbitant (and yet unsustainable) interest rates. Holders would start diversifying their portfolio into alternative assets, including those denominated in foreign currencies, and indeed very rapidly so in the event that the ratio were anticipated to grow rapidly. Notice that this would happen independently of increasing inflation expectations, and simply as a result of portfolio rebalancing effects. In fact, as will be explained below, higher inflation (and inflation expectations) could be the consequence, not the causing factor, of such portfolio effects.

[10] Of course, residents would still demand the domestic currency for transaction and tax payment purposes, but such demand might not be enough to prevent the currency from depreciating if people move large share of wealth out of it and into foreign currency denominated assets.

across global markets. Since such investors would operate at the relevant margin, they would set the benchmarks for others to determine their own allocations choices (see Section 4).[11]

Even more relevantly, and aside from the market features just discussed, the same effects hold if markets are integrated and prices are determined by global investors acting as (and perceived to be) "marginal" investors, that is, those who trades at the margin and therefore have the most influence on the pricing of their trades.[12]

Thus, in poorly-credible and highly-indebted economies higher inflation could materialize even at positive levels of the output gap as a reflection of the growth of public liabilities and their impact on the currency's exchange rate. In fact, with full financial integration, high incidence of institutional savings, and large concentration of wealth, the issuance of excess liabilities (as defined above) would first prompt a larger demand for domestic assets (e.g., real estate) and then increasingly cause capital outflows.

Based on the above assumptions, thus, the policy space available to a country grows narrower with its stock of liabilities – in whichever currency these are denominated – and is limited by the country's level of policy credibility. This conclusion is suggestive of a new theory of inflation grounded

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[11] It is often objected that resident and non-resident agents use different inflation rates to gauge their portfolio choices, with resident agents being primarily interested in protecting their wealth from the erosion due to domestic price increases and therefore being less responsive to foreign inflation. In fact, to the extent that no frictions separate domestic and foreign markets, and that relevant portfolios of resident and nonresident agents are global, asset values are driven by the expected dynamics of international asset prices, not by relative inflation rates. In such circumstances, domestic inflation rates are determined by the exchange rate dynamics (rather than the contrary), and the more open is the economy and more flexible its prices, the greater is the transmission from the exchange rate to domestic prices (through the ERPT effect).

[12] For a study on the marginal investor and a review of the marginal investor in the finance literature, see Bartholdy and Kate (2004) and references therein, and see more recently Chen and Lei (2015).

on the central role that global markets play, today, in determining prices in open and fully financially integrated economies as a result of their dynamic portfolio strategies. This theory is developed next.

4. THE PORTFOLIO THEORY OF INFLATION

The economy's model

The PTI developed in this section originates from the conventional portfolio balance approach to the exchange rate determination, reframed in the context of optimal intertemporal allocation choices by a representative global investor acting in internationally integrated financial markets and perceived by the markets as the "marginal" investor (see above). This agent pursues the objective of maximizing her financial wealth intertemporally, with a view to consuming it all at "the end of time" (if she is infinitely lived) or to pass it on to future global investors (if she is finitely lived), who will behave similarly across the infinite time, as if they all worked for a company and for a company purpose. Global investors, thus, act collectively as an intertemporal class of agents who treat the assets in their portfolios as "vehicles" to the utility associated with the future streams of real resources to which they give access. Their social purpose is to optimize and intermediate financial resources intertemporally from surplus agents to agents who needs them for investment or consumption-smoothing.

Importantly, in integrated international financial markets, global investors can move financial capital across markets and countries in real time and at negligible transactions costs.

Under the conditions discussed in Section 3 (full financial integration of the economy, high incidence of institutional investment, and large wealth concentration), the global investor is truly representative of the relevant investment community that national policy authorities need to consider when taking decisions. As is shown below, the peculiarity of the PTI is precisely the central role played by the global financial markets in shaping governments' IBC and in determining the effectiveness of their macro policies.

The model consists of two open and fully financially integrated country economies *D* and *F*, where *F* is relatively large vis-à-vis *D* and acts as price setter in the international markets for goods and services. The issuance of government debt bonds B_j in country *j*, where $j = D, F,$ and their market value are tied to the country government's IBC:

(1) $P_t^B B_{j,t} = P_t \sum_{\tau=t}^{\infty} \left(\beta_{j,t}|_{\omega_t}\right)^t (s_{j,t} + \Delta m_{j,t})$ with $0 \leq \beta_j \leq 0$

(2) $B_{j,t} = B_{j,t-1} + \overline{\Delta B}_{j,t} = B_{j,H,t} + \bar{B}_{j,CB,t}$

(3) $P_t = P_{D,t}^{\alpha} (e_t \bar{P}_{F,t})^{1-\alpha}$ with $0 \leq \alpha \leq 1$

(4) $P_{D,t} = \Phi_D L_D^{-1}\left(e_t \bar{P}_{F,t}\right) + \Pi\left(X_{j,t} - X_{j,t}^*\right)$ with $\Pi' > 0$

(5) $\Phi_{D,t} = \Phi(\sigma_{D,t}, \beta_{D,t})$ with $\Phi_1 > 0, \Phi_2 < 0$; $\Phi_D \in (0,1)$

(6) $\Delta B_{j,CB,t} = \Delta M_{j,t} = \mathrm{M}\left(i_t^{B_j} - i_N^{B_j}\right)$ with $\mathrm{M}' > 0$

(7) $i_t^{B_j} = \iota^{-1}(P_t^{B_j})$ with $\iota^{-1\prime} < 0$

(8) $X_{j,t} - X_j^* = \mathrm{X}\left(i_t^{B_j} - i_N^{B_j}, \frac{e_{j,t}}{P_{j,t}}, \overline{\Delta G}_{j,t}\right)$ with $\mathrm{X}_1 < 0, \mathrm{X}_1 > 0, \mathrm{X}_1 > 0$

(9) $\overline{\Delta G}_{j,t} = -\bar{S}_{j,t} + i_{t-1}^{B_j} B_{j,t-1} = \overline{\Delta B}_{j,t}$

Eq. (1) is the IBC of country *j*'s government and its central role in the PTI is discussed below; according to it, the current market value of government bonds *B* must equal the present discounted value of future primary surpluses and monetary financings. Specifically *B* is the number of (one-period) nominal (interest-bearing) bonds issued by the government at a contractual value that is equal to 1 unit of money, and P^B is the market value of one unit of bond *B* and is expressed as a ratio to the bond's

contractual value;[13] s_t and Δm_t denote, respectively, the real value of the primary surpluses (taxes minus government spending excluding interest) and the real value of central bank money injections; $\beta_{j,t}|_{\omega_t}$ is a time-varying discount factor, conditional on information set ω_t available at time *t*, which reflects the credibility that investors attribute to country *j*'s policy based on the current information available; ceteris paribus, a lower β_j translates into a tighter IBC for *j*'s government and requires larger (and possibly more frontloaded) fiscal efforts to sustain a given debt stock.[14] This factor, thus, defines the "elasticity" of the IBC, as further discussion below.[15] Total public debt, equal to the stock of government bonds inherited from the previous period plus any current new bond issuance, is held by investors *H* and the central bank *CB* of the issuing country (Eq. (2)); both the central bank's holdings of *B* and the new debt issuances are policy variables decided, respectively, by the central bank and government.[16]

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[13] This ratio cannot be less than 0 or greater than 1, since private creditors of the government cannot be turned into private debtors.

[14] New factors or events that would raise investor concerns that country *j*'s government might face future fiscal difficulties (which would eventually induce it to take such actions as defaulting on future obligations, inflating the debt away, or even repudiating it) would be incorporated in a new information set ω_t^1 and would cause β_j to fall ($\beta_{j,t}|_{\omega_t'} < \beta_{j,t}|_{\omega_t}$) thus reducing IBC elasticity accordingly. A fall of credibility might result in such a tightening of IBC elasticity that investors would doubt the (economic, social and political) sustainability of the future primary surpluses required by the tightened IBC, until they would stop buying and holding the country's debt altogether. This would cause the price of debt to collapse and, correspondingly, interest rates to rise abnormally to a point where fiscal dominance puts pressure on the monetary authorities to monetize and inflate the debt away.

[15] All else equal, different IBC elasticities across countries would be sufficient to make otherwise identical bonds imperfect substitutes of one another.

[16] The bar over variables indicates that the variables are determined exogenously to the model.

In Eq. (1), P is the world price deflator used by global investors to gauge at any time the real value of their wealth and is calculated as the weighted geometric mean of the general price level attaining in individual countries, P_D and P_F, with weights given by each country's share in international trade (Eq. (3)), where P_F is exogenous. Country D's price level P_D is determined from the cost side by foreign price level P_F via the nominal exchange rate e, the ERTP factor Φ and lag operator L^{-1} (reflecting the speed of relative price adjustment to foreign price changes) and from the demand side by the output gap (Eq. (4)). According to Eq. (5), ERPT factor Φ raises (structurally) with the openness of the economy and declines with country credibility – higher credibility anchors inflation expectations and counteracts the bad effects on inflation caused by the ERPT effect (see Section 2).

Eq. (6) summarizes the central bank's policy rule whereby the central bank purchases government bonds (by "printing" money M) in an attempt to stabilize the interest rate on government bonds around its "neutral" value $i_N^{B_j}$; the latter is the interest rate that is consistent with zero inflation and zero output gap.[17]

Equation (7) reflects the inverse relationship between bond prices and interest rates; reduced form Eq. (8) posits the real output gap to change i) negatively with the deviation of current interest rate from its neutral level, ii) positively with the real exchange rate (assuming Marshall-Lerner condition),

[17] This what Blanchard (2016) has defined the "divine coincidence", that is, the best rate that can be achieved by policy. Obviously, the central bank stabilization effort may succeed only if the total stock of government debt is given or correctly expected. This raises issues of policy coordination between monetary and fiscal policies, which will be only noted in this study, but not further elaborated.

and iii) positively with the fiscal deficit (assuming away full Ricardian equivalence);[18] and Eq. (9) is the debt-financed fiscal deficit where *S* is the nominal primary surplus.

The representative global investor *H* maximizes the intertemporal utility indirectly derived from wealth *W*:

$$(10) \qquad U(W_H) = Max_W \; E_t \left[\sum_{t=\tau}^{\infty} \left(\beta_{j,H,t}|_{\omega_t} \right)^t u\left(W_{H,t} \right) \right]$$

s. t.

$$(11) \quad W_{H,t} = M_{D,H,t} + M_{F,H,t} + P_t^{B_D} B_{D,H,t} + e_t P_t^{B_F} B_{F,H,t} \; = y_{H,t} + M_{D,H,t-1} + M_{F,H,t-1} + P_t^{B_D} B_{D,H,t-1}\left(1 + i_{D,t-1}^{B}\right) + e_t P_t^{B_F} B_{F,H,t-1}\left(1 + i_{F,t-1}^{B}\right)$$

$$(12) \quad M_{D,H}, M_{F,H}, B_{D,H}, B_{F,H} \; \geq 0$$

and transversality condition

$$(13) \quad \sum_{t=0}^{\infty} \left(\beta_{H,t} \right)^t (M_{D,H,t} + M_{F,H,t} + P_t^{B_D} B_{D,H,t} + e_t P_t^{B_F} B_{F,H,t} \; - y_\tau) = 0,$$[19]

where $u(\cdot)$ is a strictly quasi concave, time-separable, and well-behaved utility function; E_t is the expectations operator at time *t;* and y_H is the investor *H*'s income.

The Intertemporal Budget Constraint

It is important to wholly understand the central role of the IBC (Eq. (1)) for the PTI. With full integration of financial markets and the global nature of investors, liability issuers must commit

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[18] It should be noted that debt-financed fiscal deficits would also affect the real output gap indirectly and with positive sign via their effect on the interest rate via Eq.'s (2) and (7)). This effect would be captured under relation i).

[19] Aside from its importance for making the model consistent and solvable, the transversality condition of Eq. (12) reflects the role of the "global investor" discussed at the outset of this section.

intertemporally to generating enough real resources to fulfill their financial obligations to the investors. The IBC reflects the constraint that, whatever paths or rules government chooses to set for current and future surpluses, the present discounted value of future surpluses must at least be equal to the value of the liabilities outstanding. From the point of view of the investors, the issuing government must prove capable *and* willing to return the full value of its future debt obligations expressed in terms of foreign (reference) currencies and global inflation, and the IBC must hold identically irrespective of the currency of denomination of the liabilities (for the reasons discussed in Section 2).

Regarding the objection that a government enjoying monetary sovereignty does not face an IBC since it can always print all the money needed to pay for its future obligations, the PTI response is that investors guided by what they perceive to be weak credibility of the policy regime and institutions of the issuing government may bid down the value of the money and orientate the markets, even to a point where their demand for the money and any assets denominated in that money will shrivel, thereby affecting the IBC. Every government – whether it does or does not issue the currency of the country – faces an IBC. The elasticity of the IBC may vary, but an IBC will always be there.

A government that consistently proved capable and willing to satisfy Eq. (1) would be perceived as credible by the markets, and vice versa. The stronger its credibility (a high β), the higher the "elasticity" of its IBC and the greater the market's readiness to absorb larger amounts of its liabilities. On the other hand, with weaker credibility (a low β), the prospects of it being capable and willing to raise sufficient future resources to repay its obligations would be perceived as more uncertain by the investors and the IBC would cause bond prices to fall; the further erosion of credibility might even lead investors to no longer buy or hold domestic bonds and to shift their portfolios toward foreign assets.

Eq. (1) epitomizes the essence of the PTI proposed in this study, in that the theory reflects the ultimate subjective nature of market perceptions (as expressed in the investors' expectations,

conjectures, and conventional beliefs) that are relevant to evaluate the credibility of national economic policies and the confidence than can be placed on the country's policy regime and institutions.[20]

The model's solution

Using the Bellman's equation to solve plan (10)-(13),

$$(14) \qquad V(y_{H,t}, W_{H,t}) = Max\left[u(W_{H,t}) + \beta V(y_{H,t+1}, W_{H,t+1})\gamma'_{t+1}R'_{t+1}\right],$$

where $R'$is the vector of real income growth rates, real interest rates and loss ratios for all bonds, leads to the Euler equation

$$(15) \qquad u'(W_{H,t}) = \left(\beta_{j,H,t}|_{\omega_t}\right)^n E_t\left[u'(W_{H,t+n})\gamma'_{H,t+n}R'_{t+n}\right],$$

which determines the optimal intertemporal path for wealth *W*. For a given *W* in each period, then, investor *H*'s optimal portfolio corresponds to the optimal intra-date allocation of *W* across the various assets available, and is derived by equating the marginal utilities of *M* and *B* holdings, each weighted with the price of each:

$$(16) \qquad u'(M_{D,H,t}) = u'(M_{F,H,t}) = \frac{1}{P_t^{B_D}}u'(B_{D,H,t}) = \frac{1}{e_t P_t^{B_F}}u'(B_{F,H,t}).$$

Solving the model simultaneously for all demand and supply relations, under well-behaved investor preferences and optimal fiscal and monetary policies, and with complete ERPT, instantaneous relative price adjustment to the exchange rate, and a given price level of country *F*, optimal portfolio allocations $\left(M^*_{D,H}, M^*_{F,H,}B^*_{D,H}, B^*_{F,H}\right)$ attain at equilibrium asset prices $P_t^{B_{D^*}}, P_t^{B_{F^*}} = 1$ (since bonds trade

[20] More goes into Eq. (1) than the mere evaluation of stock-flow consistency. To see this, consider that, ceteris paribus, the same level of public debt may correspond to very different spending and tax policies that a government may decide to adopt, with different implications for the fiscal multipliers and the economy's supply side. Different policies would impact differently the growth path of the economy and its capacity to generate future fiscal surpluses, thereby inducing the markets to assess differently the policy credibility of the authorities and to determine a different elasticity of the government IBC, as defined in the text above.

at their contractual value), interest rates $i_{t+n}^{B_j*} = i_N^{B_j}$ (equal to their neutral level), and exchange rate e_t^*, where the real output gap is balanced and the domestic and world price levels (expressed in units of the domestic currency) are each equal to $e_t^* P_{F,t}^*$. In fact, the closure of the output gap depends ultimately on the optimality and effectiveness of both fiscal and monetary policies, and optimality calls into question the issue of coordination between fiscal and monetary policies. While policy effectiveness will be discussed in the next subsection, optimality will not be further elaborated in this study.

Assuming $u(W) = \ln(W)$, using Euler equation (15), replacing $M_{D,H}, M_{F,H}, B_{D,H}$, and $B_{F,H}$ with their respective real values,[21] simplifying, and replacing the solution of Eq. (15) into Eq. (16), yield equilibrium relationship

$$(17) \quad \frac{\left(\beta_{D,H,t}|_{\omega_t}\right)^n (1-p_{t+n}^*)^n}{M_{D,H,t+n,}^*} = \frac{\left(\beta_{D,H,t}|_{\omega_t}\right)^n (1-p_{t+n}^*)^n}{e_t^* M_{F,H,t+n}^*} = \frac{\left(\beta_{D,H,t}|_{\omega_t}\right)^n \left(1+i_{t+n}^{B_{D}*}\right)^n (1-p_{t+n}^*)^n}{B_{D,H,t+n}^*} = \frac{\left(\beta_{D,H,t}|_{\omega_t}\right)^n \left(1+i_{t+n}^{F_*}\right)^n (1-p_{t+n}^*)^n}{e_t^* B_{F,H,t+n}^*},$$

where p is the world rate of inflation used by the global investors to gauge the real value of their wealth. Re-expressing Eq. (16) in terms of the equilibrium nominal exchange rate at time t gives

$$(18) \quad e_t^* = \frac{\beta_{F,H,t}|_{\omega_t}}{\beta_{D,H,t}|_{\omega_t}} \frac{\left[\frac{1}{M_{F,H,1}^*} - \frac{1}{B_{D,H,1}^*} E_t\left(1+i_{t+1}^{B_{F*}}\right)\right]}{\left[\frac{1}{M_{D,H,1}^*} - \frac{1}{B_{F,H,1}^*} E_t\left(1+i_{t+1}^{B_{D*}}\right)\right]}$$

Note from Eq. (17) that a low β_D relative to β_F causes investors to hold relatively less optimal amounts of domestic money and bonds, and note from Eq. (18) that a larger "credibility gap" of economy D versus F (proxied by $\frac{\beta_F}{\beta_D} > 1$) determines, ceteris paribus, a higher equilibrium nominal exchange rate e of currency D versus F.

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[21] These are given by what these assets can actually buy to their holders at world market prices, that is, $\frac{\beta e M}{P}$ and $\frac{\beta e B P^B}{P}$, where $e = 1$ for M_D and B_D.

Finally, transforming Eq.'s (4) and (18) using natural logarithms, substituting Eq. (18) into Eq. (4), applying Taylor's expansion to derive the equality $\ln(1+i) \approx i$,[22] and solving for the rate of domestic inflation one period ahead, yield:

$$\tilde{p}_{D,t} \approx \phi(\cdot) + L^{-1}\{[(\beta_{F,t+1} - \beta_{D,t+1}) + (\tilde{m}_{D,t+1} - \tilde{m}_{F,t+1}) + (\tilde{b}_{D,t+1} - \tilde{b}_{F,t+1}) + (\tilde{\imath}_{t+1}^{B_F} - \tilde{\imath}_{t+1}^{B_D})) + \tilde{p}_{F,t}] + \pi(\cdot)\}, \quad (19)$$

where the tilde indicates the percentage deviation of variables from their steady state (optimal) values. According to Eq. (19), for a given ERPT factor $\phi(\cdot)$and zero net excess internal demand $\pi(\cdot) = 0$, domestic inflation varies directly with:

i. changes in country credibility gap, as perceived by the market and based on new information and re-evaluation of relevant economic data. Note that credibility affects inflation both directly (via the credibility gap) and indirectly through the pass-through factor (the higher domestic credibility, the lower the pass-through, and the lower the inflation rate);

ii. changes in the relative dynamics of domestic versus foreign money stocks;

iii. changes in the relative dynamics of domestic versus public debt;

iv. changes in the interest rates differential on government bonds, and

i. changes in the rate of foreign inflation.

Notice that the EPRT term in Eq. (19) has negative sign, except when the pass-through is complete and thus $\phi(\cdot) = ln1 = 0$. With complete pass-through, instantaneous relative price adjustment

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[22] From Taylor's expansion, $\ln(1+i) = i - \frac{i^2}{2} + \frac{i^3}{3} - \frac{i^4}{4} + \frac{i^5}{5} - \cdots = \sum_{n=1}^{\infty}(-1)^{n+1}\frac{i}{n}$, $\forall\, i \in (-1, 1]$, and $\lim_{n\to\infty}(R_n) = -\frac{i^2}{2} + \frac{i^3}{3} - \frac{i^4}{4} + \frac{i^5}{5} - \cdots = \frac{(-1)^n}{(1+\xi)^{n+1}}\frac{(i)^{n+1}}{(n+1)!} = 0$, $\forall\, \xi \in (0, i)$, and $\forall r \in (-1, 1]$. Thus, $\ln(1+i) \approx i$.

to foreign prices, and no change in the output gap, changes in the nominal exchange rate feed fully into domestic inflation (relative to foreign).

Credibility and Macro Policies: Discussion

The model above allows to evaluate the effects of active fiscal and monetary policies of any government essentially by analyzing how policy stimuli are financed and how the government's financing strategy is judged by the financial markets.

Assume country *D*'s highly-indebted government engineers a persistent fiscal stimulus through the issuance of new domestic debt $\overline{\Delta B}_{\tau}^{j} > \overline{\Delta B}_{t}^{j}, \tau = t+1, \ldots t+n$, for an indefinite *n*, in an attempt to keep real output gap at zero (Eq. (8)). If its credibility is low (a low β_D), investors apply an inelastic IBC and require government to commit to attaining larger primary surpluses over the immediate future so as to keep bond prices from falling. A tight IBC makes the stimulus small and short-lived, if at all. Moreover, if the government does not (credibly) commit to attaining larger future primary surpluses (that is, $\beta_{D,t}|_{\omega_t^1} < \beta_{D,t}|_{\omega_t}$), based on the new information set ω_t^1), bond prices fall (Eq. (1)), leading to higher interest rates (Eq. (7)). Substituting Eq.'s (1) and (2) into Eq. (7) and the resulting expression into Eq. (8), expressing the exchange rate as an implicit function of credibility and the interest rate from Eq. (18), differentiating totally and setting the resulting expression equal to zero, yields

(20) $\Delta X_{D,t} = X_{D,t} - X_{D,t-1} =$

$$X_1\left(\iota^{-1}\left(\frac{P_t\sum_{\tau=t}^{\infty}\left(\boldsymbol{\beta_{D,t}|_{\omega_t^1}}\right)^n(s_{D,t}+\Delta m_{D,t})}{B_{D,t-1}+\overline{\Delta B}_{D,t}} - i_N^{B_j}\right)\right)\Delta\iota^{-1}\left(\frac{P_t\sum_{\tau=t}^{\infty}\left(\boldsymbol{\beta_{D,t}|_{\omega_t^1}}\right)^n(s_{D,t}+\Delta m_{D,t})}{B_{D,t-1}+\overline{\Delta B}_{D,t}}\right)+X_2\left(\frac{e_{D,t}\left(\boldsymbol{\beta_{D,t}|_{\omega_t^1}},\iota^{-1}\left(\frac{P_t\sum_{\tau=t}^{\infty}\left(\boldsymbol{\beta_{D,t}|_{\omega_t^1}}\right)^n(s_{D,t}+\Delta m_{D,t})}{B_{D,t-1}+\overline{\Delta B}_{D,t}}\right)\right)}{P_{D,t}}\right)\Delta\frac{e_{D,t}}{P_{D,t}}+$$

$$X_3\,\overline{\Delta B}_{D,t} = 0$$

which shows that, based on the new information set, country *D*'s credibility could drop to a critical level $\beta_{D,t}|_{\omega_t^1}$ (marked in bold and red in Eq. (20)) that neutralizes the effect on real output from both

the fiscal stimulus $\overline{\Delta B}_{D,t}$ and the real exchange rate $\Delta \frac{e_{D,t}}{P_{D,t}}$ (if any),[23] such that $\Delta X_{D,t} = 0$; yet, the fiscal stimulus would increase the nominal exchange rate and inflation via Eq. (19).

Consider now the central bank's decision to stimulate the economy by lowering the domestic policy rate (Eq. (7)) and committing to keep it low for a long period by supplying more money through periodic purchases of government bonds. From Eq.'s (1) and (6), the share of domestic bonds held by the central bank increases (at an unchanged level of total outstanding government debt); correspondingly, by Eq. (18), global investors reallocate their portfolio toward foreign bonds since the marginal utility of the money balances they have received in exchange for selling the bonds to the central banks has declined.[24] Eq. (18) shows that, ceteris paribus, portfolio compositions featuring higher shares of foreign assets relative to domestic assets determine a higher nominal exchange rate. While the nominal exchange rate depreciation may in principle amplify the stimulus, the intensity and duration of its effect ultimately depend on the amplitude and speed of the real exchange rate adjustment process (Eq. (19)). Short of the real exchange rate effect, the monetary stimulus is effective only to the extent that the central bank keeps the interest rate low (at or below its neutral level) for long enough. As experienced during the recent crisis, this policy encounters a limit at the zero (or effective) lower bound on the nominal interest rate; yet, until such limiting point is reached, the policy is generally effective.

However, the policy authorities must be mindful of the impact of credibility on the country's IBC. While high credibility raises the effectiveness of monetary policy, low credibility or the erosion of credibility in the eyes of the markets reduces it. This factor is particularly relevant for fully

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[23] The change in the real interest rate would take place only if less than complete pass-through and/or lagged price adjustment mechanism.

[24] This is due to the fact that they now hold domestic money balances in excess with respect to optimal balances $M_{H,t}^{D*}$ in Eq. (18).

financially integrated and highly indebted countries, especially if their capacity to sustain a low interest rate policy is doubted by the markets. This would be the case if persistently low interest rates rendered the economy's public debt unattractive to investors or if the excess money balances injected by the central bank to purchase (monetize) the outstanding debt were used to buy speculative assets and assets denominated in foreign currencies. Reusing Eq. (20), after setting $\Delta \frac{e_{D,t}}{P_{D,t}} = 0$ and $\overline{\Delta B}_{D,t} = 0$, gives

$$(21) \quad \Delta X_{D,t} = X_{D,t} - X_{D,t-1} =$$

$$X_1 \left(\iota^{-1} \left(\frac{\sum_{\tau=t}^{\infty} \left(\boldsymbol{\beta_{D,t}|_{\omega_t^1}} \right)^n \left(s_{D,t} + \frac{\overline{\Delta M}_{D,t}}{P_t} \right)}{B_{D,t-1} + \overline{\Delta B}_{D,t}} - i_N^{B_j} \right) \right) \Delta \iota^{-1} \left(\frac{\sum_{\tau=t}^{\infty} \left(\boldsymbol{\beta_{D,t}|_{\omega_t^1}} \right)^n \left(s_{D,t} + \frac{\overline{\Delta M}_{D,t}}{P_t} \right)}{B_{D,t-1} + \overline{\Delta B}_{D,t}} \right) = 0,$$

which, again, shows that, based on the new information set, if country *D*'s credibility drops to a critical level $\beta_{D,t}|_{\omega_t^1}$ (marked in bold and red in Eq. (21)) that neutralizes the effect of the monetary stimulus $\overline{\Delta M}_{D,t}$ on the nominal interest rate, $\Delta \iota^{-1}(\cdot) = 0$, and hence on real output, while the largest part of the effect would dissipate into nominal exchange rate depreciation and higher inflation via Eq. (19).[25]

Finally, if the central bank and government coordinated their acts and engineered a monetary financing of new debt issuance aimed to support a fiscal stimulus $\left(\overline{\Delta B}_{D,t} = \overline{\Delta M}_{D,t}\right)$ large enough to keep $i_t^{B_j} - i_N^{B_j} = const$ (a.k.a. "helicopter money"), by totally differentiating Eq. (8) the change in the real output gap would be given by

$$(22) \quad \Delta X_{D,t} = X_{D,t} - X_{D,t-1} = X_1 \left(i_t^{B_D} - i_N^{B_D} \right) \Delta i_t^{B_D} + X_2 \left(\frac{e_{D,t}}{P_{D,t}} \right) \Delta \frac{e_{D,t}}{P_{D,t}} + X_3 \, \overline{\Delta M}_{D,t} = X_3 \, \overline{\Delta M}_{D,t},$$

[25] For full neutralization to be possible, that is, for $\Delta X_{D,t} = 0$, the decline in credibility must offset the impact that the monetary stimulus exerts through the change in the price of bond *B* (represented by the term in parentheses of the expression for $\Delta \iota^{-1}(\cdot)$), so that $\Delta \iota^{-1}(\cdot) = 0$.

since $\Delta i_t^{Bj} = 0$ by construction and $\Delta e_{j,t} = 0$ with full pass-through from Eq. (19). Eq. (22) shows that, by keeping the interest rate differential constant, no negative effects retrofit on real output; as a result, the fiscal-monetary impulse is unencumbered and the policy program can be calibrated to stabilize real output at full capacity without causing inflationary pressure. This result is consistent with Buiter's (2016) conclusion that *«helicopter money always works»* However, the monetary authorities should always consider the impact of their action on the exchange rate. If the stimulus were temporary, and the pass-through less than complete, the nominal exchange depreciation that would follow the temporary excess supply of money (Eq. (19)) would amplify the stimulus (Eq. (8)). On the other hand, under a persistent monetary financing of the fiscal deficits, the ongoing excess money creation would affect the nominal exchange rate and the inflation rate, causing credibility to drop, the ERPT effect to increase (Eq. (5)), and the exchange rate and inflation to further rise (Eq. (19)). Thus, while policy coordination may achieve the best result possible, it is not by itself sufficient for the country to gain credibility in the eyes of the market.

Equations (19)-(22) point to the relevance of a) credibility for policy effectiveness and price dynamics in a context where economies are open and fully financially integrated in the global markets, and b) the dissipation of ineffective policies into inflation. Policy credibility creates space for active, effective and non-inflationary macro policies. The abuse of such space, however, dissipates the policy effects into exchange rate depreciation and higher inflation. Inflation is the measure of the dissipative effect.

As will be discussed in the next section, there is no mechanical correspondence between changes in government liabilities (money and/or debt), the exchange rate, inflation and real output. The correspondence is country specific, it depends critically on the country's credibility as perceived by the markets, and it may change depending on the government efforts (or lack thereof) to gain credibility in the eyes of the markets.

5. WHY IS A NEW THEORY OF INFLATION NEEDED?

Prevailing macroeconomic theories have been unsuccessful at explaining inflation in contemporary economies. Old Monetarism as well as the New Classical school have proven unable to account for how the massive and persistent money injections that were engineered in advanced economies during the Great Recession have largely failed to rekindle inflation. Similarly, New Keynesianism has been unable to explain the very slow motion of low-interest rate policies to deliver on the inflation targets promised by central banks, and in fact it has been caught in flagrant contradiction between its policy prescriptions and its inherent theoretical Neo-Fisherian structure, which should have led to opposite prescriptions (see Cochrane, 2017).[26] Moreover, structuralist theories of inflation, too, have manifested their inadequacy to explicate inflation as a cost-push phenomenon at a time when the forces operating in the global economy (strong competition from third-country producers, weak bargaining power of labor, low wages due to large resource slack, low commodity prices, technology innovations, diffusion of the "new economy," etc.) have all contrived to remove any significant pressure from costs to the prices of goods and services.

More recently, the Fiscal Theory of the Price Level (FTPL) has re-asserted itself as a sufficient theory to explain the price level as being determined by government debt and fiscal policy alone, with monetary policy playing at best an indirect role. Originally developed in the early 1990s, the FTPL has made a comeback in recent years; yet, upon rigorous analysis, it has been shown to be internally inconsistent in supporting its conclusion that the general price level takes on the value required to ensure that the real contractual value of the outstanding stock of nominal (non-monetary) public debt

[26] See also the discussions by J Hendrickson in In Defense of Neo-Fisherism The Everyday Economist, October 17, 2014, and in New Keynesian Failure, The Everyday Economist, August 20, 2015.

is always equal to the present discounted value of the current and future real primary surpluses and monetary financings of the State.[27]

What these theories leave out of the picture is how policy effectiveness may change and affect inflation in response to investors' diverse attitude toward different countries, depending on their policy credibility, in a world of highly open and financially integrated economies where global financial markets play a dominant role in driving resource allocation across national boundaries, based on the perceived policy credibility of each country. Where credibility is low, the space available for using active demand management policies is limited and the most likely result of such policies is currency depreciation and inflation, with limited or no gains on the real variables of interest (output and resource employment).

There is, therefore, a need for a theory that can explain policy ineffectiveness, and their inflationary consequences, taking into account the new global financial context that has become dominant nowadays. Two critical features make the PTI proposed in this study especially fit as a good theory of inflation in today's global context. One is that, according to the PTI, there is nothing mechanical about the transmission channel running from government liabilities to inflation dynamics. The transmission rests fundamentally on the role of financial market expectations, perceptions, and conventional beliefs – as revealed by global investors through their portfolio choices – regarding the policy credibility of a country and the future sustainability of its liabilities. To illustrate the point through an example, a country that would expand its public liabilities to finance new output and employment, all else being equal, could be successful in its attempt (and thus ending up with higher output at low inflation) or unsuccessful (thus ending up with higher inflation and limited or no change

[27] See Buiter (2017) and Buiter and Sibert (2017) for a comprehensive review of the relevant literature, and for the analysis of the anomalies and inconsistencies of the FTPL.

in real variables), depending on how the market perceived the credibility of the country's authorities and policy institutions. Whereas the country's liabilities would be deemed to be intertemporally sustainable in the former case, they would be regarded as not sustainable in the latter, thus leading investors to very different portfolio allocation choices in each case. According to the PTI, in either event the market is central in determining the elasticity of the country's IBC, and while investors may be assumed to act rationally (grounding their portfolio choices on the best knowledge available), the explanatory power of the theory does not require them to be necessarily right in their judgments – the theory simply predicts that whatever they decide ultimately determines the outcome of the country' policies.

The other feature is that, according to the PTI, the effect of public liabilities on inflation is not direct but is mediated by the exchange rate. Investor portfolio choices impact, first, the exchange rate of the domestic currency as a relative price of the assets that are traded internationally and influence domestic inflation only once the changes in the exchange rate are transmitted to domestic prices via the passed-through and relative price adjustment mechanisms. In the PTI, therefore, the financial and trade sectors, both domestic and external, interact strongly with each other, reflecting the integration of the economies into the global (real and financial) markets. The different speeds at which such markets process the information are critical for the transmission of the price signals from the financial assets to the goods and services exchanged in the economy, and back to the real value of the assets supplied to the markets and those held by the investors.

An important implication of the two critical features just discussed is that the PTI may explain how identical policies may attain different outcomes in different country contexts. For instance, active demand management policies in poorly-credible countries may fail to stimulate output and might instead cause inflation to rise (even in the presence of large output gaps) and capital to flee the economy due to an inelastic IBC and unanchored inflation expectations; on the other hand, in highly reputed countries with more elastic IBC (as determined by global market preferences) and strongly anchored

expectations, the same policies may achieve the desired results in terms of real output and resource use, with limited or no effect on the exchange rate and inflation.

6. CONCLUSION

The Portfolio Theory of Inflation (PIT) aims to investigate the central role of global financial markets in determining the effectiveness of macroeconomic policy in open and fully financial integrated economies. This study has proposed the PIT as a new theoretical framework to gauge the effectiveness of macroeconomic policies and their impact on the exchange rate and domestic prices, in the context of open and fully financially integrated economies. Using a modified version of the portfolio balance approach to exchange rate determination, the PIT builds around the role of global financial investors as agents acting as intertemporal and international resource allocators and operating in an integrated world market space where they can move capital across countries quickly and at negligible cost.

According to the PIT, domestic inflation varies directly with the country credibility gap, and with changes in the relative dynamics of domestic versus foreign money and public debt stocks, the interest rate differential, and foreign inflation. Also, the PIT predicts that monetary and fiscal policies can be effective if the country that undertakes them enjoys strong credibility (in the eyes of the markets) and contribute to maintaining stable prices through nominal exchange rate appreciation, while they are less effective, or ineffective, and eventually dissipate into currency depreciation and higher inflation, if the country undertaking them is deemed poorly credible. The PIT, therefore, can explain how identical policies may have different economic outcomes in different country.

The PIT also suggests that coordination between monetary and fiscal policies is necessary but not sufficient for a country to gain credibility in the eyes of the market.

Finally, better than prevailing theories of inflation, the PTI can reflect the dominant role of global finance in defining the space available for national authorities of open and financially integrated economies to undertake active, effective and non-inflationary demand management policies.

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