

We would like to offer our response to the comments made by the referees. We shall proceed by posting our arguments (in blue and italics font) following each comment for each of the two referee reports.

Referee report #1

The paper examines the effectiveness of fiscal and monetary policies for governments with low credibility. This is an important and interesting question. The paper builds a theoretical model, which predicts that policies of countries with lower credibility are less effective. Then the paper takes the predictions of the model to the data, and estimate that the predictions of the model are supported in the data.

While the question is important, the paper is not ready for publications. I see a variety of problems. The paper does not discuss what it adds to the existing literature and it is doubtful whether it adds much.

From Sections 3-5, 7 and Appendix 1, this is what the paper adds to the literature:

On methodology

In a context where economies are highly-financially integrated,¹the PTI:

- replaces the traditional representative domestic household agent with a representative global investor who allocates wealth globally, based on optimal intertemporal portfolio criteria: country policy credibility becomes a crucial factor for discriminating investment decisions across countries.*
- endogenizes (the ‘elasticity’ of) the intertemporal budget constraint (IBC), making the IBC critically dependent on the policy credibility of each country (as perceived by the market).*

On economics

The PTI:

- shows than macro-policy effectiveness results are neutral with respect to the currency of denomination of a country’s liabilities and to whether liabilities are held by residents or nonresidents.²*
- shows that macro-policy effectiveness, the equilibrium exchange rate and inflation are the results of portfolio allocation choices from global investors.*
- explains why ineffective policies may or may not dissipate into higher inflation.*
- explains why monetary financing of the public deficit (or helicopter money) is effective as a short-term stopgap policy but is not sustainable in the longer run.³*
- explains why and how identical macro-policies may attain different outcomes in countries featuring different levels of policy credibility.*

¹ *As supplementary conditions, wealth is largely unequally distributed and the share of institutional savings is large, both making the market influence of marginal investors greater.*

² *One implication of these neutrality propositions is that, at low levels of credibility, a floating exchange rate regime does grant any significant advantages (if at all) to an economy, in terms of greater policy effectiveness or protection from external shocks.*

³ *A critique to Modern Monetary Theory (MMT) is implicit here, although the article does not go into that.*

Other innovative aspects of PTI are discussed below, as part of our response to referee report #2.

We would have no difficulties in summarizing the above points somewhere in the article.

The paper by Bossone (2019), which is cited in the abstract, uses the same model equations as this paper (13 equations are the same). This suggests that only the empirical part is new.

Correct. While the part of the article covering theory offers a complementary context to Bossone (2019) for understanding the scope of the PTI, the model is the same since the purpose of the new article is to subject the theory to empirical testing.

Moreover, the model part is poorly written and hard to follow.

What exactly in the model is poorly written, and what is it that is so hard to follow? Each equation is illustrated in detail and the overall logic of the model is extensively explained. If there are unclear points, internal inconsistencies, or errors, what are they? Can the referee be more specific?

There are some strong assumptions (for example that the exchange rate pass through depends on the credibility of the country), which should be supported. Moreover, it should be discussed how these assumptions affect the main results.

The assumption that the exchange rate pass through depends (also) on credibility derives, as indicated in the article, from the importance of anchored expectations. Where these are more strongly anchored (typically in more credible countries), the pass-through effect is likely to be less than full and more moderate than where expectations are unanchored. References to the literature as regards this point are provided in Bossone (2019), to which the article refers, and suggest that this assumption is not at all unrealistic.

The referee indicates that other strong assumptions should be supported. What are these other assumptions? Can the referee be more specific?

The section on “Credibility and macro policies: An evaluation” discusses how the model affects the main results. What is left unexplained? Can the referee be more specific?

The paper claims that an important part of the model is the intertemporal budget constraint. It shows that the current debt of a country is equal to the present discounted value of future primary surpluses and monetary financings. The discount factor reflects the credibility that investors attribute to the country. This is exogenous in the model, but probably this should be endogenous and be a function of past policies. It would have been helpful to discuss how this credibility differs from a risk premium that a country has to pay.

The discount factor reflects the credibility that investors attribute to a country’s policy framework and, as footnote #8 explains, credibility is a function of past policies. The model defines the discount factor as time-varying and conditional upon the information currently available to the investors and uses it as a scale factor that corrects the value of the intertemporal budget constraint in the perception of the markets. A discussion of how the discount factor differs from the risk premium can be easily incorporated in the article, emphasizing their intimate relationship.

For low credibility countries default is an option if they cannot or will not pay their debt. Empirical works show that this is quite common. The paper should at least mention this option, and discuss why it is not incorporated in the model.

True, the model does not discuss explicitly default as an option. Yet, as the article explains, the discount factor reflects the investors' prevalent perception of a country's credibility, including also the possibility that the country might be (or become) unable to service its debt obligations and thus default on them, which could in turn trigger 'sudden stop' decisions prior than default materializes or causing outright default. This is perfectly in line with what the article aims to show and is already part of the model, in that the value of the discount factor reflects the market perceptions of the country's credibility, including as such possible default events.⁴ In fact, by incorporating information including, inter alia, credit ratings and/or the results of debt sustainability analyses, the discount factor implicitly reflects the likelihood of a country's default on its obligations.

Unfortunately, also the empirical part is poorly implemented and not convincing. Identification is not discussed in detail. No robustness checks are provided.

We have used as independent variables monetary and fiscal magnitudes, which respond directly to policy decisions taken by national authorities. Since this is done consistently across country clusters, and the methodology adopted allows to control for other effects, differences in regression coefficients should be indicative of how different levels of credibility affect the relationship between the fiscal and monetary policy variable and the real and nominal variables (real GDP and inflation). Yet, we will further reconsider identification problems.

On robustness, we have used the tests recommended by the literature on the Arellano-Bond model cited in the article, with all tests performing well, with Wald chi-square values turning out within the norms.⁵ We will further reconsider robustness issues.

The high credibility countries seem to be selected without further explanation. From Europe, for example, the paper only uses Denmark, Norway, Sweden, Switzerland and UK. Why? Similar questions arise regarding the selection of low credibility countries.

Credibility was proxied by the combined ratings assigned to each country by the three major rating agencies Moody's, Standard & Poor's and Fitch. (Three agencies were considered instead of just one, precisely to make that proxy as objective as possible.) The two country clusters were constructed so as to be as polarized as possible, by populating each of the two clusters with countries featuring, respectively, the highest and lowest levels of rating. As explained in the Appendix of the article, the "high credibility" (HC) cluster was formed by selecting countries with prime or high-grade ratings and comprises the 12 countries that happen to fall within that category. The "low credibility" (LC) cluster was formed by considering the 7 countries rated as highly speculative, substantial risks and extremely speculative or in default and by 5 countries rated as lower medium grade or non-investment grade speculative, which were added specifically to form a LC cluster of equal size to the HC one.

It does not help that the result tables are not exactly nice to look at (Stata output copy-pasted). Finally, it is irritating, to say the least, that when taking the logarithm of certain variables the authors derive that $\ln(-x) = -\ln(x)$ for negative x . The logarithm of a negative number is not defined.

⁴ For example, as information such as credit ratings or debt sustainability analyses would typically enter the determination of the discount factor, the latter would implicitly incorporate judgments on the likelihood of a country default.

⁵ See <https://www.statalist.org/forums/forum/general-stata-discussion/general/461820-unusually-large-wald-chi-square-values>.

Considering that $\ln(-x) = \ln(x) + (2k + 1)i\pi$,⁶ we will seek to improve our estimation procedures taking into account our objective of not losing the information associated with negative changes in x when these refer to primary fiscal budgets (i.e., increasing deficits), which imply expansionary fiscal policy impulses. This information would go lost to the analysis if the natural logarithm of negative numbers were kept undefined and no value were assigned to them.

Referee report #2

The objective of the paper is to test the theoretical framework developed in Bossone (2019). However, the paper also replicates (literally, for some parts) that original paper and gives the impression to the reader that the authors have “copied and pasted” the previous work.

I will concentrate my comments on the so-called “Portfolio Theory of Inflation” (PTI) developed in Bossone (2019) and this paper. I would say that the authors do not realize a deep review of the previous literature. The authors are pretending to present a new theory approach that, in fact, is rooted in an old heterodox tradition. Broadly speaking, the thesis of the paper is that an economy “heavily indebted” can suffer capital outflows and, consequently, currency depreciations and higher inflation because of the exchange rate pass-through.

No, this is at all not the thesis of the article! The article investigates the effectiveness of macro-policies in countries that are highly financially integrated where significant resource allocation decisions are taken (or are strongly influenced) by global investors rather than domestic market players, and shows how macro-policy ineffectiveness may dissipate into higher inflation in countries that suffer from low policy credibility (in the eyes of the markets). The PTI explains inflation as a possible (rather than necessary) outcome of the portfolio choices of investors and takes credibility (not indebtedness) to be the key factor. In fact, the PTI explains why inflation may not follow from ineffective policies in poorly credible countries. As the article explains in depth, the PTI endogenizes the ‘elasticity’ of the intertemporal budget constraint (IBC), making it critically dependent on the investors’ decisions: if investors believe that a country is strongly credible, they would accept (and finance) even large levels of indebtedness (i.e., the IBC would be more elastic) and make their policies effective. The contrary would hold for poorly credible countries.

The idea that currency devaluations are the principle cause of inflation is not new at all. In contrast to the neoclassical inflation theory based on the assumptions of excess demand, there is an old tradition of cost-push inflation theories. In the 20th century, the idea that currency devaluations cause inflation started to be debated in the context of the Germany’s hyperinflation. In contrast to the monetarist view of Bresciani-Turroni (1937), also called the English Quantitative approach, there was the German Balance of Payments Theory (GBPT) or German Qualitative approach. The GBPT pointed out that Germany’s hyperinflation was caused by the Mark devaluation, that was caused by the foreign currency payments of war reparations. This approach was supported by the Germany’s Central Statistical Office, the Reichsbank, and the Secretary of the Treasury Karl Helfferich (Bastos 2002).

The transmission from currency devaluation is instrumental to the PTI, but the PTI goes much beyond it. The PTI shows how macro-policy ineffectiveness may dissipate into higher inflation in countries that suffer from low policy credibility, but also indicates conditions under which policy ineffectiveness would not translate into higher inflation, in spite of currency devaluation. In fact, according to the PTI, the link between exchange rate devaluation and inflation is influenced by

⁶ See <https://www.slideshare.net/mobile/armellini/log-negativo>.

credibility, depending on the anchoring of expectations. We don't think any of these elements are present in the literature cited by the referee.

Section 5 of the article discusses how the PTI complements and supplements existing theories of inflation. The following specific features of PTI should be noted:

- First, unlike traditional theories of inflation, according to the PTI there is nothing mechanical about the transmission channel running from macro-policies to inflation. 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.*
- Second, according to the PTI, inflation originates from the optimal (re)composition of country liabilities within global investor portfolios: changes in domestic prices are the consequence of changes in the quality of those liabilities as they are perceived by the marginal investors. If the quality of a country currency or bonds (relative to other country currencies or bonds) is expected to deteriorate, due to their unordered dynamics, demand for the currency or bonds will decline and a drop in their relative price will follow, causing the price of other assets, commodities and goods to increase. Yet, if the deterioration in the country's perceived credibility declines beyond a critical benchmark, the contractionary effects of policies may even depress prices.*
- Finally, the PTI explains how identical policies may attain different outcomes in countries featuring different levels of credibility.*

Again, we do not think any of the above considerations are contained in, or implied, by the literature cited by the referee.

In the 1950s, under the initiative of the Argentinian Raul Prebisch, the so-called Latin American Structuralist School developed a similar idea: inflation results from balance of payments crisis. Later, in the context of the Latin American external debt crisis and the hyperinflation process of the 1980s, that structuralist and German approach turned in a very important theoretical framework to understand the monetary disorders of those economies. For this reason, broadly speaking, it would be difficult to justify that the “PTI is alternative to the conventional “demand-pull and “cost-push (structuralist) theories of inflation” (p. 37). However, I see as a new new insight the idea that “inflation follows the optimal (re)composition of country liabilities within global investor portfolios” (p. 37). Also, the paper presents the idea that same economic policy could get different outcomes depending on degree of credibility of the policymaker.

This is precisely where the innovative aspects of PTI rest, in particular with relation to inflation (as discussed above). The theory does not supplant the conventional theories but adds to them and offers an explanation that is alternative to the theirs. It also identifies policy credibility as a core factor to explain why the response to the same policies may change across countries.

In my understanding, Keynes's concept of fundamental uncertainty fit very well to this analysis. However, in a “non-ergodic world” (in terms of Paul Davidson) it would be problematic to assume that the decision making process of global investors is based on probabilistic calculations and optimizations (rational expectations?).

In fact, the probabilistic framework is used to make the model formally tractable. Yet, as discussed above, the discount factor (and through it the whole IBC of a government) reflects not only probabilistic expectations but also the investors' perception of a country's credibility, which is open to market mood dynamics and changes in conventional beliefs. This is indeed very much in Keynes' tradition, in particular its liquidity preference theory.

Finally, in order to demonstrate the causation from the external financial commitments to the inflation rate through the exchange rate pass-through, the German Qualitative approach and the Structuralist view of the Latin-American hiperinflation of the 1980s have focused in on the currency denomination of external debt: due to financial obligations are denominated in a foreign currency,

the central bank cannot act as lender of last resort and, consequently, the currency depreciates if the central bank faces a shortage of foreign reserves. However, the paper refers to the “neutrality of currency denomination” because, under the author’s view, what really matters are the financial commitments in real terms. I don’t want to go further on this, but in some way, if we say that the currency denomination of the government debt is neutral we are implicitly saying that that “money is neutral” (as in the mainstream view).

Not at all! The PTI shows that monetary (as well as fiscal) policy would be “ineffective” (as different from “neutral”) in countries with low credibility, and vice versa in highly credible countries – where the word “ineffective” is understood with reference to the policy impact on output. Regarding prices, even with policy ineffectiveness, it is not necessarily the case that higher money growth translates (mechanically) into higher inflation. The article shows that, depending on the discount factor, investor portfolio decisions might even bear recessionary effects on output, as a response to expansionary policies, which would even dampen inflation, an outcome that would be far from neutrality.

The paper would contribute to the debate against the mainstream approach where inflation is always monetary phenomenon determined by an excess of aggregate demand. However, I think that the paper should review properly the literature of cost-push inflation theories as a background of the PTI.

We have no difficulties in considering the PTI as involving a cost-push element. The point is that the theory explains inflation (if it follows expansionary macro-policies) as the effect of the portfolio response of the financial markets to a country’s policy decisions – an aspect that transcends cost-push analysis while using it as part of the transmission process. The PTI does explain why devaluation may happen, but it does not assume any direct (and mechanical) relationship between policy decisions and devaluation, as the relationship is always mediated by the credibility of each of the countries issuing the currencies whose exchange rate is being considered (see Appendix 1, and in particular Eq. (A5)).