



Inflation Series Part 5: addressing a few common concerns

Introduction

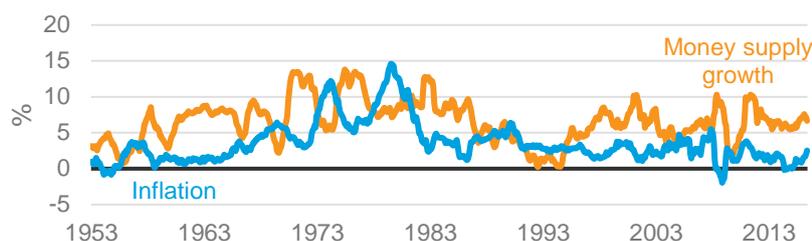
In part 5 of our inflation series we address some concerns that are commonly raised in discussions on inflation. The usual feedback by now is that the discussion has overlooked some critical influences on inflation, especially from those who claim a major role for money supply on inflation, but also from those who believe government debt and deficits are driving inflation. Finally we round off this instalment by looking at the impact of international influences on inflation, as represented by exchange rates.

Money supply growth and Inflation: separating fact from fiction

“Inflation is always and everywhere a monetary phenomenon.” Friedman, Milton. 1963 *Inflation: Causes and Consequences*. New York: Asia Publishing House.

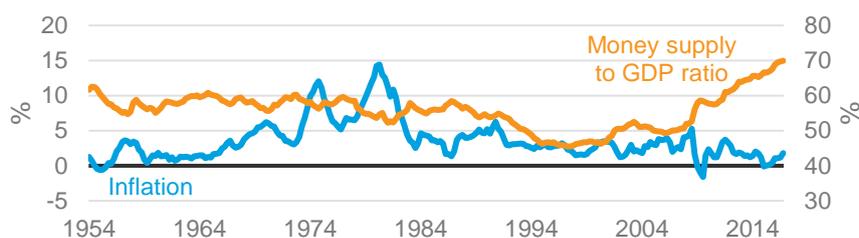
Much of the pushback when presented with the view that the fundamental cause of inflation is higher net demand (i.e. demand in excess of supply) comes in the form of criticism that money supply has been ignored. Images of Zimbabwe and the Weimar Republic are invoked whereby paper money is moved around in suitcases. The basis for these perspectives is Nobel Laureate Milton Friedman’s renowned quote – reproduced above - that inflation always has monetary roots. But an assessment of the evidence suggests an alternative: that money supply has not been a significant driver of inflation for the past 50 years, nor is it currently exerting a significant influence.

Chart 5a(i). Money supply growth and inflation: an uncertain association



Source: Thomson Reuters, Federal Reserve, June 2017

Chart 5a(ii). Money supply has even less relation to inflation once adjusted for GDP

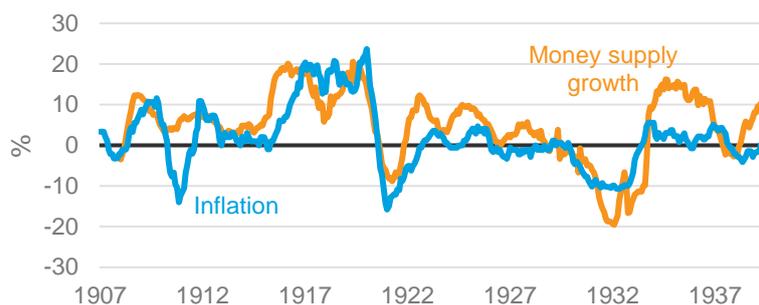


Source: Thomson Reuters, Federal Reserve, June 2017

It is hard to infer a definitive relation, let alone a positive one, between money supply growth and inflation from Chart 5a(i). In fact, one could justifiably observe that inflation precedes money supply growth, which is even more at odds with the conventional view. The view that money supply changes precede inflation moves is even harder to justify outside the inflation episodes of the 1970s – in fact after the 1980s, such a lagged effect is even less obvious, especially in the last 10 years. The likelihood is that there are other factors that are affecting both inflation and money supply. If we take into account these other factors e.g. the corresponding level of economic activity, the relationship between money supply and inflation diminishes further as shown by Chart 5a(ii)¹.

So what explains this divergence between such a well received theory and practical reality? While the research available is voluminous, the simple explanation is that such inference is based on the assumption that there is a pre-set level of funds to be ‘loaned out’. Which is what happens under a monetary regime constrained to an externally imposed limit such as a currency union or the amount of gold held (‘the gold standard’, which was removed in the 1930s just before World War II). Under these regimes, policy changes involve central banks adjusting money supply based on gold reserves held. Interest rates change as a result and net demand moves accordingly, which then affects inflation. This directly creates the link between money supply and inflation. Chart 5a(iii) shows the money supply-inflation relationship prior to WW2 under the gold standard was much tighter, and more in line with Friedman’s quote.

Chart 5a(iii). Tighter relation between money supply and inflation before WW2

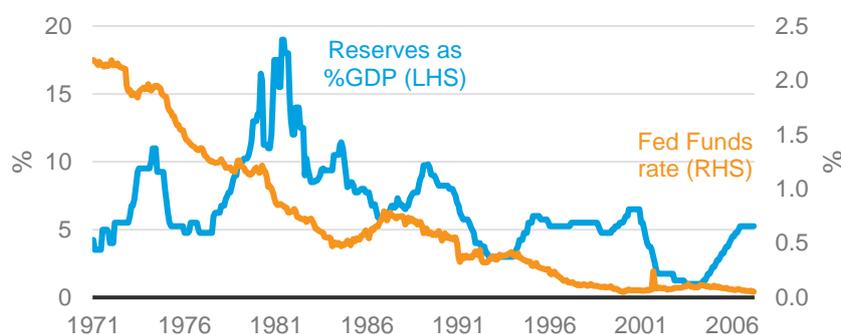


Source: Thomson Reuters, Federal Reserve¹, June 2017

In today’s fiat money system, money supply responds to demand and supply interactions (not the reverse as in a gold standard), and is thus called ‘endogenous money’. So if net demand rises for whatever reason, transactions will increase while demand for loans may also grow. This automatically raises the money supply e.g. deposits rise when transactions rise and when a loan is extended deposits are created simultaneously. So if money supply were to move in the same direction as inflation it is because net demand is up which increases both money supply and inflation.

Note also that monetary policy today involves central banks just adjusting the interest rates with minimal intervention in the interbank market (or Fed Funds market in the US). That is why investors tend to pay more attention to central bank interest rate announcements than to money supply changes, especially from the mid-1950s onwards, when targeting interest rates was made explicit². Chart 5a(iv) below shows that interest rates change without any need to explicitly adjust ‘money’.

Chart 5a(iv). Reserves little relation with Fed interest rate moves



Source: Thomson Reuters, Federal Reserve, June 2017

But what about Zimbabwe, Weimar Republic and today, in the 21st century, Venezuela? Did not massive money supply growth lead to hyperinflation? The simple answer is yes. However before any monetary injection occurred, the economy’s production capability, i.e. the ability to supply, had collapsed. The cause of inflation was therefore an

¹ Equivalent results are posted by similarly advanced countries, although to varying levels of clarity.

² There might have been a brief period in the late 1970s where the Fed targeted money supply. But the emphasis on interest rates and their effective path in policy papers showed that effectively policy was still more interest rate focused.

imbalance in supply and demand, which, tends to be the root cause of inflation. Central banks then attempted to inject money directly to households and companies, which then worsened inflationary conditions by raising demand in the face of declining supply.

Conclusion on Money supply and Inflation

To conclude, we have found that the view that money supply is a definitive cause of inflation is not supported by the evidence in today's fiat monetary systems. Money supply growth changes in accordance to net demand. So at best money supply can be an indicator for inflation to the extent that it is an indicator of the level of net demand.

We are not saying that money supply growth can never affect inflation. In certain systems such as a gold standard or currency unions, money supply changes do signal inflation. But that is not how most economies operate today – certainly not in the US or Australia. Of course if the government printed money in sufficiently large quantities and distributed it to people directly ('helicopter money') then inflation should rise. But that is effectively fiscal policy. Which will be covered in the next section.

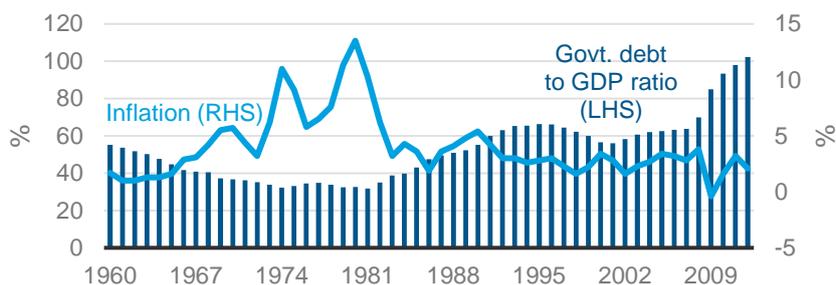
What does fiscal policy really do to inflation?

One fairly widespread view is that too much government debt and excessive budget deficits will bring about inflation. Once again a review of the evidence is insightful.

The relationship between inflation, government debt and budget deficits

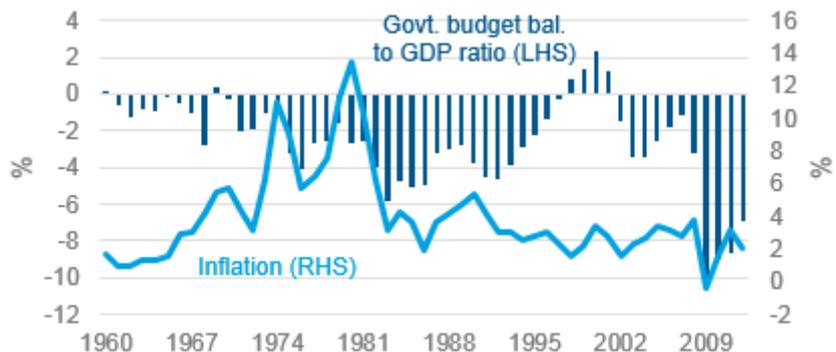
Charts 5b(i)-5b(iii) below fail to show a definitive relationship. On the contrary they suggest a lack of direct association between government debt and deficits, with inflation. In addition, rising debt service payments, from higher government debt, did not always cause inflation³. And this is not just a US specific story - the average inflation-fiscal debt relationships of countries whose economic regimes are effectively similar to the US such as the UK and Japan also fail to show a definitive causal pattern⁴.

Chart 5b(i). Govt. debt and inflation show little relation



Source: US Treasury and Federal Reserve, June 2017

Chart 5b (ii). Budget deficits no clear relation with inflation

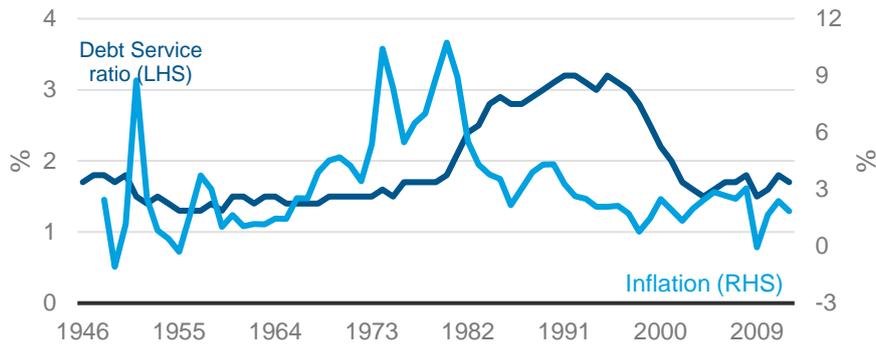


Source: US Treasury and Federal Reserve, June 2017

³ Interestingly debt service costs have not risen significantly even with larger government debt or when borrowing costs were high.

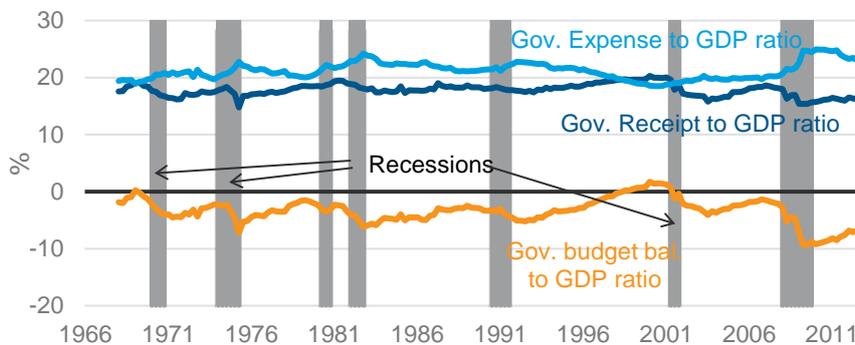
⁴ Charts available upon request.

Chart 5b(iii). Debt service not much influence on inflation



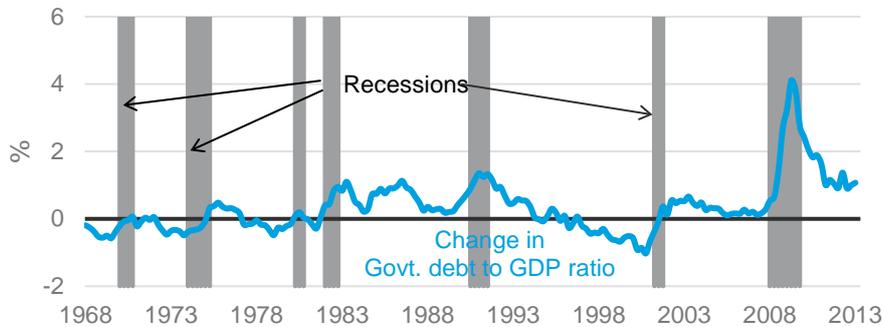
Source: US Treasury and Federal Reserve, June 2017

Chart 5b(iv). Budget balances driven by the economic cycle



Source: US Treasury and Federal Reserve, June 2017

Chart 5b(v). Govt. debt by-product of the economic cycle



Source: US Treasury and Federal Reserve, June 2017

So what explains these counterintuitive findings? While, an extensive analysis is beyond the scope of our inflation series, a brief explanation is provided to get an idea of what is happening.

Charts 5b(iv)-5b(v) above show that government debt and budgetary outcomes are really due to the economic cycle. For example in 'boom' times, tax revenues rise and unemployment support payments fall in line with greater economic activity, and so budgets move closer toward surpluses, and there is less need for debt. Therefore it is not always the case that budget deficits stem from deliberate expansion in fiscal policy. In fact they arise primarily because the economy is in recession (like the US in 2008-9). Effectively government debt and deficits have been due to private activity e.g. when households cut spending and businesses retrench in downturns, fiscal deficits usually rise; incidentally these are usually also times of low inflation. In short, we have found that the relationship between inflation, and government deficits and debt reflects the effects of a common factor, the state of overall net demand.

Therefore what matters for inflation is government net expenditure, not the debt accumulated or deficits posted - fiscal spending or tax changes directly impact net demand. But even then, it is the prevailing state of overall net demand that

will determine the extent of inflationary pressure, for instance, if the economy is in deep recession, tax breaks may be insufficient to raise net demand and therefore no inflation will be observed.

Conclusion on Fiscal policy and Inflation

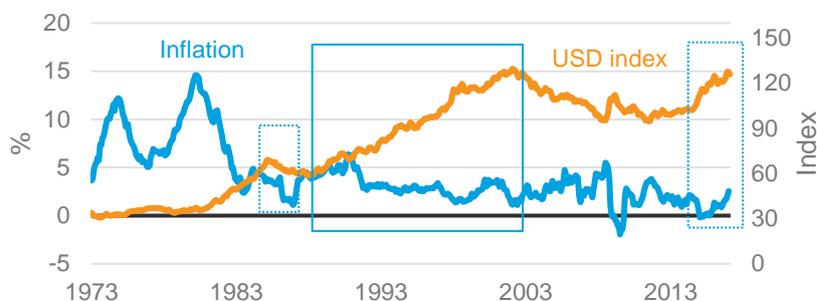
That government debt and deficits have little relation with inflation leads us to believe that investors should not be alarmed whenever fiscal policy expansion is considered. This also means these factors are not very significant indicators of net demand and hence inflation. One implication, from a policy perspective, is that inflation need not be an automatic constraint to fiscal policy just because debt and deficits are high. We believe where investors should pay attention, when it comes to fiscal policy and inflation, is the extent of direct net government expenditure i.e. spending and/or tax changes. Even then the economy has to be close to capacity before inflation pressures appear to any significant degree.

The impact of exchange rates on inflation

Do exchange rate changes mean inflation rates automatically change as well? The conventional view seems to be "Yes!"⁵ The logic is that currency depreciation raises the price of imports, as well as prices of imported inputs used in domestic production and therefore inflation rises. This is called the exchange rate pass through effect. But why is this an issue? Because exchange rate moves are usually beyond the control of policymakers and hence are notoriously difficult to predict. If inflation is significantly driven by currency moves, then any assessment of it becomes a near impossible task.

However major research findings in this area⁶ reveal the effects of exchange rate changes are not as definitive as made out to be. A visual assessment of the exchange rate-inflation relationship of major countries seems to support this. In the case of the US - a distinct relationship between the dollar (USD) exchange rate index and inflation is not easily detected (see Chart 5c(i)). For instance, the two year continuous USD depreciation⁷ from 1985 occurred without rising inflation. Thereafter, the USD went on one of its longest post-war appreciation phases, about 15 years. Inflation, perversely, rose in the first two years, but while it did eventually decline, the expected downtrend was less pronounced given such a lengthy appreciation. Recently, sustained USD strength coincided with inflation moving up, which is again counterintuitive. While this analysis is far from rigorous, it does show that even if currency changes do affect inflation, the degree of impact can be uncertain.

Chart 5c(i). USD exchange rate effect on inflation



Source: US Treasury and Federal Reserve, June 2017

Foreign sources of inflation: global prices or exchange rates?

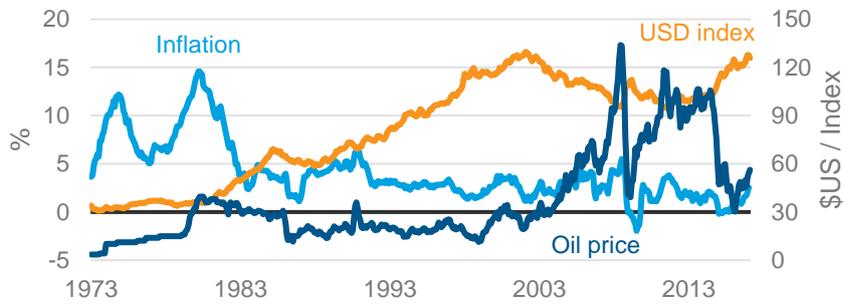
The evidence suggests, to the extent that domestic inflation is influenced by foreign sources, it is the global prices of the traded item, rather than the exchange rate, that is the greater driver. The cost of oil, for example, being a key import, ought to move inflation. However in Chart 5c(ii), we can see that it is the global price of oil rather than exchange rates that wields the greater influence.

Chart 5c(ii). USD exchange rate index effect on inflation

5 U.K. Inflation Accelerates on Weak Pound, Wall Street Journal, By Jason Douglas and Wiktor Szary , Feb. 14, 2017 <https://www.wsj.com/articles/u-k-inflation-accelerates-on-weak-pound-1487065466?tpl=centralbanking>

6 Some examples are "Exchange rate pass-through into UK import prices", Haroon Mumtaz & Özlem Oomen & Jian Wang, Bank of England working papers 312, November 2006, "Exchange Rate Pass-Through to Consumer Prices: Theory and Recent Evidence", Laurence Savoie-Chabot and Mikael Khan, Bank of Canada Discussion Paper 2015-9, October 2015 and "The Effects of a Stronger Dollar on U.S. Prices", December 2015, Federico J. Díez and Gita Gopinath ,Federal Reserve Bank of Boston, Current Policy Perspectives Paper No. 15-9, January 2016

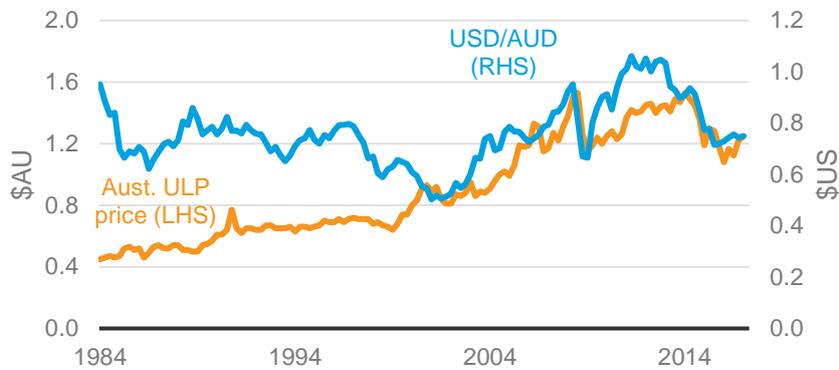
7 This was triggered by the Plaza Accord, a global currency coordinated intervention in 1985. This was reversed by the Louvre Accord of 1987 which caused a lengthy USD appreciation.



Source: Thomson Reuters, Federal Reserve, June 2017

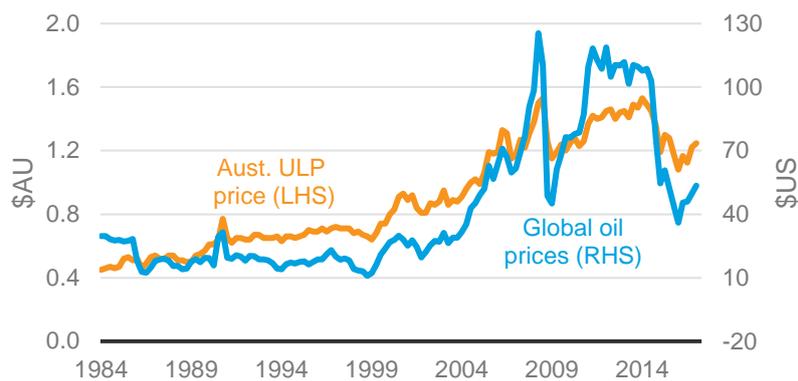
But could the above outcome be specific to the US? After all, global trade is largely invoiced in USD. Moreover trade at 28% of GDP (with imports at 16% of GDP), is not a big part of its economy. However, similar economies whose trade shares are much larger - Germany (90% of GDP) and Australia (45% of GDP) - displayed the same pattern⁸ of global prices affecting inflation more than exchange rates. The example of petrol pump prices in Australia is a good one: with nearly 100% of petrol imported, exchange rate effects might be expected to be at least as influential as global oil prices. But Charts 5c(iii)-5c(iv) reveal that the Australian dollar (AUD) exchange rate has significantly less impact than global oil prices. This adds to the view that inflation reacts more to global prices than exchange rates.

Chart 5c(iii). Exchange rates and Australian retail petrol prices



Source: Bloomberg, June 2017

Chart 5c(iv). Global oil prices and Australian retail petrol prices



Source: Bloomberg, June 2017

The crucial role of global prices on inflation was even more evident during the time of the GFC - the AUD depreciated sharply, about 25% in 6 months, and global commodity prices fell substantially, about 27% in 6 months. The result was lower domestic inflation, not higher. So despite almost equal declines, inflation reacted much more to global prices than currency depreciation. It was net demand that drove the price of oil in this episode.

⁸ We looked at other developed economies such as the UK, Japan and Canada and found similar results. Charts available upon request.

The evidence here is consistent with the findings from the existing research literature we cited earlier - that while exchange rate changes can impact inflation, the overall effects tend to be small and less than in proportion to the currency change. For example, a recent Bank of Canada report found that “*only a small portion of exchange rate movements... reflected in consumer prices*”⁹ while a similar Federal Reserve study notes that “*...pass-through into ... consumer prices is modest*”¹⁰. So while exchange rate effects on inflation is theoretically feasible, in practice, it might not be as definitive, both in terms of timing and magnitude. Therefore applying rules of thumb such as “*Inflation should rise x% when the currency depreciates y%*” can be counterproductive.

Conclusion on Exchange rates and Inflation

Although currency depreciations can raise inflation, the impact is usually small and by no means definitive. Both independent research that we had made reference to and the current evidence from the charts above have shown that exchange rate effects on inflation are highly uncertain and not necessarily significant. Therefore investors should be aware that exchange rates do not necessarily drive inflation as a definitive cause-effect process, and so using rough rules of thumb are not helpful.

Obviously if the size of depreciation is sufficiently large, especially if it is also sudden e.g. a currency peg devaluation, then expect greater pass-through to inflation. However, a big depreciation would likely raise the price level only for that period; inflation might decline only slowly but is unlikely to stay elevated in the absence of sustained depreciation of similar size¹¹. This implies that exchange rate effects on inflation are mainly transitory¹², and thus not a reason to alter policy.

That global prices drive domestic inflation more than exchange rate changes is notable. This is because global prices are fundamentally the result of the balance of supply and demand i.e. net demand. So it could also be said that domestic inflation, even though foreign-sourced, is still fundamentally, a reflection of net demand pressures. Which takes us back to the observations of Part 1 in our series: that inflation is fundamentally caused by higher net demand.

Some final thoughts on common concerns raised regarding our discussion of inflation

We trust that the brief discourse here will allay the usual concerns that tend to be expressed when talking about inflation. As discussed, data suggests the role of money supply is less significant in economies like the US and Australia. Furthermore, fiscal policy effects can be confined to focusing on the flow of government net spending. The level of debt and/or deficits are not as useful in assessing inflation. Even then the state of net demand is the ultimate determinant on whether inflationary pressures arise. Finally the effect of international influences such as exchange rates has been found to be quite uncertain and at best transitory. In summary, the practical reality can diverge from conventional wisdom. Which is why going back to a balanced approach such as the structural-cyclical indicator framework asserted in Part 2 can be a prudent approach.

In the next and final part of our inflation series, Part 6, we will put our suggested framework, incorporating our preferred structural and cyclical indicators, into practice. We will show how past major inflation phases have been signalled, and in particular, what it implies on the outlook for inflation.

⁹ Bank of Canada Discussion Paper 2015-9 , October 2015, Exchange Rate Pass-Through to Consumer Prices: Theory and Recent Evidence, Laurence Savoie-Chabot and Mikael Khan)

¹⁰ The Effects of a Stronger Dollar on U.S. Prices, December 2015, Federal Reserve Bank of Boston Research Paper Series Current Policy Perspectives Paper No. 15-9 28 Jan 2016 Federico J. Diez and Gita Gopinath

¹¹ Evidence for this available upon request.

¹² The Chair of the Federal Reserve has said that central banks can “look through” the Exchange Rate Pass- Through (ERPT) phase and focus instead on inflation pressures emanating from the relative balance of demand and supply in the economy. ‘Inflation Dynamics and Monetary Policy’, Janet L. Yellen Chair Board of Governors of the Federal Reserve System, The Philip Gamble Memorial Lecture, University of Massachusetts, Amherst, Massachusetts, September 24, 2015.

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