

Is Inflation Global or Local?

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Bottom line: The thesis of this note is that inflation may be increasingly driven by global factors, not local factors. DM central banks still think in terms of the Phillips Curves – a fundamentally closed-economy model, which have become very unstable, and the relationships between unemployment and inflation have become unreliable. Instead, we believe the various forces of globalization (e.g., global labour arbitrage, trade liberalization, and the rise of multinational corporations being the cross-country arbitragers of both labour and goods) have driven up the correlations between cross country inflation rates, while GDP growth rates remain as disparate as they were in the 1970s. If inflation is indeed driven more by global than local factors, then inflation targeting could be destabilising for both DM and EM, and the exclusion of asset price inflation in central banks' considerations could be dangerous. Moreover, the CPI measures themselves may be highly problematic: who amongst us really thinks inflation is only 1-2% in most developed countries? We believe there may have been excessive fixation by central bankers on the levels of the CPI inflation measures, rather than the reasons behind these inflation trends or the veracity of the measures themselves. If we, collectively, are not sure we understand the dynamics of inflation formation or the accuracy of the inflation measures, how could central banks have so much faith in inflation targeting?

Falling inflation in DM and monetary policies. Low inflation is starting to trouble the Fed and the ECB. But the two central banks have different instinctive reactions to inflation. To the Fed, low inflation mostly reflects the latent cyclical slack that monetary stimulus could address, while to the ECB, low inflation may reflect both structural and cyclical factors, and the role for the ECB to fight disinflation is rather nuanced, and not as 'automatic' as some financial analysts seem to think.

In this note, we question the prevailing presumption that central banks must act aggressively and automatically on low inflation, in order to avert Japan-like deflation. Our collective understanding of the processes driving inflation is highly inadequate, in our opinion, for policy makers, investors, and academics to declare, as a matter of fact, the appropriate monetary policy reactions to inflation data.

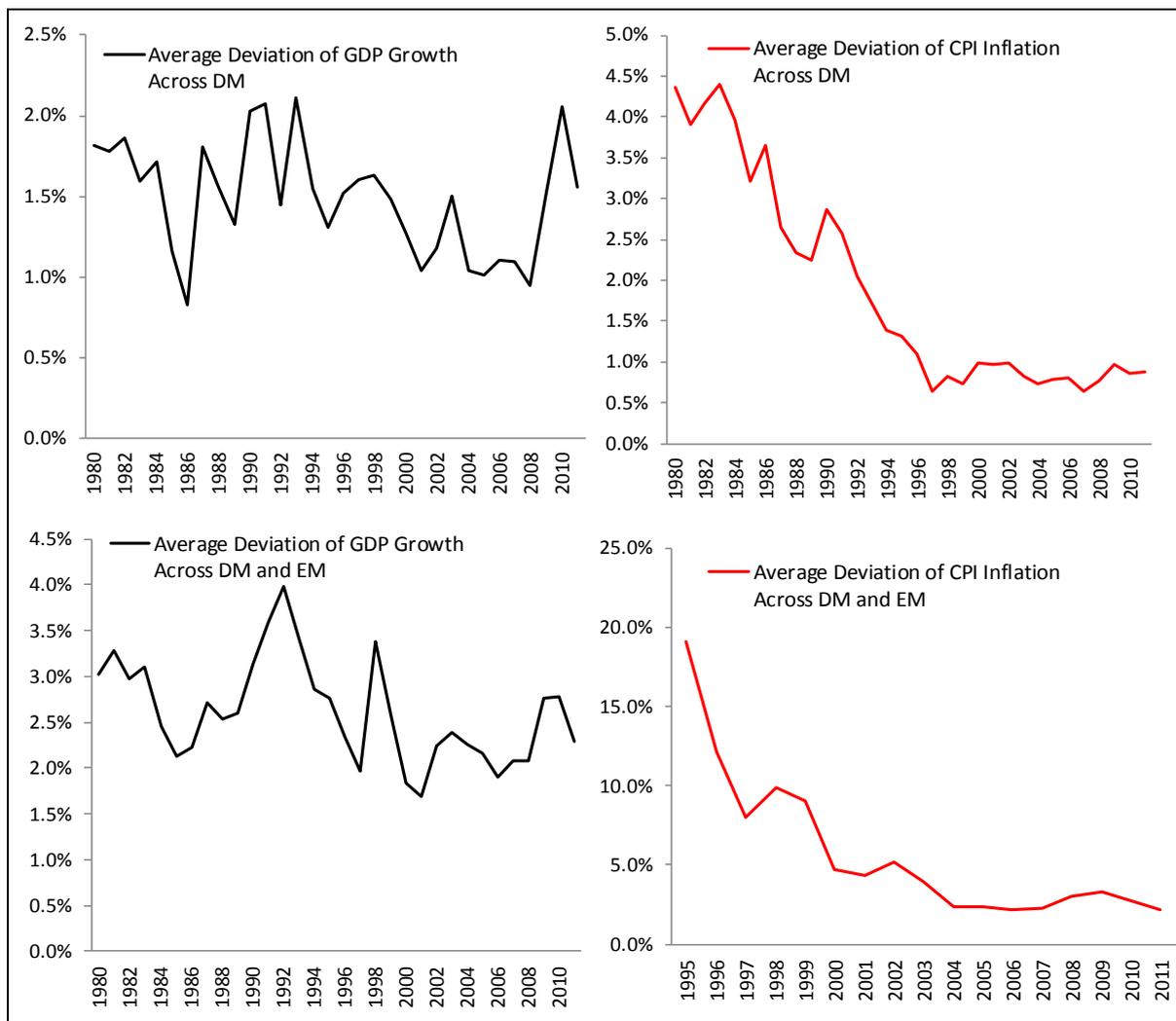
The current inflation models are inadequate. Monetary policy makers tend to think in terms of the Phillips Curve when they think about how inflation varies with the business cycle: the higher the output gap, the lower should inflation be, and the lower the output gap, the higher the inflationary pressures. The slope of this curve gives a broad indication as to the ‘sacrifice ratio’ between changes in the unemployment rate and inflation, while inflation expectations could lead to shifts in the curves themselves. These are a few of the conceptual foundations that have guided central bankers in designing the monetary policies. This basic framework is also the source of the strong and prevailing conviction that central banks ought to respond automatically and aggressively to low and falling inflation.

The main problem with the Phillips Curve framework is that it has not been stable at all in the past few years and has not offered a good description of many economies for some time. Yet, central bankers somehow have continued to presume its validity and ignore the fact that such a framework is based on a closed-economy model, that inflation of any country is mostly dictated by the domestic conditions.

Is inflation increasingly driven by global factors? We believe inflation has become increasingly more globalized, while output has remained relatively localized. This proposed discrepancy between the correlations of output growth and inflation across countries is quite stark.

The charts on the left below show how the correlations between GDP growth rates across DM economies, and between DM and EM economies¹ really haven’t shown any pronounced trends in the last three decades. However, the charts on the right below show that the trends have been clear and powerful for the correlations between the inflation rates in different countries. Specifically, since the mid-1990s, the world has witnessed a dramatic increase in the correlations (or a decline in the deviations) in inflation across countries.

¹ Here we included the top 40 countries in the world that collectively account for 95% of the world’s GDP.



Source: Datastream and SLJ Macro Partners.

These charts suggest that, in the past years, *there has been more globalization of inflation than globalization of output growth*. Countries' CPIs have converged while there has been much less convergence in GDP (or persistence of country-specific shocks). These contrasting trends in cross-country correlations in output growth and inflation are also consistent with the narrative that the Phillips Curves in DM have somehow '*flattened*' in recent years.

It might not be that surprising economic growth rates of different countries could differ. The maturity/stage of the economic development, population dynamics, and productivity shocks of the countries in question can dictate material differences in the trend growth rates. In addition, cyclical GDP growth rates could reflect differences in culture, tastes, political structure, demographics and other idiosyncratic factors. Despite on-going globalisation trends, it appears that considerable amount of country-specific shocks and factors persist that make countries' GDP growth rates have not converged in the past thirty years.

Inflation, in contrast, has converged substantially in the past thirty years. The intuition may be that prices of tradeable goods equilibrate faster, across countries. With the emergence of China and much of the rest of EM, global labour arbitrage, outsourcing, and the globalization of the capital markets, one can imagine how the convergence of inflation could have accelerated after the late-1990s.

Some argue that, since international trade accounts for a relatively small portion of the US' GDP, the US is effectively a 'closed economy' and therefore international factors don't really matter. This, in fact, seems to be the attitude of the Fed officials, that the US affects the world, but not the other way around. However, just because Chinese-produced chairs might only account for, say, 20% of the US market, its low prices should affect the entire US market for chairs. This is one way that 'prices' could equilibrate faster than 'output.'

Another possible explanation for the faster convergence in inflation relative to output growth is the rise of large multi-national corporations that have become efficient and fast in reallocating production and their purchases around the world, responding to price differences. A bigger role that these 'big arbitragers' play in the global economy can help suppress deviations in inflation rates around the world.

Further, some academics or policy makers might argue that the increased correlation in inflation between countries may be just another aspect of the 'Great Moderation,' that as global inflation fell – due in most part to good central banking – the dispersion in inflation naturally fell. We are not that persuaded by central bankers arguing that good central banking was the cause of a synchronous decline in global inflation, that all central banks happened to all of a sudden, and at the same time, do a much better job at controlling inflation, and that this happened during the most dynamic phase of globalization in at least a century was merely coincidental. Also, if the central bankers are so proud of their having eradicated inflation volatility, why is output volatility still so high? In other words, few have tried to explain why the Phillips Curves have become flatter. In short, we believe globalization was most likely a more important driver than better central banking behind the Great Moderation.

If US inflation could be read off of a stable Phillips Curve, that for every level of unemployment, there is a corresponding inflation rate, then policy making for the Fed might be relatively straightforward. However, if the US' inflation is partly determined by the rest of the world, and the Phillips Curve has become

unstable, how could the Fed be confident in their interpretation of CPI data and in their formulation of policies?

Inflation targeting in EM is dangerous. Inflation in EM economies is also affected by international factors. But cross-border capital flows have tended to be more powerful drivers of the credit, consumption, asset price, and business cycles, while goods price inflation is more of a function of international price pressures, adjusting for exchange rate changes, import taxes, and other factors, i.e., EM countries are price takers, not price setters. This combination makes inflation targeting very dangerous for EM economies.

When there are large capital inflows, asset price appreciation (equities, bonds, and property prices) could propel consumption and investment, without leaving a commensurate or proportional footprint in goods price inflation. This is especially true when currency appreciation – arising from the large capital inflows – in these EM economies imparts temporary disinflation in the goods prices. In turn, relatively stable goods price inflation could give inflation targeting EM central banks a false sense of security, and tolerate or even accommodate a credit/economic/asset bubble fuelled by hot money inflows – similar to what we witnessed in many EM countries between 2009-2013.

But when there is a ‘sudden stop’ in hot money inflows, the EM currencies in question tend to depreciate sharply, forcing inflation higher at precisely the time when output growth collapses. Central banks, following inflation targeting, would then need to resort to counter-cyclical measures just as the economy slows.

Few EM countries have Phillips Curves that make sense (i.e., negatively-sloped between the unemployment rate and inflation) precisely for this reason. The EM central banks that pursue inflation targeting could, thus, be more destabilizing than stabilizing, even though they might be doing what is considered to be ‘politically correct’ in central banking circles. More generally, there has been a movement in EM in recent years toward (i) greater capital account liberalization and (ii) more reliance on inflation targeting. Even though both movements are consistent with the ‘Washington Consensus,’ they are precisely the wrong things to do, based on our narrative of what drives the business cycles in EM.

Asset price inflation and monetary policies. Extending the line of reasoning from above, there is a problem with inflation targeting in DM if inflation there is also increasingly influenced by global factors. Asset price inflation will be an

increasingly important driver of output growth. If asset prices have a loose relationship with goods inflation, DM central banks could also very well do more harm than good, if they continue to assume that the Phillips Curves are stable. Asset prices go up with easy monetary policies. But goods price inflation may remain low, reinforcing the central bank's resolve to keep policies easy. This process should be familiar to most.

Is CPI inflation properly measured? To most people we know, the official inflation measures bear little resemblance to the actual inflation experienced by them. Is inflation really only 1-2% in most of the DM economies? The costs of housing, food, healthcare, education, and energy – five of the main components of consumption – have risen sharply in recent years. The weights in the CPI baskets tend to change very slowly over time,² and the weights are likely not representative of the reality. The quality (hedonic) adjustments have conceptual and technical problems as well,³ and help to understate inflation (mobile phones, TV, computers, and cars are good examples). There are also serious technical (aggregation) problems as well with these calculations. While we suspect inflation has indeed declined in DM in recent years, due to globalization, we are unconvinced that the *levels* of inflation are as low as the official data suggest.

Implications for the Fed. With measured inflation being around 1½% in the US, the Fed has shown a great deal of confidence in maintaining its aggressive policies. But if inflation is driven increasingly more by international and global factors rather than local factors, could the Fed have the wrong framework? Specifically, just as the Fed had over-tightened in the 1970s, falsely thinking that high inflation – resulting from the oil shock (a *negative supply shock*) – needed to be countered by tight monetary policies, is the Fed running overly loose policies now because it has under-estimated the impact of globalisation (a *positive supply shock*) on inflation?⁴

Bottom line. In the known-unknown quadrants of Donald Rumsfeld, output growth may be in the Fed-knows-it-knows quadrant, while unemployment dynamics belong to the Fed-knows-it-doesn't-know quadrant. But inflation, we

² For example, the BLS did not include mobile phones in the consumer basket until 15 years after their introduction.

³ See criticisms of the BLS' hedonic regressions in 'Sources of Bias and Solutions to Bias in the CPI,' Journal of Economic Perspectives (Vol 17: 23-44), by Jerry Hausman.

⁴ There is another secular trend that worries us. As EM economies' per capita income rises, it is likely that that will be accompanied by less downward pressures on DM inflation overtime, as price *levels* converge across DM and EM. Years from now, it could actually be possible that DM countries face a stagflationary backdrop, with slower trend growth and higher global inflation.

believe, may be in the Fed-doesn't-know-it-doesn't-know quadrant. We believe there may have been excessive fixation by central bankers on the levels of the CPI inflation measures, rather than the reasons behind these inflation trends or the veracity of the measures themselves. In many ways, our collective understanding of what drives inflation could very well be even worse than our understanding of output growth or employment dynamics. With this thesis, the Fed's taking inflation measures at their face value, while virtually every other major macro data have been exhibiting odd characteristics, seems a bit dangerous. In retrospect, the Fed over tightened in the 1970s, reacting to the oil shock (a negative supply shock). We suspect that the Fed may have over-eased in the mid-2000s, and again now, because it has under-appreciated the disinflationary effects of globalization.

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