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FX Pass through strikes again

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The USD rally that began in mid-April has reignited concerns of weaker exchange rates across EM translating into significantly higher inflation risks.

We re-estimate our exchange rate pass-through models and find that for EM economies not currently experiencing abnormally high inflation (such as Argentina and Turkey) the risks of an ERPT-driven inflationary surge are very low.

Across EM and despite narrowing output gaps over the last year, our ERPT estimates show no evidence of a significant increase of the degree to which FX shocks drive domestic inflation.

Among LatAm economies we find that with the exception of Colombia, the ERPT remains too small to pose a problem for the region's inflation-targeting central banks. Our estimate of Argentina's ERPT is also high but is probably driven by the very idiosyncratic state of the economy.

In EMEA the sensitivity of inflation to FX varies significantly across countries. The impact of a weaker currency on inflation is highest in Turkey. The ERPT in South Africa and the Czech Republic is similar yet the SARB has to deal with a significantly more front-loaded impact. In Hungary and Poland the currency is less of an important driver of inflation.

In sum, we find that EM economies are unlikely to face inflationary pressures as a result of the weakening of their currencies. Thus, the drivers likely to push EM CBs to hike rates are more likely to be related to fiscal policy, political uncertainty, and external imbalances rather than to inflation

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FX Pass-Through Strikes Again

The USD rally that began in mid-April has reignited concerns regarding the extent to which the widespread EMFX selloff is likely to heighten inflation risks across. We evaluate the risks of an exchange rate pass-through (ERPT) driven spike of EM inflation by updating our ERPT estimation framework (see 03 Nov 16 EM Monthly Political and Policy Idiosyncrasies by Drausio Giacomelli).

Our estimates[1] suggest that with the exception of economies currently registering high rates of inflation, EM economies are highly unlikely to face significant inflationary pressures as a result of the bout of exchange rate weakening. And while in previous work we have showed evidence of output gaps narrowing across EM, we find no evidence of the ERPT having increased in any meaningful manner over the past 18 to 24 months.

Despite some heterogeneity within EM economies, our main finding has relatively benign implications for EM assets. The EMFX selloff will not translate into substantially higher inflation and will therefore not trigger widespread rate-hiking cycles. This does not mean that EM central banks will not be forced to tighten monetary conditions but rather that those who end up pushing rates higher will do so for reasons other than inflation risks. Central Banks might increase interest rates to curtail risks of financial instability triggered by fiscal worries (Brazil), political and policy uncertainty (Mexico), and external account imbalances (Argentina).

LatAm: Low with notable exceptions

ERPT for LatAm

Period	BRL	CLP	COP	MXN	PEN	ARS	Core	NonCore
'03-'18	7.5%	9.4%	3.7%	0.8%	8.5%	N/A	N/A	N/A
'08-'18	1.9%	8.5%	3.9%	1.7%	7.7%	N/A	N/A	N/A
'10-'18	4.4%	3.8%	8.3%	2.3%	5.8%	N/A	N/A	N/A
'12-'18	0.9%	3.2%	11.9%	1.6%	8.1%	14.7%	8.3%	34.0%
'14-'18	-0.7%	2.5%	11.8%	3.1%	5.4%	13.1%	7.8%	29.1%

Source: Haver Analytics; DB Research..

Brazil: The most recent estimates are insignificant, which may be a by-product of benign inflation shocks not captured by our activity and external inflation measures that are offsetting underlying ERPT. Still, the results consistently point to 5% or below pass-through (vs. estimates closer to 9-10% the CB and local participants often highlight). This means that USD/BRL at 3.80 is consistent with inflation near the target, which may explain increased intervention around this level. In principle, this requires no monetary response from the CB. Even if the currency depreciated further to say 4.2% it is questionable whether the CB would need to hike given the possibly temporary nature of the shock (one would expect a market-friendly response from the President-elect) and the economy would be in free-fall with the currency at the level – not to forget. Therefore, we give low probability to preemptive hikes. It is difficult to estimate inflation after the truckers' strike and confluence of FX devaluation and slowing economy (the latter also affected by the strike). But recent trends and our estimates suggest it would still stay below target with USD/BRL at 3.80. All this said, under inflation targeting the CB would still have to

[1] The Appendix at the end of the note lays out our methodology in detail.

respond to longer-term inflation expectations as the nominal anchor.

Mexico: As we observed last time we estimated the ERPT across LatAm economies, the data suggests that in Mexico the impact of exchange rate shocks on headline inflation is low. The recent pick-up in the extent to which inflation responds to FX fluctuations is most likely a reflection of unrelated factors that have had an impact both on inflation and the MXN. Since the 2016 Presidential election in the US, the Mexican peso has faced significant depreciation pressures mostly due to trade policy uncertainty in the United States that seems to threaten the very existence of NAFTA. The treaty, which has been a key building block in the process of modernization of the Mexican economy over the last couple of decades seems to be at risk of disappearing. And if that risk materialized, not only would the Mexican economy and prices of Mexico-related assets suffer a significant negative shock but uncertainty would also rise as the Mexican economy would have to transition and re-allocate its factors of production. At the same time, gasoline prices in Mexico adjusted suddenly by 20% early in January after years of subsidies. And while our VAR controls for world oil prices it fails to control for the gasoline price hike as it was not triggered by a shock to global conditions. As a result, it is likely that the increase in the estimate of the ERPT is driven by coincidence. This means that going forward inflation in Mexico should continue to decline towards 3.9% by the end of 2018 and 3.4% by the end of 2019. And while Banxico might further hike the policy rate while the factors putting pressure on the MXN (NAFTA worries and the upcoming election) remain relevant, we expect it to aggressively normalize the overnight rate towards the 4.5%-5% level as soon as the MXN trades on a stronger footing.

Argentina: We broke down inflation in core and non-core indices. The latter are naturally a lot more sensitive to FX than core and altogether we estimate ERPT of 14%. All else equal the recent depreciation thus adds about 6pp to headline inflation, which was running near 23% before the shock. Combining additional tariff shocks, assuming real FX stability and a couple of percentage points slowdown in the economy we expect inflation to peak over the next quarter and then slow to below 25% over the next year (see table below with forecasts).

Chile: The BCCh would actually welcome a higher ERPT in Chile given that inflation has been significantly below the lower bound of the tolerance range for about two years. The recent pick up of activity and the rise of the USDCLP from sub-600 levels to around 630 will finally bring inflation close to the 3% target by the end of the year. While the pick-up of activity is likely to be moderate, the output gaps in Chile are relatively small which should be conducive to a speedy normalization of inflation. But again, in the current context the risks to the BCCh's neutral policy stance are tilted towards the downside rather than the upside. In fact, we only expect the Chilean Central Bank to slowly begin normalizing rates by year-end. Until then, Chile's policy rate will remain the lowest in the region at 2.5%

Colombia: Our EPRT is one of the highest and higher than what BanRep has suggested (near 7%). However, given the depreciation of 2015/16 and the slowdown in the economy during this period (that we don't expect to repeat in coming years) we find our estimate more consistent with this history than BanRep's. On the bright side, however, this high estimate is unlikely to pose much trouble for the central bank as oil prices and a likely positive outcome from elections support the COP in coming months. We expect inflation to rise to 3.4% over the year ahead and policy rate to peak at 5.25%.

Peru: Our estimate is within the range for appreciation- and depreciation-driven ERPT indicated by CB's research (we don't differentiate across appreciations and depreciations). With currency stability and lingering output gap (and the government's struggle to boost confidence and investment) inflation is running below the target and we expect it to grind higher to 2.8% in one year. Overall inflation risks are low and we expect the CB to hike 100bp to 3.75% by end of 2019.

Outlook for rates and inflation

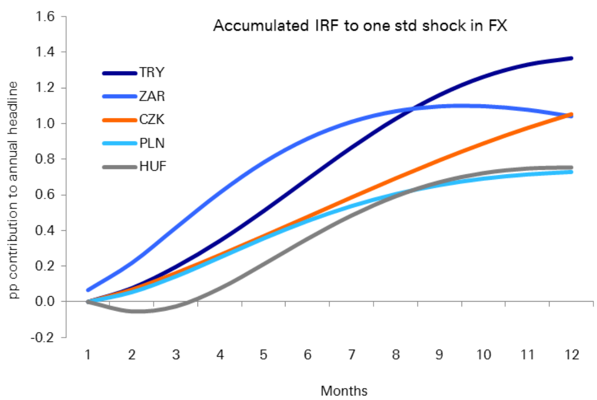
	Policy rate Forecast		1 Yr Inflation
	2018	**2019**	**Forecast**
ARS	34.00%	25.50%	24.6%
BRL	6.50%	8.50%	4.4%
CLP	2.75%	3.50%	2.9%
COP	4.00%	5.25%	3.4%
MXN	7.50%	6.00%	3.9%
PEN	2.75%	3.75%	2.8%
CZK	1.00%	1.50%	2.1%
HUF	0.05%	0.75%	3.5%
ILS	0.25%	1.00%	1.1%
PLN	1.50%	2.00%	2.9%
RUB	6.75%	6.50%	3.7%
TRY	17.50%	13.50%	10.9%
ZAR	6.50%	6.50%	4.0%

Source: DB Research.

EMEA: similar shocks, heterogeneous reaction

Turkey remains as the main underperformer in EMEA, despite CBT's 375bps of tightening and normalization in the corridor framework. Re-establishing price stability may however prove difficult, given that FX pass-through impact in Turkey is one of the highest within EMEA due to high share of imported products in production and consumption.

FX pass-through across selected EMEA

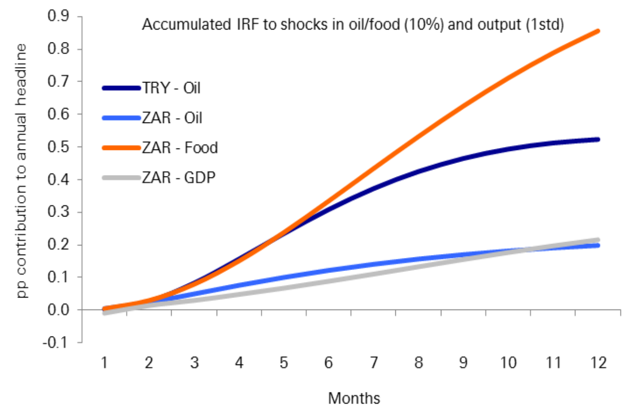


Source: Deutsche Bank

Results from our parsimonious recursive VAR model (with six variables: two commodity prices (oil and food), core inflation in developed markets, aggregate demand, exchange rate and consumer price inflation) confirm Turkey suffers from the highest FX pass-through coefficient, pushing up annual CPI by as much as 1.5 percentage points (pp) in one year after 10% weakening in TRY/Basket.

Rampant oil prices until recently could exert additional upward pressure too, by as much as 0.5pp over a year. The bad news is Turkey's sacrifice ratio also appears high. Our results suggest annual headline's response to output dynamics is limited, at around only 0.15pp, and mostly insignificant in statistical terms. This means ongoing soft landing may not help inflation dynamics much. The only plausible way to engineer a disinflation process in Turkey requires FX stability as a precondition, in our view.

Various shocks to inflation in selected EMEA

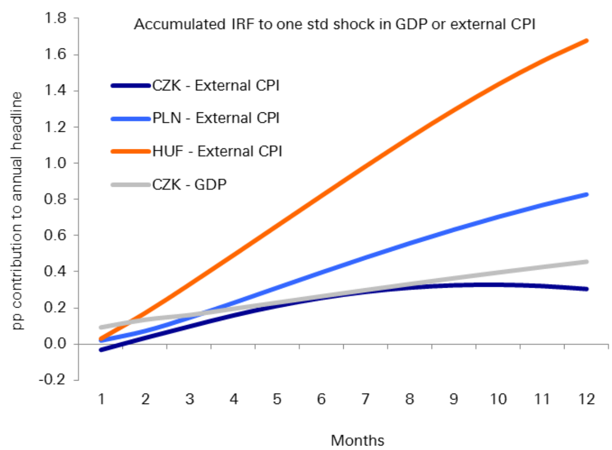


Source: Deutsche Bank

FX pass-through is softer in South Africa (c1pp in 12 months), yet appears to impact headline CPI quicker than in Turkey. While pass-through from a 10% rise in global oil prices is much lower than in Turkey (0.2pp versus 0.5pp), pass-through from food is significant (0.8pp over a year). Our results also confirm South African inflation is also responsive to demand conditions. We believe inflationary impact from strong USD globally and rampant oil prices will dominate downward pressure from weak GDP growth and benign food inflation. Also, unit labor cost dynamics as well as lingering impact from VAT and sugar tax increases insinuate inflation risks are tilted to the upside. We retain our view that the SARB is likely to hold rates steady going forward.

CEE currencies weakened in tandem with stronger USD. FX pass-through impact is highest (1.1pp over a year) in the Czech Republic, which also explains the CNB's ongoing attempt to strike a delicate balance between interest rate and exchange rate channels to keep inflation under control. NBP and NBH, meanwhile, both appear less concerned about currency weakness, given their lower FX pass-through coefficients. Output dynamics also matter in the Czech Republic, meaning that the CNB may feel obliged to deliver another hike earlier than in late 2018 or early 2019, particularly if the Koruna continues to remain weaker than CNB assumptions. NBP may afford stable and low rates for longer, in absence of further pressure from domestic wages. Hungarian inflation appears highly responsive to external CPI dynamics; meaning higher Eurozone CPI ahead (due to weaker EUR) may pose upside risks, and may push NBH to consider an exit from its ultra-dovish stance earlier than in 2019.

Various shocks to inflation in CEE3



Source: Haver Analytics; BIS.

Appendix

To estimate the exchange rate pass through we follow the methodology used by Albagli et al. (2015)[2] For each country in our sample, we define a VAR model consisting of monthly inflation, the monetary policy rate, monthly activity, and changes of the nominal exchange rate. We also include exogenous variables including international prices of oil and food, trade weighted inflation of each country's main trade partners, world interest rates, and world real activity.

The VAR representation consists of a block of endogenous variables (inflation, activity, monetary policy, changes in the exchange rate) and a block of exogenous variables (external inflation, world activity, world interest rates, international food prices, and international oil prices). The VAR is then estimated via OLS in log differences after the usual tests to ensure that variables are stationary. Also, the number of lags included in each VAR are obtained via tests using the Akaike and Schwarz information criteria.

We then impose short-run restrictions on contemporaneous structural innovations to compute impulse response functions. In particular we assume: i) activity can only be contemporaneously shocked by exogenous variables; ii) monetary policy can only be contemporaneously shocked by changes in activity as well as exogenous variables; iii) exchange rates can only be contemporaneously shocked by changes in activity and monetary policy as well as exogenous variables; and that finally inflation can be shocked by innovations of all the other variables. Prices are then the most endogenous variable. Our results are robust to the VAR's order.

We then calculate the ERPT as the value of the cumulative impulse response function (cIRF) of inflation due to a shock in the nominal exchange rate 12m after the shock divided by the value of the cumulative response function of the exchange rate due to a shock of the exchange rate 12m after the shock. By doing this we estimate the ERPT as the fraction of a depreciation shock in h periods ahead that passes through to domestic prices.

The methodology is agnostic in terms of economic interpretation of the exchange rate shock and says nothing about whether it is driven by productivity, external interest rates, or relative price shocks.

We use monthly data for Argentina, Brazil, Chile, Colombia, Mexico, and Peru starting in February of 2003 until March of 2016 (for Argentina the available data covers a shorter time span). For each country we obtain the time series of headline inflation, monthly averages of their currencies USD crosses, their 3 month interbank deposit rate to proxy for the monetary policy rate, and the time series of each country's monthly GDP indicators (IBC-Br in Brazil, Imacec in Chile, IGAE in Mexico, etc.). Our measure of external activity is the World IP index produced by CPB Netherlands Bureau for Economic Policy Analysis. For world monetary policy we use the 3 month T-Bill rate in the US. Food prices correspond to the Food Prices Index published by FAO. Oil is the average price of WTI petroleum and comes from Bloomberg. And finally, external inflation is computed as a trade-weighted average of each country's trade partners.

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[2] Albagli, Elías, Alberto Naudon, and Rodrigo Vergara. 2015. *Inflation Dynamics in LatAm: A Comparison with Global Trends and Implications for Monetary Policy.* Documentos de Política Monetary no. 58, Banco Central de Chile

Appendix 1

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