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Macro | FX Research & Strategy

Global

FX Insight

Monetary Policy Unwind - How Soon?

Will Central Banks Walk the Talk?

Many major central banks including ECB's Draghi, BoE's Carney, BoC's Poloz and even recent RBA minutes have started to give a more optimistic assessment of economic outlook with some dropping hints to normalize monetary policies. BoC has become one of these major central banks to walk the talk, by raising rates for the first time in seven years (12 Jul). Is the state of central bank bias starting to shift? Will more central banks follow up with normalising their policies?

A Framework to Assess Which Central Banks Can Tighten

In this report, we aim to explore the possibility of these major central banks - ECB, BoE, RBA, RBNZ, and BoJ - tightening or normalizing their respective monetary policies. We first establish the various central banks' monetary policy mandates - its policy target or target range. Next we forecast the future path of inflation for EU, UK, Australia, NZ and Japan from 3Q 2017 to 4Q 2019 (10-quarters), based on time series, using Autoregressive Integrated Moving Average (ARIMA) modelling. We then compare the forecasts to the respective central banks' inflation targets and estimate the time period (in quarterly terms) for inflation to get to target. Accounting for monetary policy transmission lags, we estimate which central banks can afford to wait for longer before tightening or is potentially at risk of behind the curve in tightening. We devise a ratio call policy slack to assess the extent a central bank is ahead or behind the curve in a policy move.

BoE May Tighten Soon while BoJ to Remain a Laggard

Our study suggests global policy unwinding will take shape at differing pace. BoE could potentially move in the upcoming meetings in Aug or Nov; RBA is slightly behind the curve in tightening but concerns in household debt and slow pace of wage growth may keep the RBA on hold for this year; RBNZ is likely to remain on hold till Mar-2018 unless inflation overshoots to the upper band of RBNZ target range (which is not our view); ECB is not in a hurry to tighten as path of forecasted inflation is not expected to hit ECB's target within the next 10 quarters but we do not rule out slower pace of asset purchases; BoJ is stuck with its easy monetary policy bias as inflation remains subdued. BoJ needs to continue with its powerful easing and is likely to remain the laggard amongst its G7 peers. In terms of relative value plays on FX, we are broadly bullish on AUD, GBP, NZD and to some extent, EUR but bearish on JPY.

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Global Policy Unwind - Will Major Central Banks Walk the Talk?

It has been nearly a month since the ECB forum was held on 26 - 28 Jun in Sintra, Portugal. Many central bankers including ECB President Mario Draghi, BoE Governor Mark Carney, BoJ Governor Haruhiko Kuroda, BoC Governor Stephen Poloz, Bank of Israel Governor Karnit Flug and former Fed Chair Ben Bernanke participated in. And that forum had apparently been transformed into a stage for a repertoire of hawkish remarks from Draghi, Carney and Poloz.

ECB's Draghi said *"All the signs now point to a strengthening and broadening recovery in the euro area. Deflationary forces have been replaced by reflationary ones… While there are still factors that are weighing on the path of inflation, at present they are mainly temporary factors that typically the central bank can look through"*

BoE's Carney said *"he would vote to tighten monetary policy if business investments begin to rise and offset weaker consumption"*

BoC's Poloz said *"But we're just approaching a new interest rate decision so I don't want to prejudge. But certainly we need to be at least considering that whole situation now that the capacity, excess capacity, is being used up steadily."*

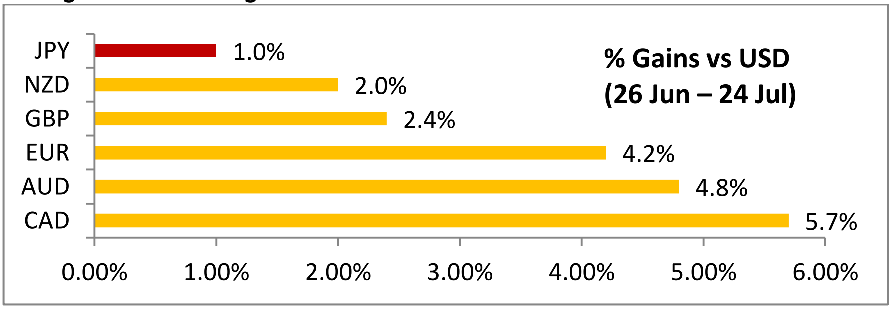
And subsequently, the BoC raised overnight lending rate (from 50bps to 75bps) for the first time in seven years at its last meeting on 12th Jul. In the accompanying statement, the bank acknowledges recent softness in inflation but judges this to be temporary. Inflationary pressures are projected to be rising ahead as the central bank now expects the output gap to close around the end of 2017, earlier than the Bank had anticipated in its Apr Monetary Policy Report.

Of late, the RBA minutes (18 Jul) commented that Australia's economy was improving and estimated a nominal neutral interest rate of about 3.5%. This puts it on par with BoC's nominal neutral rate of 3 - 4%, and draws reference to recent BoC tightening.

Most recently at the press conference post ECB meeting decision (20 Jul), ECB's Draghi mentioned that the ECB will discuss in the next stage in its QE programme "in the autumn".

The recent run of events has seen their respective currencies appreciating in the past month, and most of them have even risen to multi-month highs. Against the USD, the Canadian dollar has risen more than 5% while Australian dollar has risen close to 5%. Amongst the majors, JPY remains a laggard. Unlike other major central banks that have already begun normalizing rates (Fed and BoC) or planning to withdraw monetary stimulus/ or begin tightening at some stage, the BOJ is still debating whether there is a need for more easing. This serves to highlight the divergent path that the BOJ is taking compared to its peers.

Strong Gains Following Hawkish Remarks



Source: Bloomberg, Maybank FX Research & Strategy

Are Central Banks About to Tighten/ Normalize Monetary Policies?

In this report we aim to explore the **possibility of these major central banks tightening or normalizing their respective monetary policies**.

In particular we explore which of these major central banks - ECB, BoE, RBA, RBNZ and BoJ - can afford to wait or may have to tighten soon, in respect of **their monetary policy mandates, inflation expectation and monetary policy transmission lag**. For the purpose of this study, we do not account for central banks' soft mandates (such as unemployment, etc.) and we also leave the Fed and BoC out of this study as they have already begun policy normalization.

Monetary Policy Mandate and Inflation Targeting

Most major central banks' monetary policy objective is to maintain price stability. Price stability is typically defined as an inflation target or target range, which the central bank estimates and make public.

In this framework, the central bank forecasts the future path of inflation, compares it with the target or target range and attempts to steer inflation accordingly, using monetary policy tools such as interest rate changes.

Most Major Central Banks' Inflation Target at about 2%

Central Bank	Monetary Policy Objective	Current Policy Tool/ Stance
ECB	Aims to maintain inflation rate below, but close to 2% over the medium term	• -0.4% of deposit rate; Main Refi at 0% • Monthly pace of EUR60bn asset purchase till end-2017, or beyond if necessary
BoE	Price stability of 2% but given large depreciation of GBP arising out of Brexit, BoE is prepared to tolerate higher inflation	• Policy rate of 0.25% • GBP435bn of QE program - BoE policy rule that QE will not be reversed until policy rate materially higher than present levels
RBA	2 - 3% Inflation target range	• Current cash rate at historical low of 1.5%; Last RBA raised rate was in 2010
RBNZ	1 - 3% inflation target range	• Current cash rate at historical low of 1.75%; last RBNZ raised rate was in 2014
BoJ	Price stability target of 2% in 2019	• Policy rate at -0.1% • Maintain Quantitative and Qualitative Easing (QQE) with Yield Curve Control - 10Y JGB yield target of 0%

Source: IMF, ECB, BoE, RBA, RBNZ, BoJ, Maybank FX Research & Strategy

Inflation Forecasting

For the purpose of this study, we attempt to forecast the future path of inflation for EU, UK, Australia, NZ and Japan from 3Q 2017 to 4Q 2019 (10-quarters), based on time series available from 1Q 1990 to 2Q 2017, with the exception of EU from 1Q 1999 to 2Q 2017.

There are many ways to forecast future rate of inflation, from sophisticated statistical models involving multiple variables to hunches based on past experiences[1]. One approach which includes only the time series being forecast is known as univariate forecasting and we applied the Autoregressive Integrated Moving Average (ARIMA) modelling – a specific subset of univariate modelling – in which current values of a time series is expressed in terms of past values of itself (the autoregressive component) plus current and lagged values of a 'white noise' error term (the moving average component). The integrated component refers to the number of times a series must be differentiated to induce stationarity.

There are advantages and disadvantages to using ARIMA forecasting. For instance, ARIMA is advantageous if a large number of time series is involved (in our case here, 27 years of past inflation data on quarterly basis) and can provide quick and easy prediction for a short period of time. But we also acknowledge that ARIMA models are essentially 'backward looking' and may be poor at predicting turning points unless the turning point represents a return to a long-run equilibrium. Nonetheless, ARIMA models have proved to be relatively robust especially when generating short-run inflation forecasts. ARIMA models frequently outperform more sophisticated structural models in terms of short-run forecasting ability (Stockton and Glassman[2]. 1987). ARIMA models are theoretically justified and can be surprisingly robust with respect to alternative (multivariate) modelling approaches (Meyler, Kenny, Quinn.[3] 1998). The works of Krušec[4] (2007), Stoviček[5] (2007), Pufnik and Kunovac[6] (2006) have also proven the benefits of the univariate ARIMA models for inflation forecasting.

The abbreviation mostly used for these models is ARIMA (п, d, q), where the series of autoregressive component line (p), level of integrated series (д) and the series of movement average component (q) are indicated in the brackets. If presumed d=1, we have the ARIMA(p, 1, q) model to be written as follows:

$$\Delta X_t = \theta_0 + \sum_{i=1}^{p} \phi_i \Delta X_{t-i} + e_t - \sum_{i=1}^{q} \theta_i e_{t-i} ,$$

what is actually the ARMA(p, q) model, but for the time series which is previously transformed by differentiation in order to achieve its stationary transformation.

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[1] Brent H Meyer and Mehmet Pasaogullari. 2010. "Simple Ways to Forecast Inflation: What Works Best?", Federal Reserve bank of Cleveland, Economic Commentary, No. 2010-17

[2] Stockton, D. J., Glassman, J.I., 1987. "An evaluation of the forecasting performance of alternative models of inflation", The Review of Economics and Statistics.

[3] Meyler, A., G. Kenny and T. Quinn, 1998. "Forecasting Irish Inflation using ARIMA models", Central Bank of Ireland Research Department Memorandum,

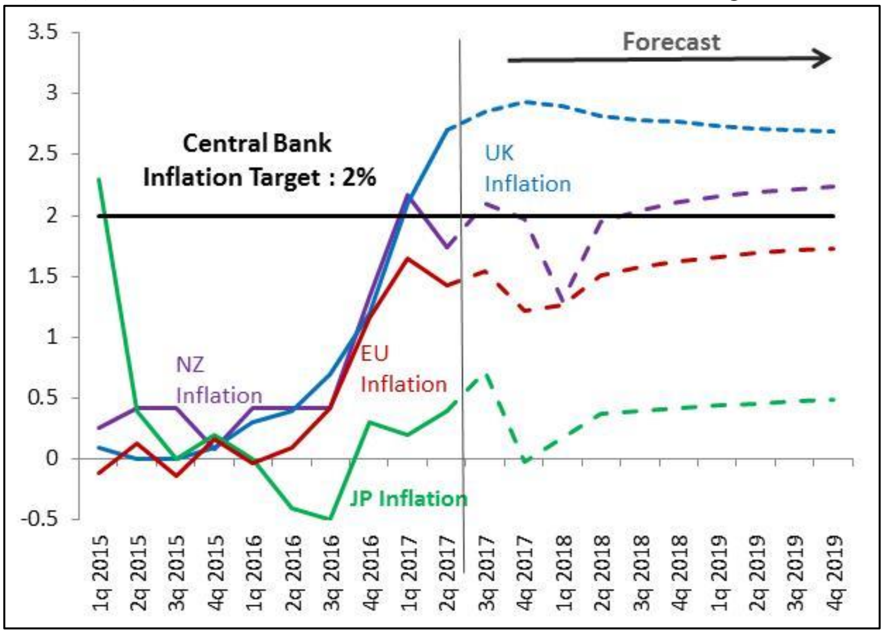
[4] Krušec, D., 2007. "Short term inflation projections for Slovenia: comparing factor models with AR and VAR models", Prikazi in analize XIV/1 (may 2007), Ljubljana

[5] Stoviček, K., 2007. "Forecasting with AMA models: the case of Slovenian inflation", Prikazi in analize XIV/1 (may 2007).

[6] Pufnik, A.,Kunovac, D., 2006. "Kratkoročno prognoziranje inflacije u Hrvatskoj korištenjem sezonskih ARIMA procesa", Istraživanja, I-18, Croatian National Bank.

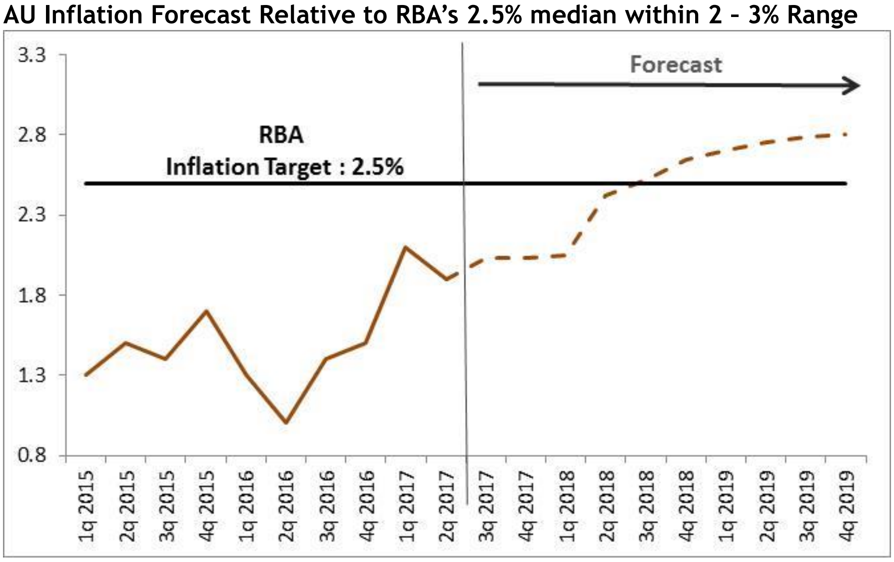
Our inflation forecasts are as follow:

EU, UK, NZ, JP Inflation Forecasts Relative to 2% Inflation Target



Note: RBNZ targets an inflation range of 1 - 3% - we used 2% as the median for this study.
Source: EViews, CEIC, Bloomberg, Maybank FX Research & Strategy

AU Inflation Forecast Relative to RBA's 2.5% median within 2 – 3% Range



Note: RBA targets an inflation range of 2 - 3% - we used 2.5% as the median for this study.
Source: EViews, CEIC, Bloomberg, Maybank FX Research & Strategy

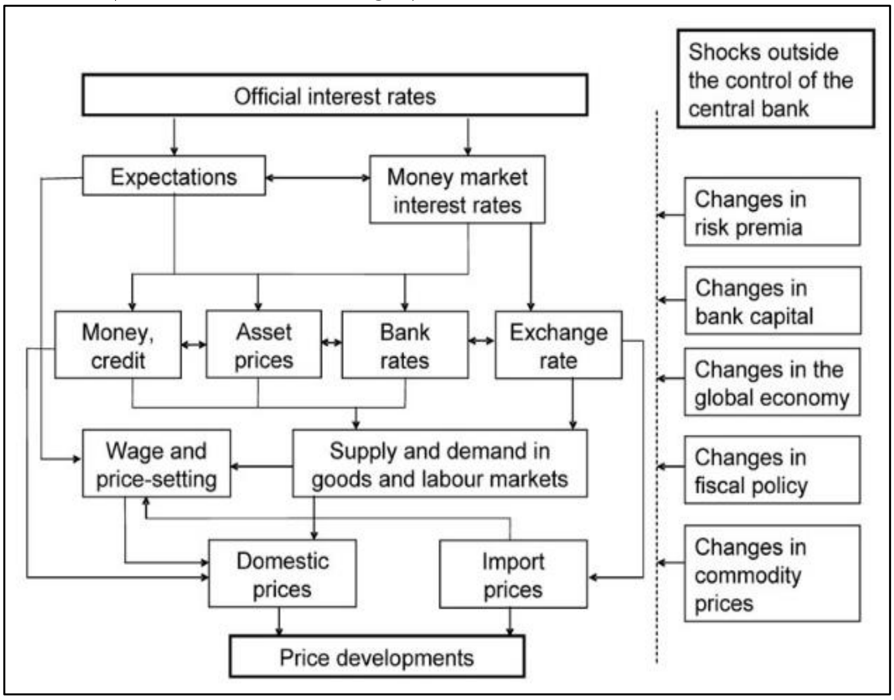
With the path of inflation forecast in hand for EU, UK, Australia, NZ and Japan, we now compare the forecasts to the respective central banks' inflation targets and estimate the time period (in quarterly terms) for inflation to get to target. We defined this time period as z.

Our study shows that NZ inflation is forecasted to reach RBNZ's target in 5 quarters; AU inflation is forecasted to reach RBA's target in 4 quarters; UK has already met its inflation target in the previous quarter; EU and JP inflation are forecasted to reach its respective central banks' target beyond our forecast period of 10 quarters. We estimate based on average yearly gains and extrapolate accordingly: EU and JP may reach inflation targets in 14 and 60 quarters, respectively.

Accounting for Monetary Policy Transmission Lag

In the monetary policy regime of inflation targeting, the central bank attempts to steer inflation towards the target or target range, using tools such as interest rate changes, which will affect economic activity and inflation through several channels known as transmission mechanism of monetary policy.

A schematic illustration of Main Transmission Channels of Monetary Policy Decision (via Interest rate changes)



Source: ECB website (https://www.ecb.europa.eu/mopo/intro/transmission/html/index.en.html)

The transmission mechanism is characterized by long, variable and uncertain time lags (Friedman, 1972[7]; Batini and Nelson[8], 2001; Goodhart[9], 2001), and is often difficult to predict the precise effect of monetary policy actions on the economy and price levels. Most inflation-targeting central banks have adopted a value between 4 and 8 quarters as their policy horizon (Bank of England[10], 1999; European Central Bank, 2010[11]). Our research on various studies beings conducted by central banks shows that transmission lag in NZ is between 6 and 8 quarters[12]; transmission lag in Australia is between 4 and 7 quarters[13] with the slowest transmission found for Japan with a lag of 17 quarters[14]. We defined this lag as *y*.

[7] FRIEDMAN, M. (1972): “Have Monetary Policies Failed?” American Economic Review, 62 (2).
[8] BATINI, N. AND NELSON, E. (2001): “The Lag from Monetary Policy Actions to Inflation: Friedman Revisited.” International Finance 4(3).
[9] GOODHART, C. A. (2001): “Monetary transmission lags and the formulation of the policy decision on interest rates.” Federal Reserve Bank of St. Louis, (Jul).
[10] BANK OF ENGLAND (1999): “The Transmission Mechanism of Monetary Policy. A Paper by the Monetary Policy Committee.” Bank of England, April 1999
[11] EUROPEAN CENTRAL BANK (2010): “Monthly Bulletin.” European Central Bank, May 2010
[12] Christopher Plantier (2002): “THE POLICY TARGETS AGREEMENT: RESERVE BANK BRIEFING NOTE AND RELATED PAPERS.” SEPTEMBER 2002
[13] David Gruen, John Romalis and Naveen Chandra (1997): “The Lags of Monetary Policy.” Reserve Bank of Australia, April 1997
[14] Tomáš Havránek and Marek Rusnák (2012): “Transmission Lags of Monetary Policy: A Meta-Analysis.” Czech National Bank Working paper Series 10/12.

BoE is Behind the Curve while BoJ is in No Hurry to Normalise

	Time for Inflation to get to Inflation Target (z) - Quarterly terms	Median Policy Transmission Lag (y) - Quarterly terms	Policy Slack Ratio (or z/y = x)
UK/ BoE	-1	6	-0.16
NZ/ RBNZ	5	7	0.71
AU/ RBA	4	5.5	0.72
EU/ ECB	14	6	2.33
JP/ BoJ	60	17	3.53

Source: Maybank FX Research & Strategy Estimates

Now that we have the average policy transmission lag and the time period for inflation to get to target, we can estimate which **central banks can afford to wait for longer before tightening or is potentially at risk of behind the curve in tightening.**

We devise a ratio defined by time forecasted to get to inflation target / transmission policy lag (or z/y for short). We call this the policy slack ratio.

A ratio of 1 suggests that the central could potentially prepare to tighten rate this or next quarter; a ratio of more than 1 suggests the central bank has ample time and can afford to be more patient before tightening (or risk derailing the inflation trajectory in the event of premature tightening; a ratio of less than 1 suggests that the central bank may be slightly behind the curve in tightening and could potentially tighten soon and finally a negative ratio suggests that inflation has overshoot the central bank's target and the central is behind the curve in tightening. That said our policy slack ratio is no holy grail as central banks typically combine elements of "rules" and "discretion" when it comes to making decisions.

Our study shows UK has already overshot its inflation target in the last quarter and the BoE has yet to respond. But we acknowledge that the overshoot of inflation target is due to GBP large depreciation post-Brexit in 2016 feeding through to import price channel. BoE is well aware and has shared its tolerance of above-target inflation. They have also expected inflation to potentially rise above 3% by Autumn. Taking into consideration BoE Governor Carney, Chief Economist Haldane and MPC vote shift in recent meetings, it does suggest that BoE may potentially raise rates soon - either in upcoming Aug meeting or Nov meeting.

For NZ, inflation is forecasted to reach target in about 5 quarters' time and given its monetary policy transmission lag of about 6 - 8 quarters, RBNZ maybe running slightly behind the curve in tightening but inflation does not appear to be at risk of overshooting and we do not think the RBNZ will move before Mar-2018. We do acknowledge there is some degree of political risk due to NZ General Election (23 Sep) and leadership transition at RBNZ due to change of RBNZ Governor from Graeme Wheeler to Grant Spencer (as acting Governor for 6 months before retirement), effective 26 Sep. Due to leadership transition, monetary policy could remain status quo till Mar-2018 unless inflation overshoots upper band of target range of 3% (not our forecast).

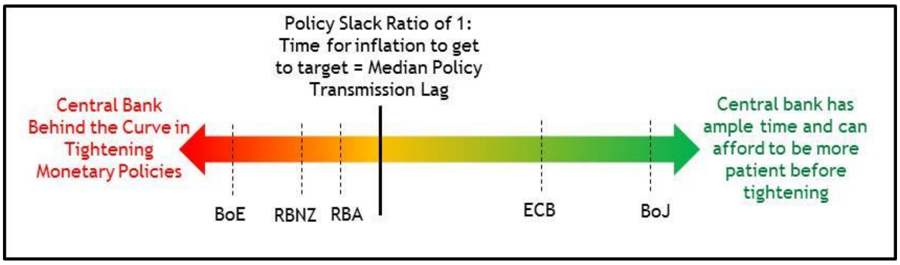
For Australia, our study suggests its inflation could potentially hit its target in about 4 quarters' time. Path of forecasted inflation beyond 3Q 2018 is expected to be above its inflation target median of 2.5%, but remains well within RBA's target range of 2 - 3%. Our Policy Slack ratio suggests that the

RBA is slightly behind the curve in tightening if inflation is the sole target for RBA but we understand the RBA is also concerned about high household debt (record high of 189% of GDP) and slow pace of wage growth (1.9% in the year to Mar). As such the monetary policy response from RBA is likely to be slightly behind the curve.

For EU and Japan, our policy slack ratio suggests that there is still ample time for inflation in EU and Japan to get to targets and hence there is little urgency for ECB and BoJ to normalize monetary policies.

Between ECB and BoJ, we expect BoJ to remain the last to normalize monetary policies unless there is a structural break in inflation either via fiscal policies or structural reforms.

In Europe's case we do acknowledge there is potentially some risk for ECB to normalize monetary policies in the form of slowing its asset purchases (currently at the pace of EUR60bn on monthly basis till end-2017). Still a reduction in QE purchase only constitutes to tapering and is in no way close to tightening interest rates. We still expect ECB to maintain a considerable degree of monetary accommodation for inflation dynamics to become durable and self-sustaining. We do expect some form of slower purchases of QE, potentially announced after 7th Sep meeting.



To summarise, our study suggests global policy unwind will take shape at differing pace. BoE could potentially move in the upcoming meetings in Aug or Nov; RBA is slightly behind the curve in tightening but concerns in household debt and slow pace of wage growth may keep the RBA on hold for this year; RBNZ is likely to remain on hold till Mar-2018 unless inflation overshoots to the upper band of RBNZ target range (which is not our view); ECB is not in a hurry to tighten as path of forecasted inflation is not expected to hit ECB's target within the next 10 quarters but we do not rule out slower pace of asset purchases; BoJ is stuck with its easy monetary policy bias as inflation remains subdued. BoJ needs to continue with its powerful easing and is likely to remain the laggard amongst its G7 peers.

In terms of relative value plays on FX, we are broadly bullish on AUD, GBP, NZD and to some extent, EUR but bearish on JPY.

Remaining Central Bank Meetings for 2017

Fed	ECB	BoE	BoJ	RBA	RBNZ	BoC
19-20 Sep	7 Sep	3 Aug	20 - 21 Sep	1 Aug	10 Aug	7 Sep
31 Oct - 1 Nov	26 Oct	14 Sep	30 - 31 Oct	5 Sep	28 Sep	19 Oct
12 - 13 Dec	14 Dec	2 Nov	20 - 21 Dec	3 Oct	9 Nov	7 Dec
		14 Dec		7 Nov		
				5 Dec		

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