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# **Polish Weekly Review**

mBank Research (macro/FI/FX analysis)



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#### **Table of contents**

Our view in a nutshell	page 2
Economics	page 3

 Disappointment in industrial data more than matched by stellar construction output. Retail sales firmly in trend.

Fixed income page 5

All eyes on Jackson Hole

Money market page 6

Summertime trading still holds

FX market page 7

■ Spot – PLN – still boxed in 4.25-4.30 range

Options – EUR/PLN vols – tic lower

### Comment on the upcoming data and forecasts

On Thursday, the second estimate of Polish GDP in the second quarter will be published (we expect it to match the flash reading at 3.9% y/y), along with its breakdown. We expect consumption to have slightly slowed down (to 4.5% y/y), while investment has likely finally turned positive and accelerated to 4.5% y/y. Few hours later CSO will publish flash CPI for August. Our early estimates indicate a minor rise on the back of higher food prices and core inflation, it is, however, too early to give a specific number. Friday brings us the release of Polish manufacturing PMI. After the previous negative surprise, we are waiting for all additional information about business outlook in Poland and Europe (PMI in Eurozone has skyrocketed recently, while CSO's sentiment indicators declined slightly, yet remained elevated), to produce our final forecast.

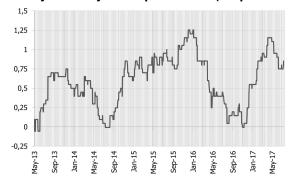
### Polish data to watch: August 25th to September 1st

Publication	Date	Period	mBank	Consensus	Prior
GDP y/y (%) final	31.08	Q2	3.9	3.9	4.0
CPI y/y (%) flash	31.08	Aug			1.7
Manufacturing PMI (p.)	01.09	Aug			52.3

### Treasury bonds and bills auctions

Paper	Next auction	Last Offer	Yield on the prev auction (%)	Prev auction
(29-37/52) Week T-bills	-	700	1.500	2/22/2017
2Y T-bond OK1019	9/8/2017	600	1.859	6/9/2017
5Y T-bond PS0422	9/8/2017	1000	2.587	6/9/2017
10Y T-bond DS0727	9/8/2017	600	3.128	6/9/2017
30Y T-bond WS0447	-	100	3.508	6/9/2017

### Reality vs analysts' expectations (surprise index\* for Poland)



### Comment

Polish surprise index fell significantly after negative surprises in industrial production and unemployment data. Next weeks bring several opportunities to erase or deepen the drop with final GDP, flash CPI data as well as manufacturing PMI.

<sup>\*</sup> Surprise index presents in a synthetic way how the market was surprised by macroeconomic releases (it is constructed on daily basis as weighted average of differences between selected releases and Bloomberg forecast consensus)



### Our view in a nutshell

### **Fundamentals**

- H1 GDP figures (3.9-4.0% y/y) confirmed that the economy is operating on a high gear. However, so far there is little to suggest that it would continue to accelerate. Household consumption will ultimately slow down slightly, as base effects and inflation bite, while the looming acceleration in investment is set to be checked by negative net exports. Therefore, we are comfortable with our current forecast of flat GDP growth path throughout the year. Rapid acceleration in wages or swifter return of private investment are clear, upside risks for growth this year.
- With stable fuel prices and rising food prices, the local bottom in inflation was set at 1.5% in June.
- The case for accelerating core inflation is strengthening. Stellar employment performance shows no respite but wage growth remains moderate. Such equilibrium is unsustainable. If 2007 and 2008 are taken as guide, wages are ready to take off this year as current demand for labor meets limited supply.
- MPC stays calm and waits rises in headline inflation out, while carrying steady message of stable rates. Such rhetoric can stay in place for some months. However, as trend in core inflation emerges as evident and labor market strengthen further, the case for rate hikes is set to strengthen as well. All we need is a small change in MPC's wording to make rate expectations wander somewhat more freely.
- Solid labor market performance and prospect for faster growing wages support PIT and VAT revenue from consumption.
   With much higher headline inflation already in place (deflationary 2016!), further improvements in tax income seem a safe bet for 2017 even without any stringent assumptions on the efficiency of tax collection.

### **Financial markets**

- EURPLN rose to 4.30 on the back of rising local risks (political turbulence, new CHF loan bill and the on-going disputes with the European Commission) and the recent uptick in global risk aversion and volatility associated with North Korean tensions. Worse still, PLN appears to react asymmetrically to global factors (it barely benefitted from renewed bets on easy monetary policy globally).
- While PLN appears undervalued in real terms and cyclical factors should underpin its strength, uncertainties, that prevent us from being bullish in the short term, are mounting. These are: geopolitics, the shape and the effects of the new CHF mortgage legislation, as well as Poland's troubles within the EU.

### mBank forecasts

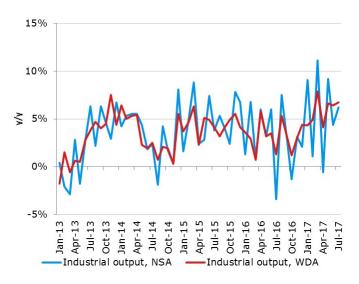
		201	3	2014	2015	2016	2017 F	2018 F
GDP y/y (%)		1.4		3.3	3.8	2.7	3.9	4.1
CPI Inflation y/y (average %)		0.9		-0.1	-0.9	-0.6	1.9	2.2
Current account (%GDP)		-1.2		-2.1	-0.6	-0.2	-0.9	-1.1
Unemployment rate (end of period %)		13.4	1	11.4	9.8	8.3	6.8	6.0
Repo rate (end of period %)		2.50	)	2.00	1.50	1.50	1.50	2.00
	2017	2017	2017	2017	2018	2018	2018	2018
	Q1	Q2 F	Q3 F	Q4 F	Q1 F	Q2 F	Q3 F	Q4 F
GDP y/y (%)	4.0	3.9	3.8	3.9	4.0	4.0	4.2	4.2
Individual consumption y/y (%)	4.7	4.5	4.2	4.0	4.0	3.8	3.8	3.8
Public Consumption y/y (%)	1.0	2.0	2.5	3.0	4.0	3.0	3.0	3.0
Investment y/y (%)	-0.4	4.5	7.0	10.0	10.0	10.0	10.0	9.0
Inflation rate (% average)	2.0	1.8	1.7	1.9	1.5	2.2	2.6	2.6
Unemployment rate (% eop)	8.2	7.1	6.6	6.8	6.8	6.0	5.7	6.0
NBP repo rate (% eop)	1.50	1.50	1.50	1.50	1.50	1.50	1.75	2.00
Wibor 3M (% eop)	1.73	1.73	1.73	1.73	1.73	1.73	1.98	2.23
2Y Polish bond yields (% eop)	2.01	1.90	1.93	2.04	2.12	2.31	2.66	2.84
10Y Polish bond yields (% eop)	3.49	3.32	3.38	3.53	3.63	3.85	4.23	4.45
EUR/PLN (eop)	4.23	4.23	4.25	4.25	4.20	4.15	4.08	4.05
USD/PLN (eop)	3.97	3.70	3.66	3.63	3.59	3.49	3.40	3.35
F - forecast								



## **Economics**

# Disappointment in industrial data more than matched by stellar construction output. Retail sales firmly in trend.

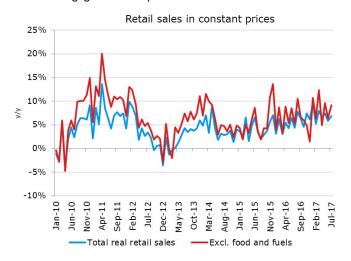
Industrial output rose by 6.2% y/y in July, much below our forecast and market consensus (9.1 and 8.4% y/y, respectively). The acceleration vis-a-vis June's +4.5% is therefore small and consistent with calendar effects (working days were up to 0 y/y vs. -1 y/y in June), but nothing more. We were betting on modest base effects from the previous year and the return of momentum to IP figures - neither materialized as output declined by 1.2% m/m on a seasonally adjusted basis. Looking at partial industry-by-industry breakdown, we can point to automobile industry as the source of the base effect and the subsequent disappointment - timing of seasonal plant outages is the key here. Despite these short-term gyrations, the overall trend in industrial output remains fairly strong and stable. The on-going recovery in Poland's key trading partners and the rebound in investment suggest that industry has a bright future ahead.



On the other side, construction output surprised in July on the upside, rising by 19.8% on a yearly basis, whereas both market and our forecast indicated a more moderate growth (13-14%). After seasonal adjustment, the release is also solid with growth rates of 18% y/y and 4.3% m/m. The more so, since base effects have almost completely faded away in July. while calendar effect was just slightly positive. We think that public investment was the main driver here. Ministry of Finance data already indicates that local government investment activity. which contributes almost entirely to construction sector, rose by 25% in the second quarter. Today's release is a good starting point for investment growth in the second half of the year. Another engine will start soon, when next round of EU-funded projects will kick in. Road, rail and line investment should all be a part of this revival. Reconstruction after the recent extreme weather events (storms etc.) would also require additional investment, especially power lines. We should get used to double digit growth in this category for the next months.



**Retail sales** accelerated from 6.1 to 7.1% y/y in nominal terms, slightly above our forecast (6.6%), but below market consensus (7.4%). The details of the release bring little surprise as fuel and food sales remained stable on annual basis and durable good sales behaved in line with recent trends. The latter includes double-digit figures for pharmaceuticals, clothing, books and newspapers. Car sales recorded the biggest swing (from -0.9% to +6.1% y/y). Our favorite measures of core retail sales accelerated modestly. In general, little new seems to be happening with consumer spending and, as we expected, base effects from child subsidy programme and the impact of higher inflation are both negligible at this point.



Rise of producer price index in June (2.2% y/y) was only slightly higher than we and the market had expected (2.0%) and is rather moderate, given numbers released just few months ago (3-4%). To remind our readers, EURPLN exchange rate was rather stable for the most of July, while the fall in USDPLN (driven by strengthening of euro against dollar) merely balanced rises in commodity prices. We still see an incoming steady growth of PPI in manufacturing. The story of core producer prices is similar to the one characteristic to core inflation. The process of growth is ongoing, but stays at the same time constantly offset by other factors keeping at bay any reaction of monetary authorities.

Despite the disappointment in industrial output figures, July data suggest that economic growth accelerated in the third quarter. We will, of course, wait for August data to make more precise



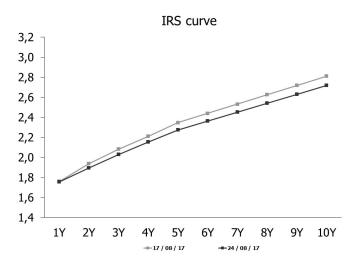
predictions, but one can be reasonably sure that the contribution from investment in Q3 will be materially above zero. In addition, consumer spending is set to remain robust. From the MPC's point of view, today's figures support the status quo and its preferred scenario of stable growth, inflation and interest rates.

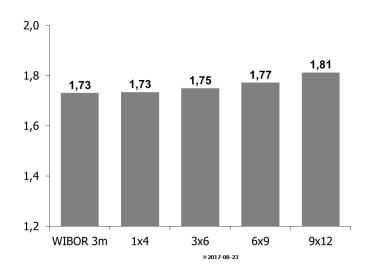


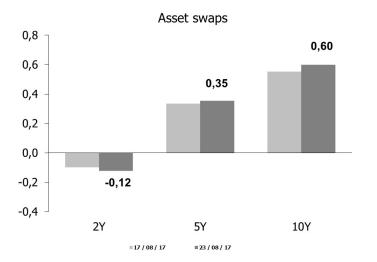
## **Fixed income**

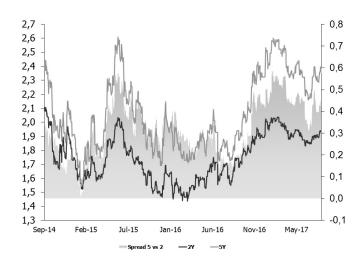
# All eyes on Jackson Hole

Yes, we know it's boring, but market is in a standby mode. DS0727 was trading in a thight range, 3.35-3.28%, last week. We still see demand for short end bonds, as a tax-protection trade. DS0727/Bund spread is 292 bps, PS0422/DS0727 is trading at 69 bps, both spreads haven't changed during last week. ASW PS0422/5y is at 30 bps and DS0727/10y is at 58 bps. OK0419 is trading at 1.60% (9 bps down), PS0422 is trading at 2.60% (8 bps down) and DS0727 is trading at 3.29% (7 bps down).











# Money market

# Summertime trading still holds

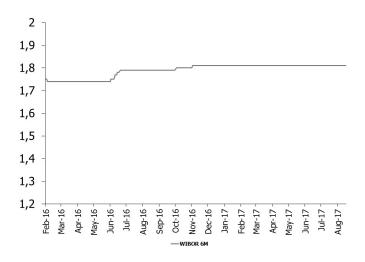
Slow summer mood lasts on Polish rate market. Turnover is very low, while rates fell a bit. We still wait for autumn, when market should wake up. During the weekend we have the conference in Jackson Hole. It will be interesting to hear what most prominent central bankers have to say about future monetary policy. Next week we also have CPI reading in Poland.

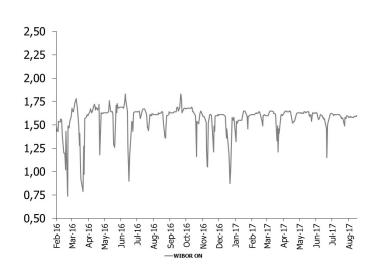
Stable cash around 1.45%. Next week we have end of the month.

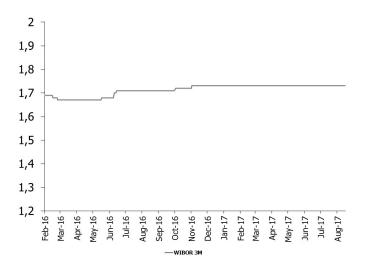
Ref rate vs Polonia averages:

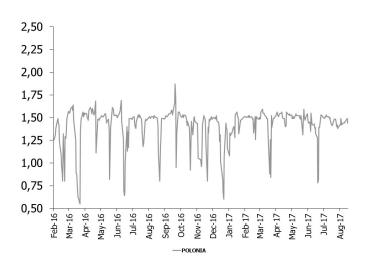
30 day 6 bp

90 day 6 bp











## **Forex**

Spot: EUR/PLN – still boxed in the 4.25-4.30 range EUR/PLN was treading water once again, fluctuating between 4.2530 (low) to 4.2890 (high of the week). There is a certain built-up in expectations attached to Jackson Hole conference, but the main speakers, namely Ms. Yellen and Mr. Draghi, are scheduled to speak already after the closure of the European trading hours on Friday. As a result, most of us will not have a chance to react until Monday morning. Will we hear anything strong enough to break out of the current range? We doubt it, but the event risk persists. We are still keen to play range, engaging more from the short PLN side.

**EUR/PLN vols – tic lower** It was an interesting week for EUR/PLN vols as 1 year was paid and bid on at 6.5% and 6 months we were trading as high as 6.35%. The frontend was also higher as 1 month started to include September's FOMC meeting. Later in the week, it started to melt again as realized volatility is still disappointing. EUR/PLN ATM mid is today at 5.7% (0.3% lower), 3 months are at 5.9% (0.1% lower) and, finally, 1 year fixed at 6.4% (unchanged). The skew was roughly unchanged, and the currency spread (difference between USD/PLN and EUR/PLN), frontend s tic better bid due to Jackson Hole event.

### **Short-term forecasts**

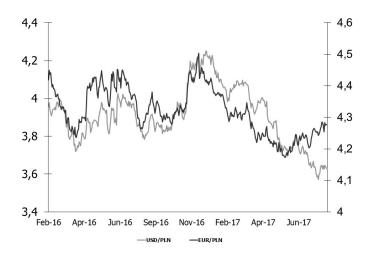
Main supports / resistances: EUR/PLN: 4.20 / 4.30 USD/PLN: 3.50 / 3.80

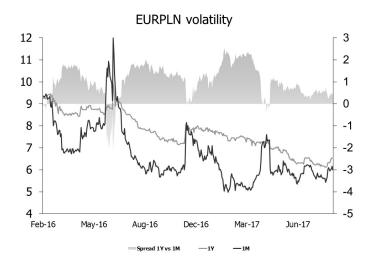
**Spot** Current position: long EUR/PLN was reinitiated at 4.2550.

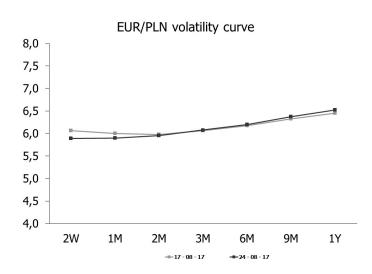
We are ready to add to the position at 4.2200 with a stop at 4.1900, and hope to see 4.3000, possibly on the way to 4.33+. We are of the opinion that political risk in Poland is not priced in at current PLN levels. Technically, we see a good chance of EUR/PLN coming back to the middle of the multi-month range, namely 4.35-ish.

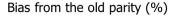
### Options Vol - tactical long

We reduced some vega position but still have small tactical long in mid curve Vega. The market is not really moving, we are in very tight price ranges. In the bigger picture, we are much more keen to enter bigger long Vega trade, but timing is key. For now we are sticking to our small tactical long.















# Market prices update

8/17/2017     1.63     1.73     1.69     1.71     1.73     1.75     1.73     1.75     1.79     1.84     1.90     1       8/20/2017     1.68     1.73     1.74     1.71     1.78     1.75     1.73     1.74     1.76     1.81     1.87     1       8/21/2017     1.60     1.73     1.67     1.71     1.71     1.75     1.74     1.75     1.78     1.82     1.88     1       8/22/2017     1.47     1.73     1.62     1.71     1.79     1.75     1.74     1.75     1.78     1.82     1.87     1	Money mark	et rates (mid o	close)						FRA rate	s (mid c	lose)		
8/20/2017   1.68					WIBOR 6M								6x12
8/21/2017   1.60   1.73   1.67   1.71   1.71   1.75   1.74   1.75   1.78   1.82   1.88   1   8/22/2017   1.47   1.73   1.62   1.71   1.79   1.75   1.74   1.75   1.78   1.82   1.87   1   8/23/2017   1.65   1.73   1.69   1.71   1.86   1.75   1.73   1.75   1.77   1.81   1.82   1.87   1   8/23/2017   1.65   1.73   1.69   1.71   1.86   1.75   1.73   1.75   1.77   1.81   1.86   1   8/23/2017   1.65   1.73   1.69   1.71   1.86   1.75   1.73   1.75   1.77   1.81   1.86   1   8/23/2017   1.65   1.73   1.69   1.71   1.86   1.75   1.73   1.75   1.77   1.81   1.86   1   8/23/2017   1.65   1.73   1.69   1.71   1.86   1.75   1.73   1.75   1.77   1.81   1.86   1   8/23/2017   8/30/2017   9/21   1.50   700   1832   726   8/20/2017   4/25/2019   96.62   1.86   600   1505   500   8/20/2017   4/25/2022   98.47   2.59   1000   1811   1085   8/20/2017   4/25/2022   98.47   2.59   1000   1811   1085   8/20/2017   1.750   1.474   1.635   1.578   1.960   2.232   2.405   2.949   8/20/2017   1.750   1.474   1.635   1.578   1.960   2.232   2.405   2.949   8/20/2017   1.750   1.474   1.635   1.578   1.960   2.232   2.405   2.949   8/22/2017   1.750   1.474   1.635   1.578   1.960   2.232   2.405   2.949   8/23/2017   1.750   1.474   1.635   1.525   2.000   2.290   2.447   2.985   8/23/2017   1.750   1.474   1.635   1.525   2.000   2.290   2.447   2.985   8/23/2017   1.750   1.474   1.635   1.525   2.000   2.299   2.460   2.964    EUR/PLN 0-delta stradle  Date   1M													1.87
8/22/2017       1.47       1.73       1.62       1.71       1.79       1.75       1.74       1.75       1.78       1.82       1.87       1         8/23/2017       1.65       1.73       1.69       1.71       1.86       1.75       1.73       1.75       1.77       1.81       1.86       1         Last primary market rates         Paper       Au. date       Maturity       Avg. price       Avg. yield       Supply       Demand       Sold         32W TB       2/22/2017       8/30/2017       99.21       1.50       700       1832       726         OK0419       6/9/2017       4/25/2019       96.62       1.86       600       1505       500         PS0422       6/9/2017       4/25/2022       98.47       2.59       1000       1811       1085         DS0727       6/9/2017       7/25/2027       94.61       3.13       600       944       640         Fixed income market rates (closing mid-market levels)         Date       17 Yibill       2Y IRS       OKO715       5Y IRS       107 IRS       DS1023         8/17/2017       1.750       1.474       1.635       1.578 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>1.85</td></td<>												-	1.85
R/23/2017   1.65													1.85
Paper											-		1.85 1.85
Paper				1.09	1.71	1.00	1.75	1.73	1.75	1.77	1.01	1.00	1.65
32W TB				Ava price	Ava vield	Supply	Demand	Sold					
OK0419         6/9/2017         4/25/2019         96.62         1.86         600         1505         500           PS0422         6/9/2017         4/25/2022         98.47         2.59         1000         1811         1085           DS0727         6/9/2017         7/25/2027         94.61         3.13         600         944         640           Fixed income market rates (closing mid-market levels)           Date         1Y WIBOR         1Y T-bill         2Y IRS         OK0715         5Y IRS         PS0718         10Y IRS         DS1023           8/17/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/21/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/22/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/22/2017         1.750         1.474         1.635         1.638         1.990         2.290         2.447         2.985           8/23/2017         1.750         1.474         1.635         1.525         2.000         2.26	•		•										
PS0422         6/9/2017         4/25/2022         98.47         2.59         1000         1811         1085           DS0727         6/9/2017         7/25/2027         94.61         3.13         600         944         640           Fixed income market rates (closing mid-market levels)           Date         1Y WIBOR         1Y T-bill         2Y IRS         OK0715         5Y IRS         PS0718         10Y IRS         DS1023           8/17/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/21/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/21/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/22/2017         1.750         1.474         1.635         1.578         1.990         2.290         2.447         2.985           8/23/2017         1.750         1.474         1.635         1.525         2.000         2.269         2.460         2.964           EUR/PLN 0-delta stradle         1         25-delta RL </td <td></td>													
DS0727   6/9/2017   7/25/2027   94.61   3.13   600   944   640													
Date   1Y WIBOR   1Y T-bill   2Y IRS   OK0715   5Y IRS   PS0718   10Y IRS   DS1023													
Date         1Y WIBOR         1Y T-bill         2Y IRS         OK0715         5Y IRS         PS0718         10Y IRS         DS1023           8/17/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/20/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/21/2017         1.750         1.474         1.635         1.578         1.960         2.232         2.405         2.949           8/22/2017         1.750         1.474         1.635         1.638         1.990         2.290         2.447         2.985           8/23/2017         1.750         1.474         1.635         1.525         2.000         2.269         2.460         2.964           EUR/PLN 0-delta stradle         25-delta RR         25-delta RR         25-delta FLY           Date         1M         3M         6M         1Y         1M         1Y         1Y           8/17/2017         6.05         6.06         6.20         6.53         6.53         1.77         0.57           8/22/2017         6.00         6.08 <td></td> <td></td> <td></td> <td></td> <td></td> <td>600</td> <td>944</td> <td>640</td> <td></td> <td></td> <td></td> <td></td> <td></td>						600	944	640					
8/17/2017       1.750       1.474       1.635       1.578       1.960       2.232       2.405       2.949         8/20/2017       1.750       1.474       1.635       1.578       1.960       2.232       2.405       2.949         8/21/2017       1.750       1.474       1.635       1.578       1.960       2.232       2.405       2.949         8/22/2017       1.750       1.474       1.635       1.638       1.990       2.290       2.447       2.985         8/23/2017       1.750       1.474       1.635       1.525       2.000       2.269       2.460       2.964         EUR/PLN 0-delta stradle       25-delta RR       25-delta FLY         Date       1M       3M       6M       1Y       1M       1Y       1Y         8/17/2017       6.00       6.06       6.18       6.45       6.45       1.77       0.57         8/21/2017       6.05       6.06       6.20       6.53       6.53       1.77       0.57         8/22/2017       6.00       6.03       6.15       6.53       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53			<u> </u>		<u>,                                      </u>	EV IDS	DS0719	10V IDS	DS1022				
8/20/2017       1.750       1.474       1.635       1.578       1.960       2.232       2.405       2.949         8/21/2017       1.750       1.474       1.635       1.578       1.960       2.232       2.405       2.949         8/22/2017       1.750       1.474       1.635       1.638       1.990       2.290       2.447       2.985         8/23/2017       1.750       1.474       1.635       1.525       2.000       2.269       2.460       2.964         EUR/PLN 0-delta stradle         Date       1M       3M       6M       1Y       1M       1Y       1Y         8/17/2017       6.00       6.06       6.18       6.45       6.45       1.77       0.57         8/20/2017       6.05       6.06       6.20       6.53       6.53       1.77       0.57         8/21/2017       6.00       6.03       6.15       6.53       6.53       1.77       0.57         8/23/2017       5.90       6.08       6.20       6.53       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       6.53       1.85       0.59 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>													
8/21/2017       1.750       1.474       1.635       1.578       1.960       2.232       2.405       2.949         8/22/2017       1.750       1.474       1.635       1.638       1.990       2.290       2.447       2.985         8/23/2017       1.750       1.474       1.635       1.525       2.000       2.269       2.460       2.964         EUR/PLN 0-delta stradle       25-delta RR       25-delta FLY         Date       1M       3M       6M       1Y       1M       1Y       1Y         8/17/2017       6.00       6.06       6.18       6.45       6.45       1.77       0.57         8/20/2017       6.05       6.06       6.20       6.53       6.53       1.77       0.57         8/21/2017       6.00       6.03       6.15       6.53       6.53       1.77       0.57         8/23/2017       5.90       6.08       6.20       6.53       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN													
8/22/2017       1.750       1.474       1.635       1.638       1.990       2.290       2.447       2.985         8/23/2017       1.750       1.474       1.635       1.525       2.000       2.269       2.460       2.964         EUR/PLN 0-delta stradle       25-delta RR       25-delta FLY         Date       1M       3M       6M       1Y       1M       1Y       1Y         8/17/2017       6.00       6.06       6.18       6.45       6.45       1.77       0.57         8/20/2017       6.05       6.06       6.20       6.53       6.53       1.77       0.57         8/21/2017       6.00       6.03       6.15       6.53       1.77       0.57         8/23/2017       5.90       6.08       6.20       6.53       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN       JPYPLN       HUFPLN       CZKPLN         8/17/2017       4.2541       3.6258       3.7569       3.2956       1.3991       0.16													
8/23/2017       1.750       1.474       1.635       1.525       2.000       2.269       2.460       2.964         EUR/PLN 0-delta stradle       25-delta RR       25-delta FLY         Date       1M       3M       6M       1Y       1M       1Y       1Y         8/17/2017       6.00       6.06       6.18       6.45       6.45       1.77       0.57         8/20/2017       6.05       6.06       6.20       6.53       6.53       1.77       0.57         8/21/2017       6.00       6.03       6.15       6.53       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN       JPYPLN       HUFPLN       CZKPLN         8/17/2017       4.2541       3.6258       3.7569       3.2956       1.3991       0.1633													
EUR/PLN 0-delta stradle         25-delta RR         25-delta FLY           Date         1M         3M         6M         1Y         1M         1Y         1Y           8/17/2017         6.00         6.06         6.18         6.45         6.45         1.77         0.57           8/20/2017         6.05         6.06         6.20         6.53         6.53         1.77         0.57           8/21/2017         6.00         6.03         6.15         6.53         6.53         1.79         0.56           8/23/2017         5.90         6.08         6.20         6.53         6.53         1.85         0.59           PLN Spot performance           Date         EURPLN         USDPLN         CHFPLN         JPYPLN         HUFPLN         CZKPLN           8/17/2017         4.2541         3.6258         3.7569         3.2956         1.3991         0.1633													
Date         1M         3M         6M         1Y         1M         1Y         1Y           8/17/2017         6.00         6.06         6.18         6.45         6.45         1.77         0.57           8/20/2017         6.05         6.06         6.20         6.53         6.53         1.77         0.57           8/21/2017         6.15         6.08         6.20         6.53         6.53         1.77         0.57           8/22/2017         6.00         6.03         6.15         6.53         6.53         1.79         0.56           8/23/2017         5.90         6.08         6.20         6.53         6.53         1.85         0.59           PLN Spot performance           Date         EURPLN         USDPLN         CHFPLN         JPYPLN         HUFPLN         CZKPLN           8/17/2017         4.2541         3.6258         3.7569         3.2956         1.3991         0.1633			1.4/4	1.635	1.525	2.000		2.460	2.964				
8/17/2017       6.00       6.06       6.18       6.45       1.77       0.57         8/20/2017       6.05       6.06       6.20       6.53       1.77       0.57         8/21/2017       6.15       6.08       6.20       6.53       1.77       0.57         8/22/2017       6.00       6.03       6.15       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN       JPYPLN       HUFPLN       CZKPLN         8/17/2017       4.2541       3.6258       3.7569       3.2956       1.3991       0.1633											ta FLY		
8/20/2017       6.05       6.06       6.20       6.53       1.77       0.57         8/21/2017       6.15       6.08       6.20       6.53       1.77       0.57         8/22/2017       6.00       6.03       6.15       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN       JPYPLN       HUFPLN       CZKPLN         8/17/2017       4.2541       3.6258       3.7569       3.2956       1.3991       0.1633			-										
8/21/2017       6.15       6.08       6.20       6.53       1.77       0.57         8/22/2017       6.00       6.03       6.15       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN       JPYPLN       HUFPLN       CZKPLN         8/17/2017       4.2541       3.6258       3.7569       3.2956       1.3991       0.1633													
8/22/2017       6.00       6.03       6.15       6.53       1.79       0.56         8/23/2017       5.90       6.08       6.20       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN       JPYPLN       HUFPLN       CZKPLN         8/17/2017       4.2541       3.6258       3.7569       3.2956       1.3991       0.1633													
8/23/2017       5.90       6.08       6.20       6.53       1.85       0.59         PLN Spot performance         Date       EURPLN       USDPLN       CHFPLN       JPYPLN       HUFPLN       CZKPLN         8/17/2017       4.2541       3.6258       3.7569       3.2956       1.3991       0.1633	8/21/2017	6.15	6.08	6.20	6.53		6.53	1.77		0.57			
PLN Spot performance           Date         EURPLN         USDPLN         CHFPLN         JPYPLN         HUFPLN         CZKPLN           8/17/2017         4.2541         3.6258         3.7569         3.2956         1.3991         0.1633	8/22/2017	6.00	6.03	6.15	6.53		6.53	1.79		0.56			
Date         EURPLN         USDPLN         CHFPLN         JPYPLN         HUFPLN         CZKPLN           8/17/2017         4.2541         3.6258         3.7569         3.2956         1.3991         0.1633	8/23/2017	5.90	6.08	6.20	6.53		6.53	1.85		0.59			
8/17/2017 4.2541 3.6258 3.7569 3.2956 1.3991 0.1633	PLN Spot pe	rformance											
	Date	EURPLN	USDPLN	CHFPLN	JPYPLN	HUFPLN	CZKPLN						
8/20/2017 4.2826 3.6459 3.7931 3.3446 1.4094 0.1641	8/17/2017	4.2541	3.6258	3.7569	3.2956	1.3991	0.1633						
	8/20/2017	4.2826	3.6459	3.7931	3.3446	1.4094	0.1641						
8/21/2017 4.2747 3.6408 3.7641 3.3382 1.4081 0.1639	8/21/2017	4.2747	3.6408	3.7641	3.3382	1.4081	0.1639						
8/22/2017 4.2772 3.6334 3.7623 3.3230 1.4076 0.1638	8/22/2017	4.2772	3.6334	3.7623	3.3230	1.4076	0.1638						
8/23/2017 4.2767 3.6274 3.7459 3.3145 1.4096 0.1639	8/23/2017	4.2767	3.6274	3.7459	3.3145	1.4096	0.1639						

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