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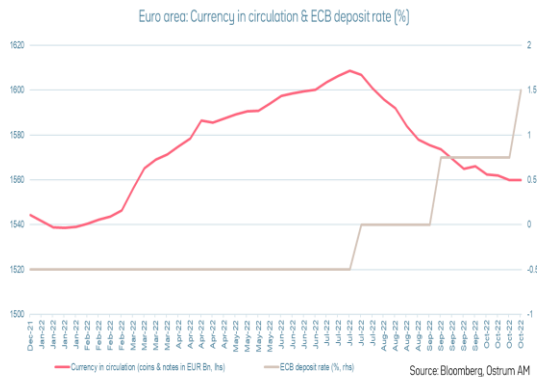
● Topic of the week: The real estate market in turmoil from the sharp rise in mortgage rates

- Mortgage rates record increases not seen in decades, even historic in the Eurozone;
- This is the consequence of strong monetary tightening by central banks, which is set to continue;
- The real estate market is beginning to adjust significantly in some countries: Australia, Canada, Sweden and more recently in the United States and the United Kingdom;
- This sharp reversal increases the risk of recession.

● Market review: Peak on rates ?

- ECB : +75 bp but a more dovish rate guidance;
- UK yields back to mid-September levels;
- Global rally in bonds and equities (ex-China);
- European energy crisis takes an unexpected turn.

● Chart of the week



The amount of physical cash is falling in the euro area. Money in circulation has shrunk by €49bn since the peak in mid-July.

Physical cash hoarding, used by some banks, particularly in Germany, made it possible to avoid negative rates, at the cost of the safe.

The accumulation of banknotes and coins has therefore logically stopped since the return to positive interest rates on July 21..

● Figure of the week

5

5 million people in 19 countries in West and Central Africa have been affected by deadly floods.

Source : Ostrum AM



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• **Topic of the week**

The real estate market in turmoil from the sharp rise in mortgage rates

The real estate market is facing a rise in mortgage rates on an unprecedented scale for several decades, even historic in the Eurozone. This is the consequence of the sharp monetary tightening carried out by the central banks to fight against high inflation. This sudden and rapid rise, after maintaining very low rates, is beginning to affect the real estate markets of OECD countries. Those most likely to experience a sharp turnaround are those with the largest price increases, the largest rate hikes, with a relatively high level of household debt and a large proportion of loans at variable rates. For these countries, the sharp downturn in the real estate market significantly increases the risk of recession.

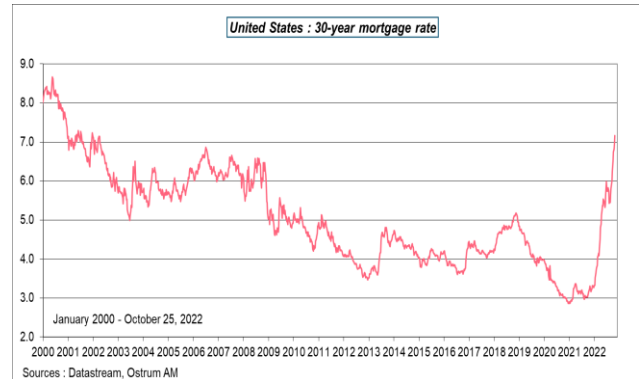
Sharp rise in mortgage rates

After a long period of maintaining low sovereign rates, even historically low in the Eurozone, the central banks raised their key rates sharply in the space of a few months to fight against inflation that was far too high: 10.7% in October in the Eurozone and 8.2% in September in the United States in particular, well above the 2% target. They have declared their determination to continue their rate hike to curb this high inflation, even at the risk of weighing on growth and generating a recession.

The Fed has raised its key rates by 300 basis points (bp) since March, the ECB by 200 bp since July, the Bank of England by 215 bp since December 2021 and the Bank of Canada and New Zealand by 325 bp since March for the first and August 2021 for the second. They also indicated that they would continue their monetary tightening in order to anchor inflation expectations. In particular, the Fed is expected to proceed with a 4th consecutive rate hike of 75 bp on 2 November.

These sharp and rapid increases in central bank rates had repercussions on bond and then mortgage rates. Thus, in

the United States, the benchmark 30-year mortgage rate rose from 3.3% at the end of 2021 to 7.1% currently, thus returning to its highest level since 2001. In the Eurozone, the composite interest rate on new loans real estate rose from a historic low of 1.3%, between September 2021 and January 2022, to 2.8% in August. This is the largest historical increase. In the United Kingdom, the average 5-year fixed rate is above 6% for the first time in 12 years.



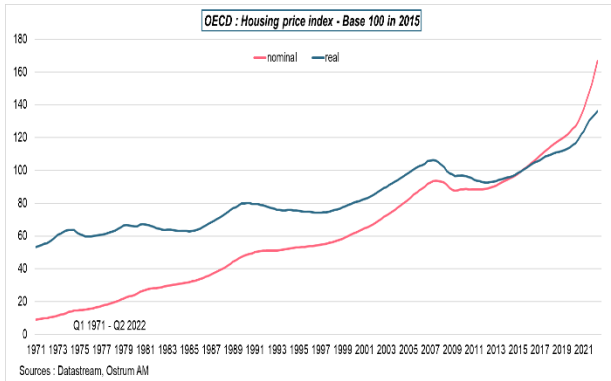
These sharp increases in mortgage rates directly affect the real estate market since it makes borrowing costs higher. They thus reduce the demand for new mortgages. First-time buyers are the most affected. In addition, households who have taken out loans at variable rates will have to face higher monthly payments. Less well-off households will be the most likely to encounter repayment difficulties, which could translate into higher default rates and foreclosures that could further weigh on property prices.

In order to fully understand the extent of the adjustment in the real estate market, it is first necessary to review its past dynamics and then certain key indicators.

Sharp increase in real estate prices during the Covid-19 crisis

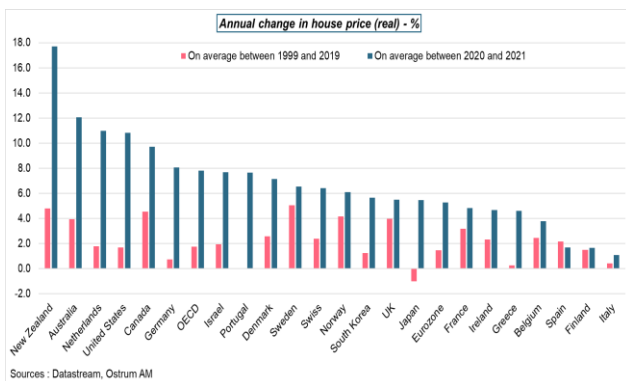
Housing prices have risen sharply in OECD countries since the financial crisis of 2008-2009. These markets benefited from very favorable financing conditions, with interest rates at historically low levels in a number of countries, particularly within the Eurozone.

An upward break also took place during the Covid-19 crisis as can be seen in the graph below. Over the period 2020-2021, real estate prices increased by 11.5% per year on average in OECD countries, compared to 3.5% over the period 1999-2019. This sharp acceleration can also be seen in real prices, using OECD data here, taking into account the national accounts deflator. Real estate prices in the OECD have thus increased by 7.8% per year on average between 2020 and 2021, compared to an increase of 1.8% per year over the period 1999-2009.



The sharp acceleration in real estate prices during the Covid-19 crisis was the result of several factors. First and foremost are the even more accommodating monetary policies and the massive policies support of governments to deal with the unprecedented shock since the Second World War. This resulted in an increase in the household savings rate. Added to this was the lack of real estate in a number of countries (the United States, Australia and Canada in particular) as well as the increase in the cost of building materials, following disruptions in supply chains. Finally, the lockdowns have resulted in a strong development of telework, which has led households to seek larger accommodation, as well as individual houses on the periphery of large cities.

As the following graph shows, the acceleration in the rise in real estate prices in 2020-2021 concerned all countries and very markedly New Zealand (+17.7% per year), Australia (+12.1%), the Netherlands (+11%), the United States (+10.8%) and Canada (+10.1%), in real terms. The rise in rates is thus more likely to weigh on the markets that have experienced the strongest growth.

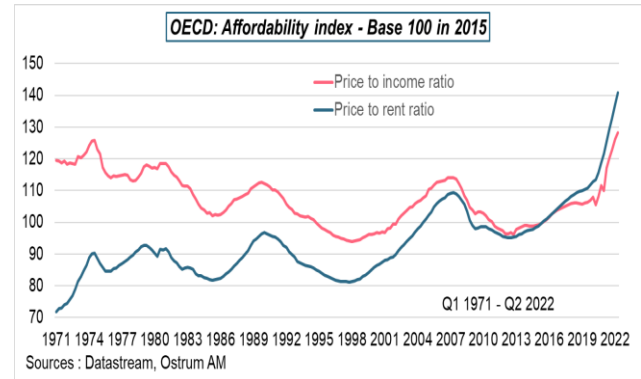


Real estate key risk indicators

Price to rent ratio

A useful indicator for apprehending an over- or undervaluation of real estate prices is the ratio of real estate prices to rental prices. The index presented below is that

published by the OECD, expressed in base 100 in 2015. The ratio increased sharply from 2020 to reach a historically high level. The price of real estate has therefore increased much faster than that of rents. It has thus become relatively much less affordable, currently making it more interesting to rent a property rather than to acquire it according to this indicator.

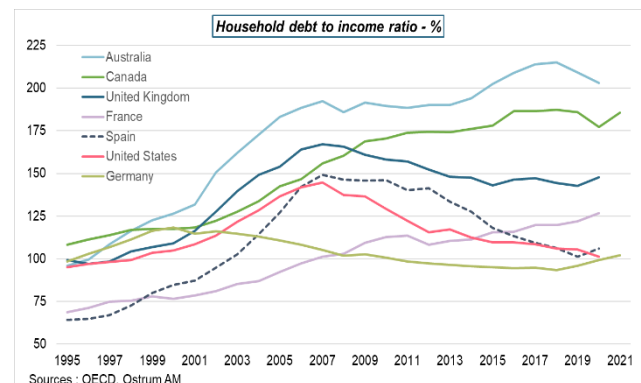


Price to income ratio

The same observation applies to the property price to household income ratio (expressed in base 100 in 2015). The OECD uses per capita income. Housing prices have increased much faster than household disposable income from 2020. Real estate has thus become much less affordable for households and this in a very short time.

Household debt to disposable income ratio

A country is more likely to experience a sharp downturn in house prices if the level of household debt relative to their disposable income is high. In the event of a crisis, leading in particular to a sharp rise in the unemployment rate, highly indebted households will be more likely to encounter difficulties in repaying their loan.



While household debt as a percentage of disposable income has fallen in a number of countries since the 2008-2009 financial crisis (notably the United States, United Kingdom, Spain), it has increased in some others to reach very high levels (as in Australia, and in Canada in particular), which is

a source of fragility.

Ranking of countries according to risk

By taking for each country the indicators described above as well as the rise in housing prices in 2020-2021, we can determine the most likely to record a sharp turnaround in the real estate market. The ranking is carried out by centering and standardizing each criterion (taking the last data available) and by calculating the average for each country.

The summary table is shown below.

	Ranking	Annual change in housing price in 2020-2021 (%) - Nominal	Annual change in housing price in 2020-2021 (%) - Real	Price to rent ratio (base 100 in 2015)	Price to income ratio (base 100 in 2015)	Debt to disposable income (%)
New Zealand	1	20.7	17.7	158.1	147.3	174
Czech republic	2	17.3	15.0	180.6	151.7	77
Netherlands	3	14.1	11.0	160.6	147.6	222
Canada	4	12.6	10.1	162.1	148.2	186
Australia	5	13.3	12.1	141.6	119.5	203
United States	6	14.5	10.8	142.5	139.6	101
Portugal	7	9.2	7.6	159.1	146.0	125
Hungary	8	13.9	7.1	174.2	137.0	44
Austria	9	11.6	9.6	139.0	142.8	93
Germany	10	10.5	8.0	152.6	140.6	102
Denmark	11	9.4	7.0	129.7	118.6	248
Norway	12	8.7	6.1	126.7	111.1	241
Sweden	13	8.3	6.6	131.5	115.6	203
Swiss	14	6.8	6.4	123.8	120.6	222
United Kingdom	15	8.2	5.5	130.0	121.6	148
Lithuania	16	14.6	9.5	128.5	107.0	41
Slovakia	17	7.1	3.6	163.3	123.7	74
Slovenia	18	10.8	9.4	125.6	117.9	53
Latvia	19	8.9	6.4	164.5	106.6	39
Estonia	20	11.4	7.2	121.0	110.6	80
Ireland	21	7.8	4.7	125.9	114.7	124
France	22	6.4	4.8	128.8	112.8	127
Greece	23	6.5	4.7	137.7	108.5	98
Spain	24	4.0	1.8	133.6	125.1	106
Japan	25	5.1	5.4	114.6	113.0	115
Belgium	26	6.3	3.5	119.6	107.1	118
Poland	27	9.6	3.4	116.5	102.7	59
Finland	28	3.8	1.7	100.8	96.7	154
Italy	29	2.7	1.1	104.9	92.4	91

Sources : OECD, Ostrum AM

New Zealand, the Czech Republic, Netherlands, Canada and Australia are clearly at the top of the countries presenting a risk of a strong downturn in the real estate market. They are followed by the United States and Portugal.

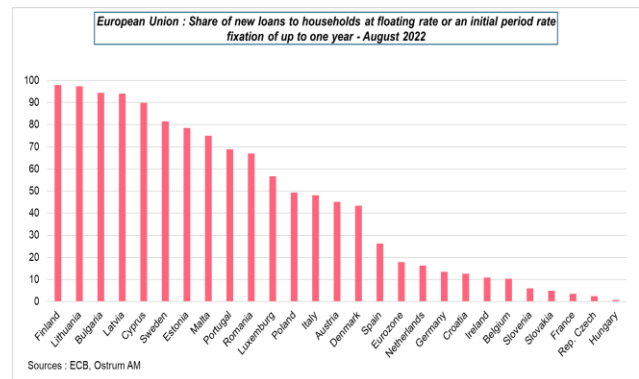
A major criterion: the proportion of variable rate loans

In the current context of a sharp rise in mortgage rates, it is essential to also take into account the proportion of loans at variable rates. This will directly impact households that have taken out a loan of this type by increasing the repayment of the debt and thus impacting their disposable income.

In Australia, variable-rate mortgages account for nearly two-thirds of loans, while they represent more than half in Canada. In the United States, on the other hand, loans have been essentially at fixed rates since the financial crisis.

In the Eurozone, there are significant disparities between countries, as shown in the graph below. New mortgage loans at variable rate represent the vast majority of loans in

Finland, Lithuania, Bulgaria, Latvia and Sweden (over 80%). Portugal is particularly exposed with a proportion of nearly 70%.



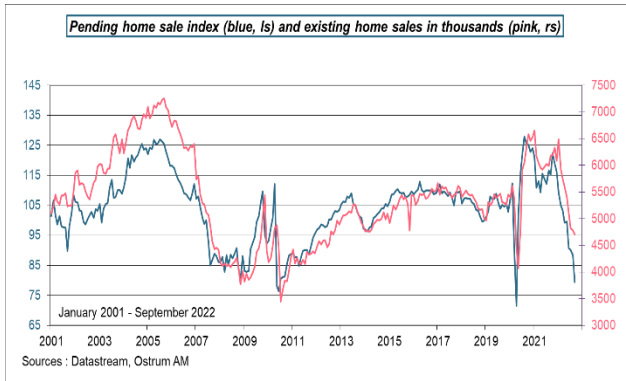
In New Zealand, loans are essentially at fixed rate but only for a period generally limited to 2 years for more than 70% of them. This is the same in the UK for almost half of mortgages. This makes them vulnerable to sharp rate hikes.

Thus, by adding the criterion of variable rates, the country most at risk of experiencing a sharp downturn in the real estate market are Australia, Canada, New Zealand, Portugal, the United Kingdom and Sweden followed by the United States.

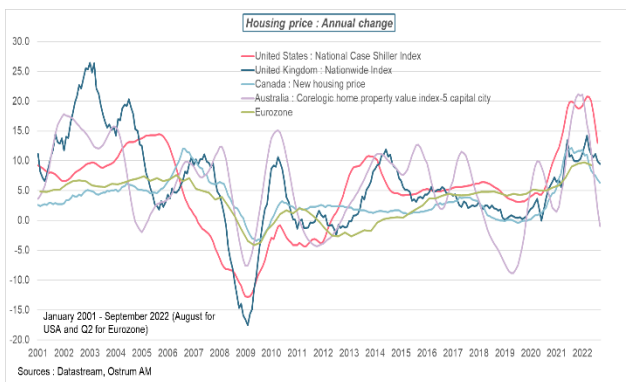
Real estate markets are starting to turn around

In the United States, in particular, the rise in mortgage rates resulted in a prolonged fall in sales of existing homes, the 8th consecutive monthly fall: this is the longest period of contraction since 2007. They fell by 23.8% on one year after a 45.5% increase in May 2021. They have thus returned to the level of May 2020. There is also a sharp drop in new home sales.

This contraction will intensify over the coming months, as the sharp contraction in pending home sales in September (-10.2% over the month) suggests.



The contraction in demand translates into lower real estate prices.

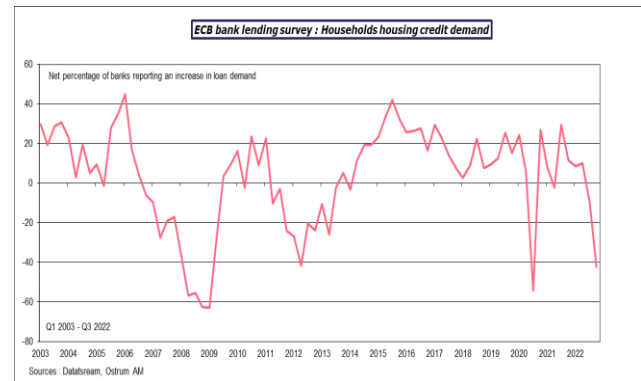


The S&P CoreLogic Case Shiller house price index has been contracting for 2 consecutive months and in August recorded its biggest monthly drop since January 2009 (-1.1% for the national index). Over one year, the rise in prices recorded its strongest slowdown since the publication of the series (in 1975): 13%, against 15.6% in July, to remain despite everything at a high rate. There is also a clear slowdown in price increases in a growing number of countries such as Australia, New Zealand, Canada, the United Kingdom and, to a lesser extent, in the Eurozone.

This adjustment will continue as central banks have signaled they want to keep raising rates to contain inflation expectations and then, as far as the Fed is concerned, keep them high.

In the Eurozone, the latest survey carried out by the ECB among commercial banks on loans signals a sharp adjustment to come in the market. Banks have significantly tightened their conditions for granting mortgage loans to households: this is the strongest tightening since 2008. This is linked to the perception of much higher risks and a lower risk tolerance. In addition, commercial banks reported a sharp contraction in household loan demand for housing. Excluding the particular period of the covid-19 crisis, this is the largest drop since the 1st quarter of 2012 and the 2nd

quarter of 2009, when the Eurozone was in recession.



Unsurprisingly, the interest rate level that is the main culprit, followed by the decline in household confidence. It literally collapsed to reach a historic low in September, according to the European Commission index. This is essentially linked to the fall in personal financial prospects reflecting the massive loss of purchasing power suffered by them. In the Eurozone, households are facing both the sharp rise in interest rates, after historically low rates, and the energy shock, linked to their heavy dependence on Russian energy before the conflict. The adjustment of the real estate market should therefore be greater.

In the UK, the adjustment that has started will also be significant. As we have seen, a large proportion of loans that were fixed during the first years change to a variable rate, generally after 5 years. The adjustment will be amplified by the sharp rise in mortgage rates that took place from September 23, following the announcement of the short-lived Prime Minister Liz Truss' mini budget. While tensions on British rates have since dissipated, this is not yet the case for mortgage rates, which have remained at their highest since 2008: the average 2-year fixed rate is still above 6.5% and the average fixed rate at 5 years is 6.41%.

The risk of recession increases

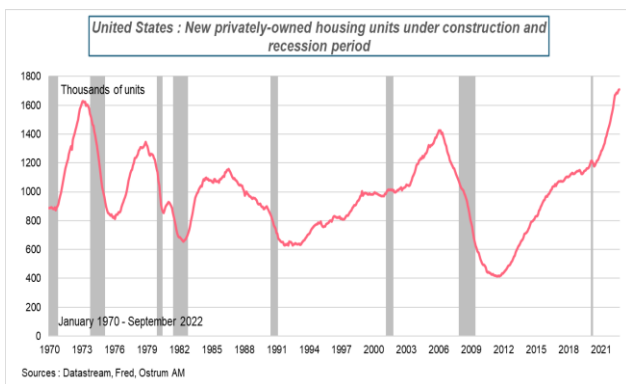
The risk of recession increases in countries experiencing a sharp downturn in the housing market. As we have seen, rising mortgage rates weigh on housing demand and therefore residential investment. In the United States, residential investment weighed 1.4 percentage points on GDP growth in the 3rd quarter. This is the strongest negative contribution since the 1st quarter of 2009. The NAHB index of activity of real estate builders in the United States also fell sharply in October to return to its lowest level since 2012, excluding the shock linked to the Covid-19 crisis. Well below 50 (at 38 against 81 in February), it portends a sharp contraction in housing starts.

In addition, the fall in real estate prices will impact growth

through the wealth effect. When housing prices rise, owners are more optimistic about their financial situation, which leads them to borrow and consume more. On the other hand, when prices fall, they become more cautious and spend less.

Finally, as we have seen, households that have taken out loans at variable rates will be quickly impacted by the rise in mortgage rates, which will limit their spending accordingly.

The following chart illustrates very well the risk of recession in the United States linked to the real estate market. It represents the construction of new private housing. Each time these peaked, it was followed by the US economy entering recession.



Moreover, according to a recent article from the ECB, the impact of rising rates on property prices and residential investment will be greater the lower interest rates were. According to its simulations, in a low interest rate environment, the impact of a rise in mortgage rates is twice as great. The impact of a one percentage point increase in mortgage rates is estimated at -9% on real estate prices and -15% on real estate investment after 2 years.

Conclusion

The sharp and sudden rise in mortgage rates is beginning to weigh significantly on the real estate market. This is particularly the case in Australia, Canada, Sweden and more recently in the United States and the United Kingdom. This is the direct consequence of the significant monetary tightening by central banks to fight against inflation that is far too high. The adjustment will continue with the pursuit of key interest rate increases, which increases the risk of recession in these countries. In the Eurozone, the sharp rise in mortgage rates is compounded by the impact of the energy crisis, which is weighing on household purchasing power. The adjustment of the real estate market should be more marked in Portugal.

Aline Goupil-Raguénès

- **Market review**

A peak on interest rates?

The ECB's pivot, and the U.K has its Mario Draghi

The week was marked by a global rally on sovereign government bonds and on the stock markets (except in China, where international investors remain cautious about Xi Jinping's intentions). The Central Bank of Canada's surprise decision to announce a lower-than-expected policy rate hike revived the debate over the Fed's pivot. The ECB has pivoted the first by relaxing its guidance on the future trajectory of its key rates. The BoJ persists in its policy of targeting its 10-year interest rate at 0.25% but has for the first time changed the frequency of its purchases of financial assets, particularly on government bonds of long or very long maturity. Risk assets enjoyed a boost, with the S&P 500 (+3.95 %) and STOXX 600 (+3.65 %), which contrasts with the publication of disappointing earnings growth for US technology companies (FANG index -4.12 %), linked to the strength of the dollar.

As expected, The ECB raised its policy rate by 75bps to 2% and its deposit rate to 1.5%, but relaxed its guidance, suggesting a slowdown in its rate of rate hikes. Three factors will determine the future trajectory of ECB rates: the outlook for inflation, the risks of recession and the transmission of past rate hikes to the economy. The European Central Bank has also changed the terms of TLTRO 3. From 23 November 2022 until the maturity or early redemption date of each outstanding TLTRO 3 transaction, the interest rate on all remaining TLTRO transactions will be indexed to the average of the ECB's key interest rates over that period. The objective is to encourage commercial banks to repay these loans early and to enable monetary policy to be better transmitted. This will help solve part of the market's shortage of collateral, such as the tightening of swap spreads following the announcement. Quantitative tightening was not discussed during the meeting, and nothing new on the TPI.

10-year yields in Italy (-57.2 pb) and UK (-57,6 bp) outperformed. The fall in interest rates, volatility and Meloni's pro-European tone benefit Italian sovereign debt. The US 10-year sovereign bond yield recorded its strongest weekly decline since March 2020 at -30bps, falling below 4%, with the Fed pivot in sight. However, on Friday, the release of inflation figures reversed the downward trend in European interest rates. In September, French inflation accelerated more sharply than expected to 6.2%, a record high, linked to higher energy and food prices. German inflation continues to accelerate in September to 10.4%, an all-time high. Finally, Germany avoided recession, reflecting its GDP growth in Q3, which was better than expected at

0.3%QoQ. On the other hand, Q3 GDP figures for France (0.2 %) and Spain (0.2 %) show a slowdown, but no recession.

In the United-States, economic data has been mixed. The U.S. real estate market continues to deteriorate. The Case-Shiller Index for the 20 metropolitan areas contracted in August by 1.32% GM, the largest monthly decline since 2009, at 13.08% GA. Rising mortgage rates penalize housing demand, as new home sales fell in September by nearly -11% over the month. U.S. mortgage rates hit a record high since 2001 last week at 7.16%. U.S. GDP rebounded in Q3 after two quarters of an annualized 2.6% contraction, supported notably by trade. On the other hand, residential investment is collapsing, exceeded the Covid shock. The Fed's preferred inflation measure, real household consumption, excluding food and energy, continues to accelerate to 5.1% GA in September, indicating a resilience of the US consumer.

In the UK, the focus remains political developments. Rishi Sunak has been appointed prime minister. As a first step, and to show his break with L.Truss, the new Prime Minister reinstated the ban on hydraulic fracturing, withdrawn by his predecessor to cope with the energy crisis. R. Sunak kept J.Hunt as Finance Minister. The real challenge for R.Sunak is to restore the credibility of British economic policy in the eyes of investors by eliminating the Truss premium that still weighs on British interest rates. The Finance Ministry has postponed the budget announcement, originally scheduled for October 31 to November 17, reflecting the crucial nature of his announcement. The UK 10-year interest rate fell to 3.43% (-15 bps), the lowest since September and the Sterling strengthened against the dollar and the euro.

The dollar has shown signs of weakness this week, with the prospect of a Fed pivot. The euro had benefited from lower gas prices, the lowest since June, approaching parity against the dollar. The European energy crisis is taking an unexpected turn, there is now too much gas! The yen has strengthened against the greenback. The yuan continued to be under pressure, reflecting parity with the dollar, which reached a low since 2007. The Chinese authorities have raised the limit for institutions to borrow abroad to stabilize the yuan. The idea is to access more external debt (in local and foreign currencies), to generate capital inflows into the country and stabilize the yuan. Lula has elected to lead Brazil, which is good news for the Amazon rainforest.

Zouhoure Bousbih

● Main market indicators

G4 Government Bonds	31-Oct-22	1w k (bp)	1m (bp)	2022 (bp)
EUR Bunds 2y	1.93%	-8	+17	+255
EUR Bunds 10y	2.12%	-21	+1	+230
EUR Bunds 2s10s	18bp	-14	-16	-25
USD Treasuries 2y	4.49%	-1	+21	+376
USD Treasuries 10y	4.06%	-19	+23	+255
USD Treasuries 2s10s	-44.1bp	-17	+1	-121
GBP Gilt 10y	3.5%	-25	-60	+252
JPY JGB 10y	0.25%	-1	-10	-13
€ Sovereign Spreads (10y)	31-Oct-22	1w k (bp)	1m (bp)	2022 (bp)
France	52.28bp	-1	-9	+15
Italy	210.97bp	-14	-29	+76
Spain	105.6bp	-3	-12	+31
Inflation Break-evens (10y)	31-Oct-22	1w k (bp)	1m (bp)	2022 (bp)
EUR 10y Inflation Swap	2.66%	+11	+30	+60
USD 10y Inflation Swap	2.78%	-2	+41	+1
GBP 10y Inflation Swap	4.15%	-14	-29	-2
EUR Credit Indices	31-Oct-22	1w k (bp)	1m (bp)	2022 (bp)
EUR Corporate Credit OAS	223bp	-5	+2	+128
EUR Agencies OAS	88bp	-2	-6	+39
EUR Securitized - Covered OAS	98bp	-1	-17	+52
EUR Pan-European High Yield OAS	619bp	-14	+4	+301
EUR/USD CDS Indices 5y	31-Oct-22	1w k (bp)	1m (bp)	2022 (bp)
iTraxx IG	112bp	-10	-23	+64
iTraxx Crossover	545bp	-44	-99	+302
CDX IG	89bp	-4	-18	+39
CDX High Yield	509bp	-28	-92	+217
Emerging Markets	31-Oct-22	1w k (bp)	1m (bp)	2022 (bp)
JPM EMBI Global Div. Spread	540bp	-37	-24	+172
Currencies	31-Oct-22	1w k (%)	1m (%)	2022 (%)
EUR/USD	\$0.991	0.324	1.061	-12.9
GBP/USD	\$1.150	1.960	2.945	-15.0
USD/JPY	JPY 149	0.121	-2.683	-22.6
Commodity Futures	31-Oct-22	-1w k (\$)	-1m (\$)	2022 (%)
Crude Brent	\$94.5	\$1.2	\$9.3	28.82
Gold	\$1 635.1	-\$14.7	-\$25.5	-10.61
Equity Market Indices	31-Oct-22	-1w k (%)	-1m (%)	2022 (%)
S&P 500	3 901	2.73	8.80	-18.2
EuroStoxx 50	3 617	2.54	9.02	-15.8
CAC 40	6 265	2.17	8.72	-12.4
Nikkei 225	27 587	2.27	6.36	-4.2
Shanghai Composite	2 893	-2.82	-4.33	-20.5
VIX - Implied Volatility Index	27.00	-9.55	-14.61	56.8

Source: Bloomberg, Ostrum AM

Additional notes

Ostrum Asset Management

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