ECOCONJONCTURE

Issue 23.07 December 2023





The bank for a changing world

TABLE OF CONTENTS

HOUSING SUPPLY CHALLENGES IN FRANCE: AN UNSOLVABLE ISSUE?

Stéphane Colliac

In France, the housing sector has undergone profound changes over the past two decades in order to respond to the shift in demand towards building renovation and maintenance in particular. This transformation has gathered pace since 2016 against a buoyant economic backdrop, with a growing real estate market and particularly favourable financing conditions (low interest rates and few business insolvencies). However, while the sector will have to continue to adapt (i.e. the gradual ban on renting poorly insulated dwellings), it is grappling with a deterioration of its economic environment. Rising interest rates and business insolvencies could make this new adaptation more complicated to navigate, at least in the short term.

LESS NEW CONSTRUCTION, MORE BUILDING RENOVATION

CONSTRAINTS ON THE SUPPLY



HOUSING SUPPLY CHALLENGES IN FRANCE: AN UNSOLVABLE ISSUE?

3

In France, the housing sector has undergone profound changes over the past two decades in order to respond to the shift in demand towards building renovation and maintenance in particular. This transformation has gathered pace since 2016 against a buoyant economic backdrop, with a growing real estate market and particularly favourable financing conditions (low interest rates and few business insolvencies). However, while the sector will have to continue to adapt (i.e. the gradual ban on renting poorly insulated dwellings), it is grappling with a deterioration of its economic environment. Rising interest rates and business insolvencies could make this new adaptation more complicated to navigate, at least in the short term.

CHART 1

Housing supply can be increased by constructing new buildings or by real estate transactions on existing housing (and the resulting works involved), satisfying demand among buyers1. The supply therefore depends not only on the availability of the properties, but also on the resources required to produce them, such as companies, labour and investment. If there is not enough of some or all of these resources, then the supply may be lower than the demand. These shortages and the causes of them, in other words, the supply issues, will be the focal point of our analysis. To begin, this article will outline the major changes in France's housing supply over the past two decades. It has become an increasingly mature market, which has seen a slowdown in growth in the number of households. It is also transforming into a replacement market, which is manifesting itself in a need for renovation work. In the second part, we will outline the intrinsic reasons for the reduced supply in detail, focusing on production capacities in particular. The decrease in these capacities is making it hard for construction companies to meet the demand when it arises.

LESS NEW CONSTRUCTION, MORE BUILDING RENOVATION

The housing shortage regularly makes the headlines in France. This is because it can have significant economic consequences: in 2018, Insee² confirmed a perception that the scarcity of housing available in labour market areas contributed to the unemployment rate staying high. This scarcity and the problems that it causes may emerge in other situations, such as in university studies (in the lack of student housing). For most people, the housing supply issue boils down to this actual or perceived shortage.

A household is defined by the occupation of a primary residence, meaning that these two aggregates are equivalents. Although population growth has slowed over time, the dwindling number of individuals per household has boosted growth in the number of dwellings. Another sign of changes on the market is the decreasing proportion of primary residences to second homes in additional dwellings, with seven out of ten units being primary residences between 2008 and 2023, compared to nine out of ten units between 1993 and 2008 (chart 1).

Need and demand should be distinguished here, as there may be a latent need that does not materialise in a demand for housing. For example, people may postpone their plans to purchase a property due to a lack of available housing, or, as is the case at this current time, because interest rates are seen as too high, or even because the price is viewed as prohibitive. Further evidence of plans of this type being delayed is the rising proportion of young people between 18 and 29 years old living with their parents, suggesting, among other reasons, that the lack of primary residences or the cost of them is still holding back younger generations from setting themselves up in their own homes, or even entering the workforce.

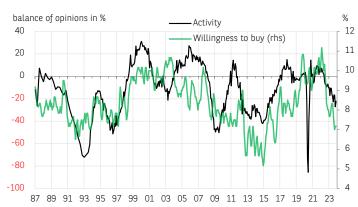
Less construction, more transactions

Supply and demand are interconnected and meet on the market. If the demand rises/falls or the nature of the demand changes, the supply will have to adapt. If the supply cannot keep up or can only do so belatedly, the demand will have to be partially limited.

NUMBER OF DWELLINGS IN FRANCE Primary residence million Vacancies 40 ■ Secondary home 31,0 29,8 28,5 27,3 25.7 24,1 22,8 10 1993 1998 2003 2008 2013 2018 2023



SOURCE: INSEE, BNP PARIBAS CALCULATIONS



*FOR THE BALANCE OF OPINION ON ACTIVITY, THE DATA ARE QUARTERLY BEFORE SEPTEMBER 1993 AND THE MISSING POINTS ARE INTERPOLATED LINEARLY.

CHART 2 SOURCE: INSEE



¹The term "construction" refers to building a property, while "real estate" implies a service that most often involves (a real estate agency and/or notary) intermediating a transaction on a property that has already been constructed.

las already deed constitución de la Caracteria de la Cara

The potential demand can be viewed through the lens of housing purchase intentions among households (Insee household survey, chart 2). There are three identifiable boom cycles in these intentions: 1999-01, 2003-07 and, more recently, 2017-22. These purchase intentions were compared against a new housing activity indicator (the balance of opinion on activity in Insee's monthly economic survey for the construction industry), and, during the most recent sub-period, activity did not hit the same heights as it did during the previous two boom periods.

Two factors may additionally be the reason for this visible disconnect between purchase intentions and activity. Activity may have been constrained (as we will discuss in the second part of this article) or the nature of the demand has changed and, as a result, has heralded a transformation in the supply.

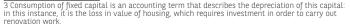
A parallel can be drawn between the more subdued activity during the recent cycle, as shown above, and household investment (chart 3). The level of household investment (in EUR bn) was lower at the peak of the most recent housing cycle (2017-22) than it was during the previous phase (2003-07) for similar purchase intentions (9.3% of households, on average, stated that they intended to purchase a homeduring these two periods).

When the household investment rate (as a percentage of households' gross disposable income), is broken down into investments to counteract the depreciation of existing housing (also known as "consumption of fixed capital3" or CFC) and net investment, we can see, first and foremost, that CFC has been on an upward trajectory and, since the 2000s, has even risen faster than households' gross disposable income (chart 4). At the same time, net investment has fallen, particularly after 2008, which aligns with the tiny increase in the number of main residences following the 2008 crisis. This trend is a hallmark of a mature or replacement market, rather than a growth market.

In response to this shift in demand, there has been a major transformation in the supply over the last two decades, with less housing being built and more being maintained and renovated. Chart 5 shows a 1 to 2 ratio between housing starts to transactions in existing homes up until 2015, but, since then, it has increased to 1 to 3. This ratio has not altered in 2023, even while transactions in existing homes and housing starts have both started to fall. Standing at 305,000 units in total over the previous 12 months, at the end of October, housing starts fell even below the lowest levels seen in 2009 and 2015 (at nearly 330,000 units) but did manage to remain above the November 1993 low (267,000 units), however.

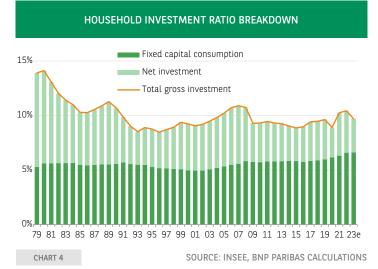
This low level of housing starts illustrates how the supply is adapting to the demand, which is moving over to specialised construction work4, which is now the driving force for much of the increase in production in the building sector (chart 6).

Employment has also adapted to these changes, with the shift from new-build homes to resale properties in need of renovation. The simultaneous growth in construction trades has led to larger numbers of self-employed workers (chart 7). The building sector had experienced an uninterrupted series of payroll job losses between 2001 and 2017 and this trend returned at the start of 2023 (with nearly 10,000 net job losses over the first three quarters of the year).

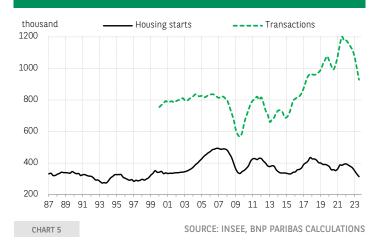


³ Consumption of fixed capital is an accounting term that describes the depreciation of this capital: in this instance, it is the loss in value of housing, which requires investment in order to carry out renovation work. 4 On this chart, estimates are provided for the sectoral breakdowns for 2022 (where the aggregate available in the 2022 annual accounts has been broken down by segment, taking into account the production trends for each of them) and for 2023 (with just the production data used). Specialised construction covers follow-up activity to constructing buildings or civil engineering structures (such as foundations, roofs and scaffolding), as well as repairs or thermal renovation work on them.

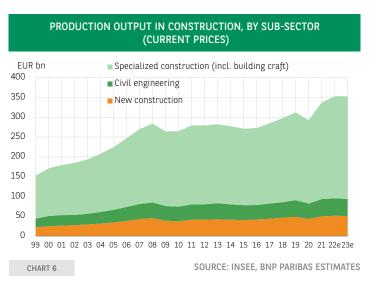


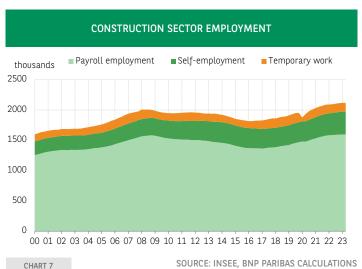


HOUSING STARTS AND SECOND-HAND TRANSACTIONS (OVER 12-MONTHS)







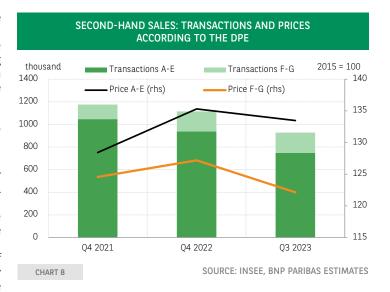


By contrast, self-employment has constantly grown since the late 1990s and has even exceeded its record high (1981). This trajectory has continued into 2023 (with 11,000 net job creations over the first three quarters of the year). This strong momentum in the building crafts sector has been bolstered in particular by tax cuts on renovation work (with the VAT rate reduced to 10%, compared to the normal rate

Building energy performance: an increasingly critical market criterion

The adaptation to climate change has seemingly triggered a further change on the market. The pace at which the transition is implemented will hinge on how sharply assets depreciate as a result of it. In practice, a building classified as "poorly insulated" (known colloquially in France as a «passoire thermique»), which would be viewed as a less viable prospect for selling, letting out and living, would see its value drop prematurely and would depreciate much faster than expected 5. The risk of this occurring could prompt households to have the necessary energy retrofitting work performed on their homes, but this is an expensive solution. Another option would be selling the property pre-emptively, fearing that they will eventually be unable to let it out.

According to the most recent French notary property market reports, the overhaul in how the ratings for Energy Performance Certificates, also known as «diagnostics de performance énergétique» (DPEs) in France, are calculated in 2021, as well as the announcements of a timetable for a ban on renting energy inefficient homes⁶ and, since August 2022, a ban on increasing the rent on the worst rated properties (F and G) have already altered transaction volumes. Against a broader backdrop of decreasing transactions, sales of homes with DPE ratings of F or G are on the rise and accounted for 18% of total sales during the second quarter of 2023, up from 11% during the second quarter of 2021



In view of these percentages and the total sales in existing homes, we have broken down the transactions based on housing DPE ratings in chart 8. We have also presented estimated movements in the prices of existing homes based on DPE ratings7.

Notaries have noticed a higher price discount on properties with F or G DPE ratings than in the past (particularly in collective housing or strained areas), which may have exceeded 10% in some regions in the second quarter of 2023.

Site may become part of skiral laded assets, which refers to the premature depreciation of an asset, which would see its value drop before it is judy amortised due to its impact on CO2 emissions (directly of through its energy consumption).

6 A ban, which is already in place, on renting (on a new lease) 190,000 homes with a G rating (the most energy-intensive) and a planned ban on this for all other homes with a G rating (2025), as well as F-rated (2028) and E-rated (2034) properties.

7 The Insee-Notaires housing price index is used, in addition to the information provided by notaries in their property market reports on the proportion of transactions by DPE rating, as well as discounts on sale prices for F- or G-rated housing compared to properties with better ratings.



⁵ It may become part of «stranded assets», which refers to the premature depreciation of an asset, which would see its value drop before it is fully amortised due to its impact on CO2 emissions (directly or

Therefore, against the broader backdrop of average prices of existing homes starting to fall (-2.1% between the fourth quarter of 2022 and the third quarter of 2023, according to the Insee-Notaires index), cross-referencing the existing home price index with the DPE data published by the notaries, shows that homes with F or G ratings are experiencing larger price falls, whereas the decrease remains more moderate for properties with better ratings.

Finally, in addition to their effects on prices, these sales of homes with poor DPE ratings are a contributing factor in the volume of transactions remaining well above 800,000 units per year, a threshold that had never been surpassed prior to 2016. The ripple effects of this trend could mean that the demand shifts away from new-builds and towards existing homes⁸. This increase in transactions on poorly rated homes since the DPE reforms could also be instrumental in removing properties from the rental market, exacerbating the scarcity of properties available to future tenants (in addition to the drop in new home construction).

CONSTRAINTS ON THE SUPPLY

In addition to these major changes, the housing supply is also grappling with a number of production constraints, some of which are cyclical, but are no less disruptive. The supply, as we are defining it in this part, refers to construction companies' production capacity (which can be used to varying degrees), profitability, general financial situation (cash level, in particular) and the insolvency risk. In the past, during cyclical downturns and cycles of economic slack, the sector has been at risk of an increase in insolvencies, with the shrinking supply, caused by these cyclical downturns and this slack, subsequently going some way towards further compounding the delay in fulfilling order books, as has been the case in recent years. In the next two sections, we will principally look at the broader factors which have limited production before discussing the issue through the lens of production capacities and the impact of insolvencies.

Bottlenecks have partially eased

The supply of new-builds has been noticeably dwindling since 2008, in view of the major drop in single-dwelling unit construction (chart 9). Although there has been a substitution effect that has benefitted multiple-dwelling units, the total number of housing starts has not yet returned to its peak for the period.

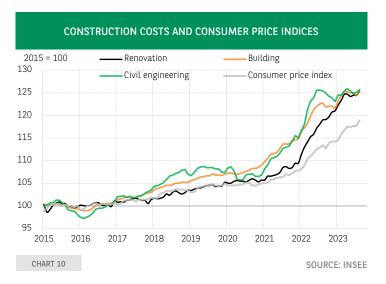
When housing production cannot keep pace with the demand, this can be due to three types of supply constraints: structural factors (such as land shortages or regulation); supply availability and costs; and labour shortages.

Structural constraints

From the early 2000s, the gradual transition from the POS (or "plan d'occupation des sols") to PLU (or "plan local d'urbanisme") have been pivotal in the decrease in the number of single-dwelling units by reducing the land available for this type of building. It has also made redefining how plots of lands are used more difficult: once construction plots had been used, there was less land available.

The Elan Law (2018), which includes an aim to facilitate construction, by attacking red tape in particular (the number, length and cost of procedures), has not managed to deliver the expected increase in the number of new dwellings. The procedures targeted were probably only some of the barriers holding back land development and reforming them has not changed the overall policy items in this area.





Upcoming regulations, such as the «net zero artificialisation» target, which has not yet been put into force, could further increase the scarcity of land available and could become further constraints on the newbuild supply.

Cyclical factors limiting production have subsided

Many of the economic barriers that existed until 2022 have now broadly eased. The same applies to construction costs, which had increased markedly in 2022 (chart 10), in particular due to rising raw material costs (both energy and materials) and wage bill growth. During this period, the costs of renovation work (which previously had been more under control) even caught up with the levels in the building and public works cost indices. In 2023, the rise in construction costs have been largely tempered by raw material prices (industrial metals and minerals) falling back. However, the renovation costs index has followed the same trend as consumer prices.

8 As has been the case for the motor vehicle industry, where the drop in new production has led to an increase in transactions in the second-hand market (as well as a rise in the average age of vehicles).



Other indicators confirm that the construction sector was hit hardest by the strongest inflationary pressures in 2022 (which have now eased). As a result, according to Insee:

- building maintenance and improvement costs rose by almost 19% between the first quarter of 2021 and the first quarter of 2023 but stabilised during the second and third quarters of 2023.
- the net proportion (or balance of opinion) of housing development⁹ retailers (Insee retail trade survey) planning to increase their selling prices peaked at 82% in March 2022 (higher than any other sector, including food), still stood at 73% in November 2022 and had fallen back to 14% in September 2023.

Nevertheless, these higher costs initially negatively affected the sector's margins (31.3% in the second quarter of 2022 compared to 37.5% on average in 2019). As a second phase, starting in the second half of 2022, costs increased more slowly than sales prices, which enabled margins to rebound to 35.1% during the second quarter of 2023.

Overall, supply constraints (both supplies and labour) have been prevalent in the sector until recently, particularly looking at the factors limiting production (chart 11) through the lens of the European Commission's business survey. However, the comparison with the overheating seen in 2004-07 (an all-time high number of housing starts) shows that recruitment difficulties were even more severe at that time, before the sector started to bear the brunt of the demand between 2009 and 2016.

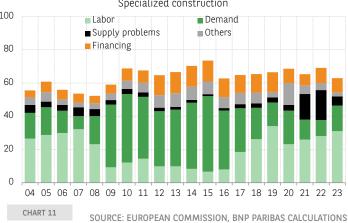
Declining demand became again a dominant factor limiting the production of new buildings in 2023. However, this constraint is still having a more moderate impact on specialised construction, where labour constraints are still dominating and are even continuing to increase. This divergence once again illustrates the significantly different situations from one building sector segment to another, unlike, for example, the start of the 2010s, when everyone was hit hard by the crisis (with demand constraints prevalent in all segments). For the specialised construction sector, this labour shortage is both a restriction which will likely delay building renovations and a sign that job creation could continue to be sustained within the building crafts sector.

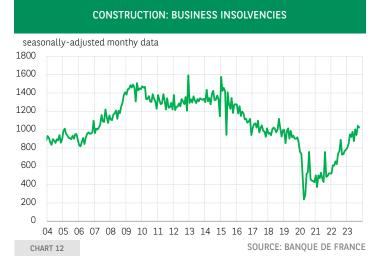
Rising insolvencies: a harbinger of production capacities being destroyed further?

One distinctive feature of the construction sector is the cyclical nature of its activity, which itself is due to the role of interest rates and demand, as well as their fluctuations. These are long cycles: when the housing market (transactions in existing homes or new construction) is down, it stays there for a number of years. This is also the case for insolvencies (chart 12), with fluctuations in activity having a delayed knock-on effect.

Even when the sector benefits from solid activity (as can be seen in chart 2), there are still between 800 and 1,000 defaults per month (i.e. around 10,000 per year), as was the case until 2006 or starting from 2017 (apart from an out-of-the-ordinary digression from this trend brought about by COVID, when state aid helped to bring this number down further temporarily). Between these two years (therefore, from 2007 to 2016), the sector saw a sharp rise in insolvency, hit by the triple-whammy of rising interest rates from 2006, the 2008 recession and, after a brief recovery, the further contraction of the construction market from 2012.

FACTORS LIMITING PRODUCTION IN % New construction 100 Labor Demand ■ Supply problems ■ Others Financing 80 60 40 20 0 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 Specialized construction Labor Demand ■ Supply problems Others





9 Housing development refers to home maintenance and improvement (hardware, DIY, maintenance products and gardening) by households and is different from household equipment, which, in turn, relates to furniture and household appliances (such as a washing machine, TV or refrigerator).



As a result, within the sector, the number of insolvencies soared from an average of 10,000 per year to an average of 15,000 per year between 2009 and 2015.

The introduction of quantitative easing by the ECB in 2015 and the upturn in activity the following year gradually helped to resolve this crisis and therefore bring the number of insolvencies back down to their previous level. Following the COVID period, they have even remained very contained for quite a long time, while demand dwindled for several quarters. Corporate cash flow indicators have remained relatively good. In addition, there is a lag between when demand begins to decline and when payment difficulties emerge in the sector. This lag has recently been increased by record levels of supply constraints, which have enabled companies to enjoy a good level of activity for longer, combined with well-filled order books, despite the fact that the number of new orders has been shrinking for several quarters.

However, it now appears that the number of construction insolvencies has exceeded the symbolic threshold of 1,000 units per month for two months (September-October), meaning that the difficulties around activity are now seemingly starting to result in rising numbers of claims.

This development can be viewed in conjunction with the deterioration in payment behaviours. Every quarter, in its construction sector survey, Insee measures the proportion of companies declaring late payments. This proportion, which remained low until 2022, has recently increased (chart 13), first in building installation and completion work, and, since mid-2023, in carcase work, while remaining significantly below its record high.

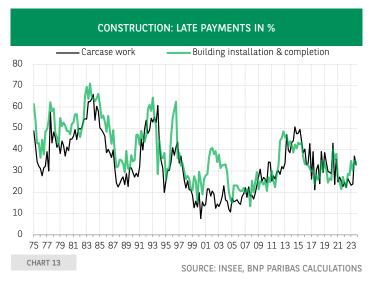
The difficulties in the housing sector are not confined to new construction. With the fall in the number of transactions, real estate agencies are also seeing a resurgence in defaults (+5% over the first nine months of 2023 on the same period (pre-COVID) in 2019).

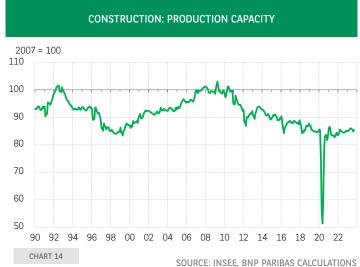
There are various costs associated with a higher number of business insolvencies: in the short term, this creates a risk of outstanding debts and job losses. Another problem emerges in the medium term, relating to the sector's production capacity, as was the case after 2009.

This is because insolvencies cause its production capacity to decrease, with an additional hysteresis effect, as these capacities do not reappear when activity starts to pick up again (chart 14) or only do so very slowly, as evidenced by the recent period (2017-22). When demand rises again, this sector weakness will then exacerbate supply constraints. Too few companies are active, and they are short of labour (following 10 years of crisis from 2007-16, when part of the workforce moved away from the sector).

The housing supply has undergone profound changes. The shift away from new construction to the renovation of existing houses has had a major impact, transforming the sector and creating divergent situations within it: while new construction is currently seeing a sharp drop in activity, building renovation is still under pressure. However, the sector is increasingly experiencing a cyclical downturn, which has been affecting new construction and transactions on existing homes for almost 18 months now. Based on the usual length of these downturns (from 5 to 10 years, particularly during the 1990s crisis or the crisis running between 2008 and 2015), the contraction could be here for a significant period. There would then be a risk that this exacerbates the situation further still for companies in the sector and further reduces production capacities which have already been brought down by past difficulties and constraints on the sector. Even so, these production capacities need to recover in order to support work to build and renovate the homes of the future, in view of the energy performance requirements for buildings to adapt to climate change.

> Article completed on 7 December 2023 stephane.colliac@bnpparibas.com







GROUP ECONOMIC RESEARCH

William De Vijlder Chief Economist	+33 1 55 77 47 31	william.devijlder@bnpparibas.com
OECD ECONOMIES AND STATISTICS		
Hélène Baudchon Deputy chief economist, Head - United States	+33 1 58 16 03 63	helene.baudchon@bnpparibas.com
Stéphane Colliac France, Germany	+33 1 42 98 43 86	stephane.colliac@bnpparibas.com
Guillaume Derrien Eurozone, Southern Europe, Japan, United Kingdom - Global trade	+33 1 55 77 71 89	guillaume.a.derrien@bnpparibas.com
Veary Bou, Tarik Rharrab Statistics		
ECONOMIC PROJECTIONS, RELATIONSHIP WITH THE FRENCH NETWORK		
Jean-Luc Proutat Head	+33 1 58 16 73 32	jean-luc.proutat@bnpparibas.com
BANKING ECONOMICS		
Laurent Quignon Head	+33 1 42 98 56 54	laurent.quignon@bnpparibas.com
Céline Choulet	+33 1 43 16 95 54	celine.choulet@bnpparibas.com
Thomas Humblot	+33 1 40 14 30 77	thomas.humblot@bnpparibas.com
Marianne Mueller	+33 1 40 14 48 11	marianne.mueller@bnpparibas.com
EMERGING ECONOMIES AND COUNTRY RISK		
François Faure Head - Argentina, Turkey - Methodology, Modelling	+33 1 42 98 79 82	francois.faure@bnpparibas.com
Christine Peltier Deputy Head – Greater China, Vietnam – Methodology	+33 1 42 98 56 27	christine.peltier@bnpparibas.com
Stéphane Alby Africa (French-speaking countries)	+33 1 42 98 02 04	stephane.alby@bnpparibas.com
Pascal Devaux Middle East, Balkan countries	+33 1 43 16 95 51	pascal.devaux@bnpparibas.com
Hélène Drouot South Korea, Philippines, Thailand, Andean countries	+33 1 42 98 33 00	helene.drouot@bnpparibas.com
Salim Hammad Latin America	+33 1 42 98 74 26	salim.hammad@bnpparibas.com
Cynthia Kalasopatan Antoine Ukraine, Central European countries	+33 1 53 31 59 32	cynthia.kalasopatan.antoine@bnpparibas.com
Johanna Melka India, South Asia, Russia, Kazakhstan	+33 1 58 16 05 84	johanna.melka@bnpparibas.com
Lucas Plé Africa (Portuguese & English-speaking countries)	+33 1 40 14 50 18	lucas.ple@bnpparibas.com
CONTACT MEDIA		
Mickaelle Fils Marie-Luce	+33 1 42 98 48 59	mickaelle.filsmarie-luce@bnpparibas.com



GROUP ECONOMIC RESEARCH

ECOCONJONCTURE

Structural or thematic topics.

ECOFMFRGING

Analyses and forecasts for a selection of emerging economies.

ECOPERSPECTIVES

Analyses and forecasts with a focus on developed countries.

ECOFLASH

Data releases, major economic events.

ECOWFFK

Recent economic and policy developments, data comments, economic calendar, forecasts.

ECOCHARTS

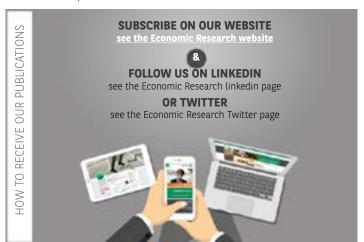
Easy-to-read monthly overview of inflation dynamics in the main developed economies.

ECOPULSE

Monthly barometer of key economic indicators of the main OECD

MACROWAVES

Our economic podcast.



Published by BNP PARIBAS Economic Research

 $Head\ office: 16\ boulevard\ des\ Italiens-75009\ Paris\ France\ /\ Phone: +33\ (0)\ 1.42.98.12.34\ Internet:\ group.bnpparibas-www.economic-research.bnpparibas.com$

Head of publication: Jean Lemierre / Chief editor: William De Vijlder

Copyright: Hyotographics

The information and opinions contained in this document have been obtained from or are based on public sources believed to be reliable, but there is no guarantee of the accuracy, completeness or fitness for any particular purpose of such information and such information may not have been independently verified by BNPP or by any person. None of BNPP, any of its subsidiary undertakings or affiliates or its members, directors, officers, agents or employees accepts any responsibility or liability whatsoever or makes any representation or warranty, express or implied, as to the accuracy and completeness of the information or any opinions based thereon and contained in this document and it should not be relied upon as such. This document does not constitute research, as defined under MIFID II, or form any part of any offer to sel or issue and is not a solicitation of any offer to purchase any financial instrument, nor shall it or any part of it nor the fact of its distribution form the basis of, or be relied on, in connection with any contract or investment decision. Information and opinions contained in this document are published for the information of recipients, but are not to be relied upon as authoritative or taken in substitution for the exercise of judgment by any recipient, are subject to change without notice. In providing this document, BNPP does not offer investment, financial legal, tax or any other type of advice to, nor has any fiduciary duties towards, recipients. Any reference to past performance is not indicative of future performance, which may be better or worse than prior results. Any hypothetical, past performance simulations are the result of estimates made by BNPP, as of a given moment, on the basis of parameters, market conditions, and historical data selected by BNPP, and should not be used as guidance, in any way, of future performance or consequential loss arising from any use of or reliance on material contained in this document ere is no intention to update this document amake a market i

This document was produced by a BNPP group company. This document is for the use of intended recipients and may not be reproduced (in whole or in part) or delivered or transmitted to any other person without the prior written consent of BNPP. By accepting or accessing this document you agree to this.

BNP Paribas is a société anonyme incorporated in France, licensed and supervised as a credit institution by the European Central Bank (ECB) and as an investment services provider by the Autorité de contrôle prudentiel et de résolution (ACPR) and Autorité des marches financiers (AMF), and having its registered office at 16, boulevard des Italiens, 75009 Paris, France.

Some or all of the information contained in this document may already have been published on https://globalmarkets.bnpparibas.com.

For country-specific disclaimers (United States, Canada, United Kingdom, Germany, Belgium, Ireland, Italy, Netherlands, Portugal, Spain, Switzerland, Brazil, Turkey, Israel, Bahrain, South Africa, Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, Singapore, South Korea, Taiwan, Thailand, Vietnam) please type the following URL to access the applicable legal notices: https://globalmarkets.bnpparibas.com/gm/home/Markets_360_Country_Specific_Notices.pdf

© BNP Paribas (2023). All rights reserved

