



## Commercial real estate: is there a risk of a financial bubble?

Commercial real estate prices have been rising steadily for a number of years. In France in particular they are now higher than they were before the 2008 crisis.

These high valuations appear consistent with the economic fundamentals – notably the low interest rate environment and tightness in supply relative to demand in certain segments of the market. However, the fundamentals currently differ markedly from historical levels, raising the risk that prices might correct downwards in the event of a sudden rise in interest rates or a deterioration in the economic outlook.

If this were to happen, the systemic consequences would most likely be limited as commercial real estate only accounts for a small share of financial institutions' exposures. However, we cannot rule out a possible contagion to firms and, to a lesser extent, households.

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R33

**3.7%**

growth in nominal commercial real estate prices in France in 2017, for all segments combined (compared with 1.2% growth in consumer prices and 2.3% growth in residential real estate prices over the same period)

**6,500** euro/m<sup>2</sup>

average price of office real estate in France in 2017, and up to 13,800 euro/m<sup>2</sup> in the central business district of Paris

**4.3%**

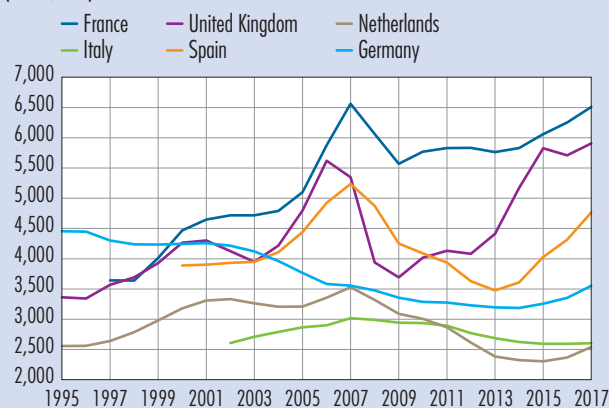
average rental yield on commercial real estate in 2017, compared with a long-term average of 5.6% since 1998

**-9%**

potential impact on the price of French office real estate after ten quarters of an immediate and permanent 100 basis point rise in interest rates

### Change in the price of office real estate, by country

(euro/m<sup>2</sup>)



Source: MSCI.



Commercial real estate prices have been rising steadily for a number of years. This is linked to the low interest rate environment which has made the risk/return ratio on these assets increasingly attractive relative to bond investments, leading in turn to a sharp rise in transaction volumes. The trend is particularly marked in France, where prices have been rising continuously since 2009 and are now above their pre-crisis level, especially in the office segment (see Chart 1). This raises the question of whether commercial real estate is now overvalued, and if so how this might affect financial stability.

### 1 Price formation in the commercial real estate market

#### What is commercial real estate?

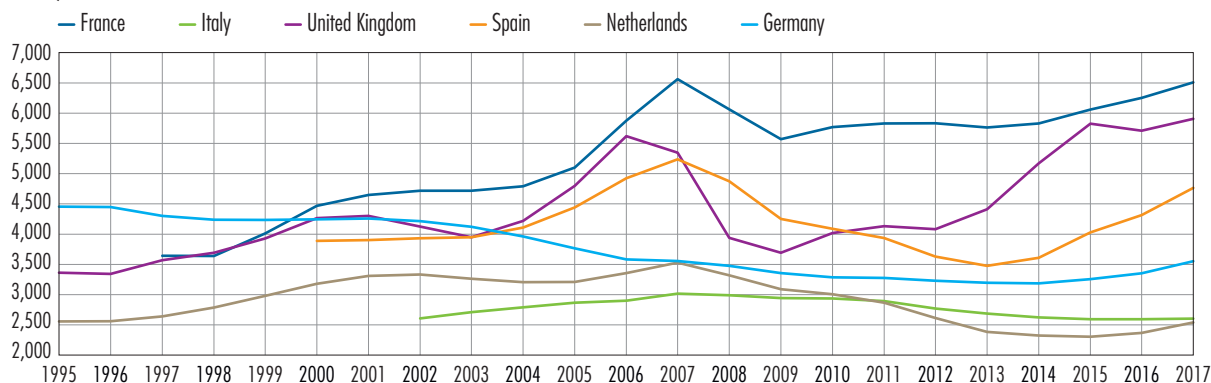
For the purposes of this article, commercial real estate is taken as referring to real estate assets held by professional

investors who do not occupy the property but derive regular income from it.<sup>1</sup> It therefore consists of real estate, either existing or under development, that is owned by institutional investors (insurers, investment funds), generally for the purpose of renting<sup>2</sup> to businesses or households. This definition of commercial real estate, based on the type of owner, covers a wide variety of assets, ranging from business premises (shopping centres, small retail outlets, offices, warehouses, etc.) to residential buildings.

In France, the market accounted for EUR 330 billion of assets in 2017<sup>3</sup> and a total of 27 billion transactions<sup>4</sup> – a figure that needs to be set against some 200 billion purchases of new and second-hand dwellings by households over the same period. Commercial real estate is therefore only a small sub-segment of the overall property market, but one with a particularly strong international exposure (29% of purchases are by non-residents<sup>5</sup>).

#### CI Change in prices in the overall office segment, by country

(euro/m<sup>2</sup>)



Source: MSCI.

- 1 The definition used here is that provided by the European Systemic Risk Board (ESRB) in Recommendation ESRB/2016/14: “commercial real estate means any income-producing real estate, either existing or under development, and excludes: social housing, property owned by end-users and buy-to-let housing”.
- 2 The ESRB’s definition of commercial real estate excludes property development (where the majority of assets are destined for sale). However, a building pre-sold by a developer (i.e. sold before construction is finished) would be included.
- 3 Source: *Association française des sociétés de placement immobilier* (French Association of Property Investment Companies), end-2016.
- 4 “Commercial real estate transactions” refers to all purchases of real estate by institutional investors. The figure, sometimes referred to as “investments”, should not be confused with investments in new building constructions or renovations. Source: BNP Paribas Real Estate (the figure excludes residential commercial real estate).
- 5 Source: Jones Lang LaSalle. According to data from notaries, for the period 2005-15, acquisitions of second-hand dwellings in metropolitan France by foreign residents accounted for 6.4% of total transactions.



BOX 1

**Commercial real estate: a crucial asset for business activities and a source of yield for investors**

Commercial real estate is both a productive asset for its occupants and an income-producing investment for its owners. As a result, to understand the underlying price formation mechanisms, it is important to take into account the interaction between rental and investment markets, as well as the links between short-term price dynamics and the long-term behaviour of supply (DiPasquale and Wheaton, 1992).

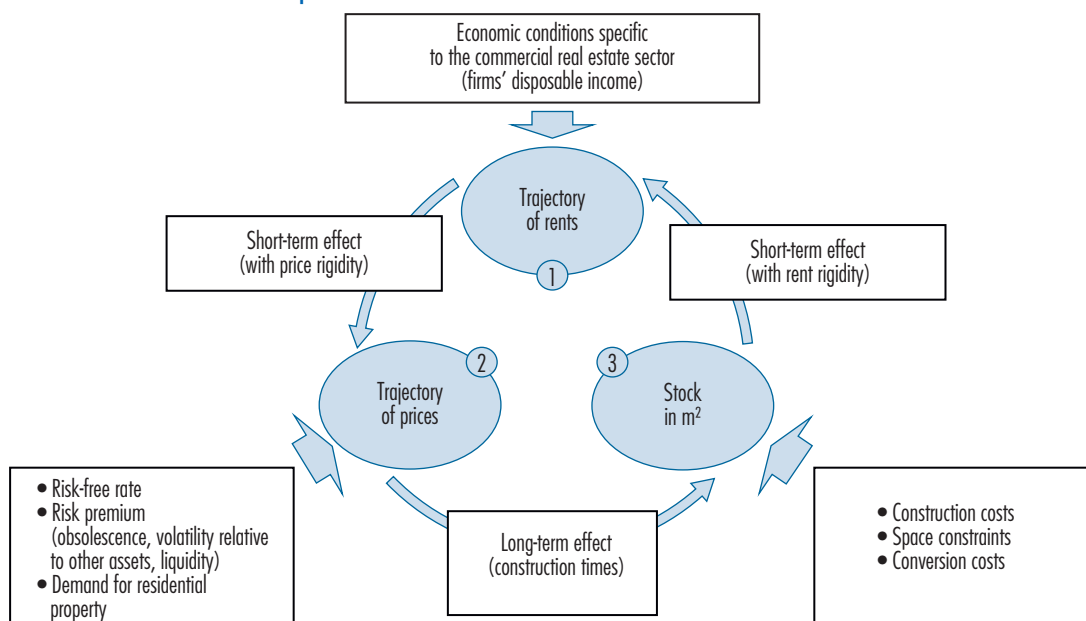
1) The rent on a real estate asset in a given location and used for a given purpose is determined by the relationship between the supply of and demand for floor space. By extension, expectations of future rental prices are also determined by expectations of supply and demand. Due to rigidities linked to market practices and structure (length of leases, bargaining power of incumbent tenants), rents may take time to adjust.

2) Prices in the investment market reflect the sum of expected future rents, discounted using the capitalisation rate (also known as the rental yield), which is the sum of a risk-free rate and a risk premium (see equation below). The risk premium in turn depends on the risks associated with the future revenue flows (risk of vacancy and obsolescence of the premises, price volatility, asset liquidity) and investors' aversion to risk.

$$\text{Price} = \sum_t \frac{\text{rent}_t}{(1+r)^t}$$

3) Although in the short term there is a stickiness in supply owing to construction times and space constraints, in the longer term, the evolution of prices will influence construction volumes and the supply of available space, and therefore rents.

**The formation of commercial real estate prices**





### The underlying mechanisms differ in each segment

Commercial real estate groups together a range of properties that are not completely interchangeable in terms of purpose or use. A square metre of logistical premises located in the suburbs does not serve the same purpose as a high-street shop, and a high-street shop does not serve the same purpose as office space. As a result, the factors determining rent prices are liable to differ from one segment to another.

- **Demand for offices** depends on the level of employment, especially in the service industry, the “productivity” of available office space, and structural changes in modes of work such as the rise of dynamic working environments and teleworking (which can have a mixed impact: for example, teleworking often involves the creation of shared spaces and the development of more modern logistics, which does not necessarily lead to a reduction in a firm’s property-related costs).
- **Demand for retail premises** depends on household consumption, as well as on structural changes such as the rise of new methods of purchasing (online shopping, high street vs. out-of-town retail parks).
- **Demand for industrial premises** depends on manufacturing output as well as on methods of consumption (increase in online shopping and hence

in demand for logistical premises at the expense of traditional shops).

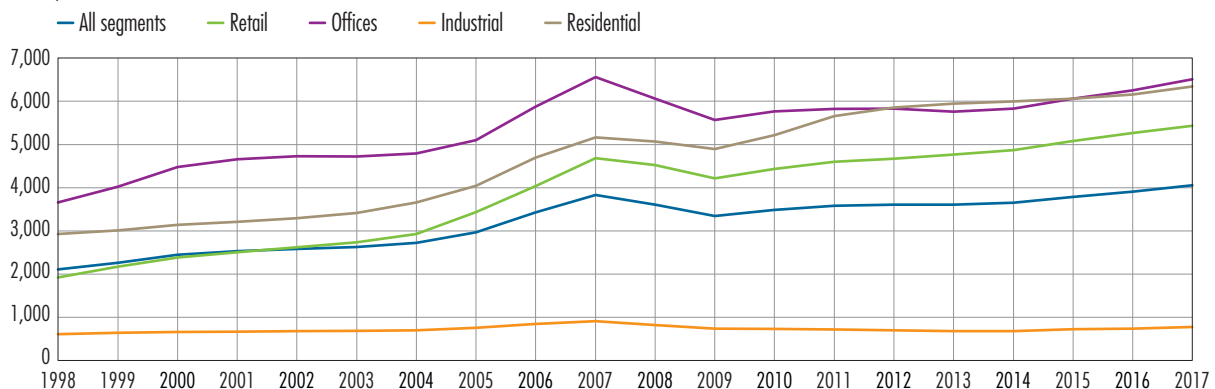
- **Demand for residential buildings** (managed by property professionals) depends on household disposable income and demographic factors such as household size, and is strongly influenced by the comparative attractiveness of other housing options (owner-occupancy, supply of private rental accommodation).

These different market segments do not carry the same risks. For example, the risk of obsolescence is higher in some segments of the small retail market due to changes in modes of consumption and the emergence of online shopping. In the case of offices, there is a risk linked to the transformation of urban centres, transport congestion and changes in commuting habits.

Prices therefore vary depending on the type of property and its location (see Chart 2), and range from as high as 6,500 euro/m<sup>2</sup> for offices in France, to 5,400 euro/m<sup>2</sup> for retail premises, and 800 euro/m<sup>2</sup> for industrial premises. Offices are often located in expensive urban areas, whereas industrial premises tend to be built out of town due to their size and function. Nonetheless, there is a strong correlation between price trends across all segments (correlation of 96% between offices and retail premises and of 74% between offices and industrial premises<sup>6</sup>), indicating that price dynamics are at least

### C2 Change in commercial real estate prices in France, by segment

(euro/m<sup>2</sup>)



Source: MSCI.

<sup>6</sup> Calculated using MSCI price series for the period 1998 to 2017.



partly driven by shared fundamentals (past or expected evolution of interest rates, investor risk/return appetite, tax and inheritance rules).

## 2 High valuations reflect very low interest rates

### Measuring overvaluation is complex

In France, the unusually high volume of commercial property transactions over recent years, coupled with the record level of prices, is prompting debate as to whether or not there is a bubble in the market. From a technical perspective, determining whether or not an asset is overvalued presents a challenge as it implies establishing a price level that is consistent with the economic fundamentals (see Box 2 below). In practice, this involves identifying those factors that best account for the past evolution of prices and using them to establish the “fundamental” level of prices. The overvaluation is then measured as the gap between this fundamental level and the observed level of prices. The rest of this section explores the different methods available for estimating the fundamental level of prices and therefore potential overvaluation.

### Rising prices and historically low rental yields

The low interest rate environment has made commercial real estate more attractive as an investment than fixed income products. Investors have therefore switched increasingly to the former asset class, leading to a rise in prices and a decline in rental yields. A first method for measuring overvaluation is to assume that the fundamental level of prices is that at which rental yields are equal to their long-term average. According

to this method, commercial property prices in France are currently around 30% higher than their fundamental level (see Box 2).

### Relatively high risk premiums

The increase in prices has not been sufficient to push rental yields down as far as 10-year government bond yields (sovereign yields), which are considered to be the risk-free rate. This relative stickiness in rental yields has led to a widening of the spread versus sovereign yields – known as the risk premium. Investors can thus earn above-average returns on the risk incurred on commercial real estate assets – unlike in 2007-08. A second method therefore is to assume that the fundamental price level is that at which the risk premium is equal to its long-run average. According to this method, prices are currently undervalued by 18% (see Box 2).

The high risk premium relative to other assets may therefore reflect caution on the part of investors, or a degree of rigidity in prices meaning that they have not yet adjusted fully to the low interest rate environment. However, there are a number of valid reasons why risk premiums are currently so high: factoring in of a possible interest rate rise in prices,<sup>7</sup> recognition of upward rigidities in rent prices, increase in the correlation between returns on commercial real estate and those on other financial assets, revision of the risk associated with capital gains,<sup>8</sup> factoring in of the low liquidity of real estate assets or uncertainties over how the purpose of the property might evolve.

In the recent period (2016-17), however, both approaches indicate that prices have risen more rapidly than suggested by the underlying fundamentals.

<sup>7</sup> However, this hypothesis does not explain why risk premiums on other asset classes such as corporate bonds are currently low relative to their long-term average.

<sup>8</sup> Unlike yields on fixed income products, yields on commercial real estate comprise both a rental yield and a capital yield. Risk premiums on rental yields may have increased because investors regard these future capital yields as more risky, i.e. they expect prices to be more volatile.



### BOX 2

#### Measurement of the overvaluation of French commercial real estate prices using rental yields

The rental yield (or capitalisation rate) is the annual return earned on a commercial real estate investment. It is calculated as the ratio between rental income (net of charges)  $I_t$ , and the capital invested to acquire the property and carry out any renovation work  $p_t$ . A first method of estimating implicit price overvaluation is to measure the deviation between this ratio and its long-term average  $\left(\overline{\frac{I_t}{p_t}}\right)$ . The implicit overvaluation calculated using the rental yield is expressed as follows (see Chart a):

$$\frac{p_t^{\text{observed}}}{p_t^{\text{theoretical}}} - 1 = \left(\frac{I_t}{p_t}\right) - \overline{\left(\frac{I_t}{p_t}\right)}$$

This method assumes that rental yields remain stationary over the long run. However, interest rates have varied markedly over the last 20 years. One alternative is to assume that risk premiums remain stationary (i.e. the spread between rental yields and a risk-free rate such as 10-year sovereign yields  $r_t^f$ ). This would imply that there has been no structural change in the risks associated with commercial real estate in recent years. In this case, rental yields can be corrected for the change in interest rates. The implicit overvaluation can then be calculated as follows (see Chart b):

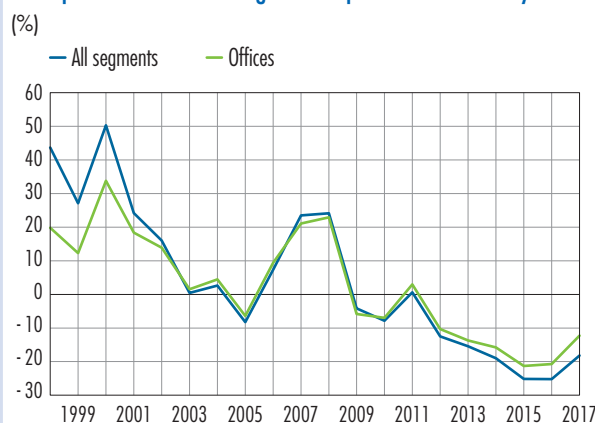
$$\frac{p_t^{\text{observed}}}{p_t^{\text{theoretical}}} - 1 = \frac{\left(\frac{I_t}{p_t}\right)}{\left(\frac{I_t}{p_t} + r_t^f - r_t^f\right)} - 1$$

**Ca** Gap between the price of commercial real estate and the price determined using long-term rental yields



Source: Banque de France calculations using MSCI data.

**Cb** Gap between the price of commercial real estate and the price determined using the risk premium on rental yields



Source: Banque de France calculations based on MSCI data.



### Risk of a price correction even though valuations are in line with fundamentals

The financial approach is not the only method that can shed light on the debate over real estate valuations. An alternative approach is to use an econometric model developed for the office market, which takes better account of the dynamics in the economic fundamentals influencing price formation (see Box 3).

The model indicates that office prices in France are in line with supply and demand factors: the prices observed at end-2017 only deviate from the level determined by the fundamentals by about 5%, with a confidence interval of between 0% and 10%, and even return to a level close to equilibrium at the start of 2018. However, these fundamentals are themselves significantly different from their long-term averages. As a result, there is a risk that prices might correct in the event of a turnaround.

#### BOX 3

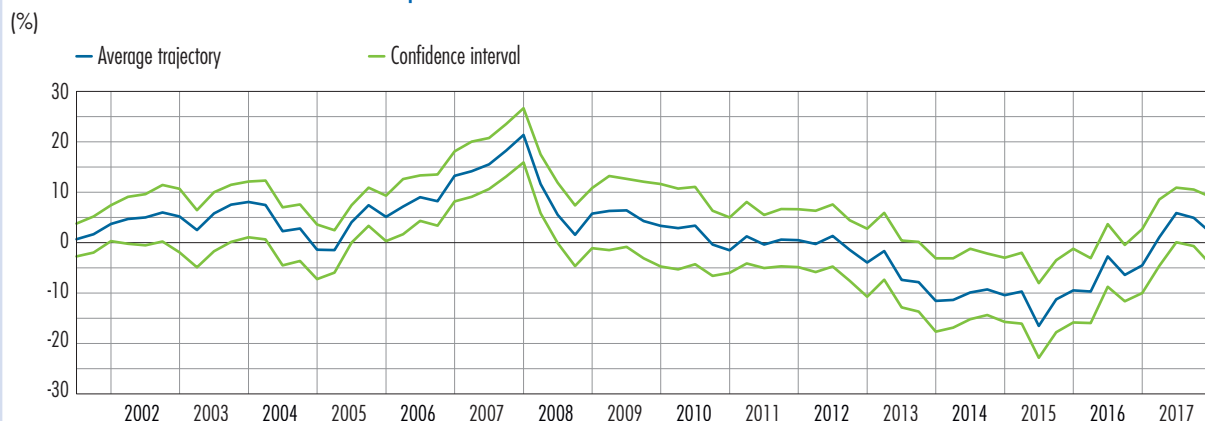
#### Measurement of the overvaluation of office prices using a model

To capture the influence of fundamentals in the formation of office prices, Coffinet & Kintzler (2018) have developed a vector error correction model, incorporating a measure of office prices, real GDP growth, interest rates (6-month Euribor), the stock of offices, the immediate supply of offices,<sup>1</sup> and rents.

The variance decomposition of the series highlights the important role played by persistently low interest rates and the lack of office supply in determining the long-run trajectory of prices over the recent period.

The model is used to construct the trajectory of the gap between observed prices and the price determined on the basis of the underlying fundamentals, together with an associated confidence interval representing the statistical uncertainty surrounding the measure. Like the previous approach, this method clearly points to an episode of overvaluation in 2006-08. It also indicates that, since the end of 2016, office prices have been growing more rapidly than suggested by the underlying fundamentals (see chart).

#### Measurement of the overvaluation of office prices in France and associated confidence interval



Source: Banque de France calculations.

<sup>1</sup> The immediate supply of offices is the vacancy rate multiplied by the stock of offices.



### 3 What are the risks to financial stability in France?

#### What impact would a rise in interest rates have on prices?

Given that current prices can be accounted for by fundamental factors such as the level of interest rates, the supply of available premises (in m<sup>2</sup>), and the outlook for economic growth, a shock to any of these factors could trigger a correction in prices (see diagram).

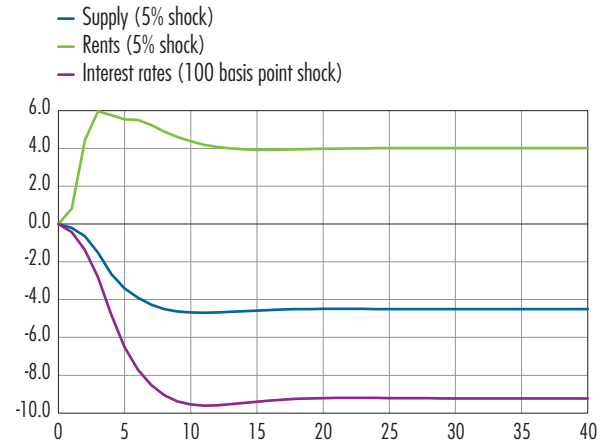
The econometric model described in Box 3 provides a more accurate assessment of the impact of these permanent shocks (see Chart 3):

- A 5% increase in the immediate supply of office space would result in a fall of around 4% in prices after ten quarters.
- A 5% increase in rental prices would translate into a rise of around 4% in office prices after four quarters.
- A rise of 100 basis points in interest rates would translate into a fall of approximately 9% in office prices after ten quarters.

Examining the impact of a rise in interest rates is particularly relevant in the current context. The model shows that the impact of a rate rise on prices is liable to be limited by two factors. First, monetary policy tightening typically occurs when the economic growth outlook is positive, which is in turn correlated with robust rent

#### C3 Impulse response of French office prices to a permanent shock to the variables under consideration

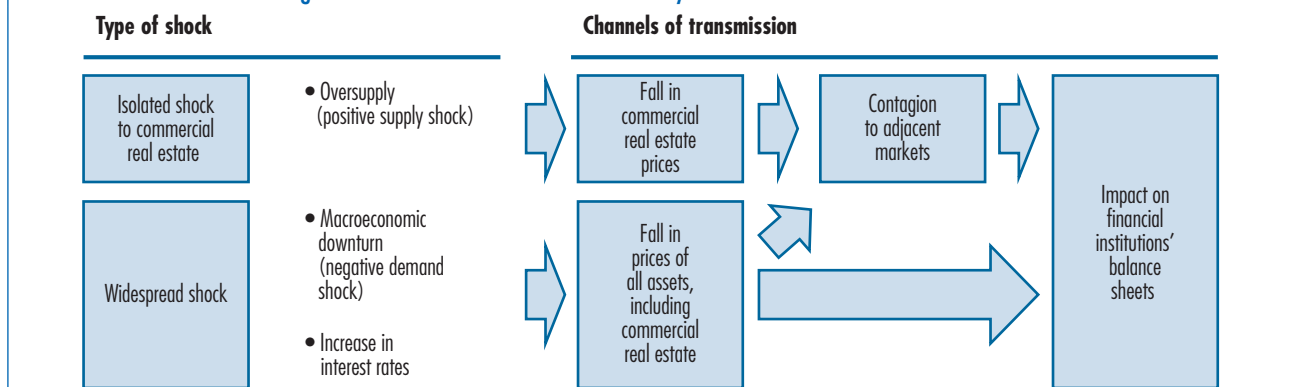
(x-axis: number of quarters; y-axis: % change in prices)



Source: Banque de France calculations.

growth against a backdrop of strong investor confidence (low risk premiums). Second, the correlation between variations in 10-year sovereign yields and rental yields has remained steady at around 0.3 in France since 1999 (see Chart 4). Variations in interest rates are thus accompanied by a change in risk premiums: in recent years, the fall in interest rates has been accompanied by a smaller decline in rental yields, leading to a gradual increase in the risk premium. These two effects should limit the impact on prices of a rate rise, provided that the rise is a deliberate monetary policy choice. Conversely, if the rate rise is caused by a widespread increase in risk premiums stemming from a crisis, these limiting effects will not apply and the price fall could be exacerbated.

#### Transmission of a shock affecting commercial real estate to the financial system

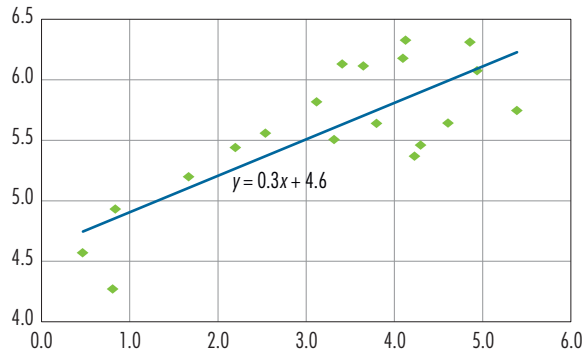






#### C4 Correlation between OATs and rental yields

(x-axis: 10-yr sovereign yield; y-axis: rental yield; %)



Sources: MSCI and Eurostat.

### The current high and rising level of prices poses a moderate risk to financial stability in France

When prices are high, a shock to the underlying fundamentals risks triggering a downward correction. This can in turn have an impact on investors: those (the majority) who have acquired assets without borrowing will incur a capital loss, while those that are leveraged may find themselves in a more difficult position if they have to refinance the debt on investments that have deteriorated in value (lenders could also be affected if the losses are too great).

Given that investors' exposure to the commercial real estate market is currently relatively modest,<sup>9</sup> the potential losses should be limited from a macroeconomic point of view. However, those agents who have failed to anticipate

a negative scenario could indeed incur financial losses.<sup>10</sup> Similarly, as banks' positions are generally small and not very leveraged,<sup>11</sup> their exposure to a decline in prices via commercial property professionals is contained, as is the risk of forced property sales that could trigger an excessive downward adjustment in prices. As the *Haut Conseil de stabilité financière* (HCSF – High Council for Financial Stability) concluded in 2017,<sup>12</sup> at this stage it is unlikely that a price fall in those segments where investors are active would propagate to all financial markets and/or undermine the financial sector's ability to serve the economy.

We cannot, however, rule out a possible impact on firms and, to a lesser extent, households.

- In the case of firms, the contagion would be fairly direct, via their holdings of commercial real estate – i.e. the premises they own and operate. A fall in prices would have a negative impact on the value of their real estate assets and hence on their balance sheets.<sup>13</sup>
- For households, aside from the losses incurred by those with direct exposure to real estate, the contagion would be more indirect: households would be impacted via a change in the structure of the residential real estate market (stemming, for example, from a change in the use of certain properties, i.e. the conversion of offices into housing, and vice versa), or via an increased shift by investors into residential property to reduce their exposure to commercial assets.

<sup>9</sup> In the insurance sector, direct exposures to commercial real estate account for a maximum of 5% of firms' respective balance sheets.

<sup>10</sup> In light of the high inflow of savings into commercial real estate products, and the risk that individual savers might invest in commercial property without understanding the sources of past returns and the nature of the associated risks, in March 2017, the *Autorité de contrôle prudentiel et de résolution* (ACPR – Prudential Supervision and Resolution Authority) and the *Autorité des marchés financiers* (AMF – Financial Markets Authority) issued a reminder to distributors regarding best practices in the marketing of real estate investment products (SCPI and OPCV real estate funds, real estate unit-linked life insurance products).

<sup>11</sup> In the case of France's six largest banks, direct real estate exposures account for 2-3% of their respective balance sheets, while the leverage ratio on outstanding financed transactions is under 60% for 75% of investors (ACPR, 2018).

<sup>12</sup> Memo entitled "French commercial real estate market – Updated analysis and stress test results", published by the HCSF on its website on 31 March 2017 (HCSF, 2017).

<sup>13</sup> See, for example, "The Collateral Channel: How Real Estate Shocks Affect Corporate Investment", which shows how property valuations can affect corporate investment in the United States (Chaney et al., 2010).



## Appendix

### Available data sources for studying commercial real estate in France

One of the main challenges encountered in analysing the commercial real estate market is with the data, as the available sources cover different scopes and vary in quality. Reconciling these different sources and constructing an overall analysis are therefore difficult tasks.

#### Notary data

Notary databases contain details of sales of non-residential real estate for all of France dating back to 1998. However, the data are not necessarily of high quality or harmonised, as they are collected on a voluntary basis by individual notaries. There is also a lag in availability, and transaction volumes can fluctuate markedly between two dates, particularly for offices, making it difficult to construct a reliable index. Transactions are listed indiscriminately, with no indication of type of buyer or seller, yet the notion of commercial real estate implies that at least one of the counterparties should be an institutional investor.

#### Data from sector professionals

A number of large private sector companies provide data on transaction volumes and prices in the commercial real

estate sector. These are mainly market intermediaries, such as Jones Lang LaSalle (JLL), Charles Bourdais Richard Ellis (CBRE), Knight Frank and private statistical institutes such as Investment Property Databank (IPD, acquired by MSCI in 2012). The available price information differs in terms of the scope covered (property held in portfolio by specific types of investor or all transactions over a specific period) and methodology (values estimated by experts, transaction values or a mix of both).

#### Data from the ACPR

The *Autorité de contrôle prudentiel et de résolution* (ACPR – Prudential Supervision and Resolution Authority) keeps track of all investments by insurers and therefore has access to details of all real estate holdings. It also carries out a six-monthly survey of lending by the main French banks to professionals in the real estate sector (companies which derive the majority of their income from the sale or lease of real estate). However, the category “real estate professionals” does not correspond exactly to the scope of investors included in the definition of commercial real estate (property developers are notably excluded from commercial real estate), and the survey does not identify lending by foreign banks to French investors.<sup>1</sup>

<sup>1</sup> See *Analyses et synthèses* No. 93 published by the ACPR: “French banks’ financing of real estate professionals in 2017” (ACPR, 2018).



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