



IW-Report 28/2020

A Perfect Storm for European Office Markets?

Potential Price Effects of the Covid-19 Pandemic
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Cologne, 18 June 2020

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JEL-codes:

F44 International Business Cycles

R11 Regional Economic Activity: Growth, Development, Environmental Issues, and Changes

R33 Nonagricultural and Nonresidential Real Estate Markets

Abstract

The Covid-19 pandemic is not only endangering the health of people worldwide, but is also causing an economic recession. Given past experience, office markets, particularly the prime market, are reacting very strongly to economic downswings. This paper attempts to derive a likely scenario for the effects in selected European office markets.

As a first step, the impact of the economic downturn on prime rents is estimated based on data provided by PMA (Property Market Analysis). As a result, prime rents could decrease by between 5 and 23 percent. In most cases, the reductions are comparable to developments in past crises and in some cases reductions exceed those of former crises. Yet, given the severity of the crisis, this is not implausible. The crisis will also affect expectations, which in turn will affect prices. Based on an analysis of the spreads, a likely effect on prices can be deduced. Prices will drop by 15 to 47 percent. Obviously, the results can be viewed critically, especially since local factors have not been taken into account. Thus, results for cities should be regarded with caution. Nonetheless, the broader view clearly indicates that the downturn in the office market looks set to be severe.

In addition, there is the potential for a perfect storm in the office markets since structural changes are also likely. Specifically, workers will push for more remote work and employers are likely to favour this in order to save costs. Also, digitisation offers more potential for saving costs for staff. As a result, office demand could be impaired in the long term, posing challenges for owners and investors in the office market.

1 Background

The Covid-19 pandemic is causing an economic crisis in almost all OECD countries. According to recent forecasts by the European Commission (EC) (2020), GDP will decrease by more than 7 percent in European countries in 2020. Whether the economy will be recovering quickly is uncertain, with more and more researchers assuming a longer lasting recovery.

Real estate markets are also affected by the crisis. Generally, housing markets should be more resilient than commercial property markets since the need for shelter is not impaired by the crisis while, for instance, demand for hotels has been reduced dramatically.

This paper examines the effects of the economic crisis. Typically, office markets are volatile and react strongly to economic booms and busts (Lizieri, 2008). Also, office markets tend to build up economic bubbles since expectations are extremely volatile in this segment and the over-optimistic behaviour of investors cannot be ruled out. First of all, the effects on the European office markets are examined by analysing the relationship between prime rents and GDP. Although city data and national GDP are taken into account, the correlation of these variables is quite high. Given the results for rents, the effects on price are derived by using a discounted cash flow approach taking into account expectations about interest rates and experiences in former crises.

All in all, the effects on office markets will be considerable; maybe even a perfect storm is within reach. A perfect storm is “a critical or disastrous situation created by a powerful concurrence of factors” (Merriam-Webster.com Dictionary). These factors could be a short-term fall in prices due to the economic crisis plus a long-term drop in demand caused by structural changes. Of course, in the current situation of uncertainty, predictions should be regarded with caution. In this sense, the results in this paper are not meant as a forecast, but merely as a scenario. Nevertheless, market participants are well advised to expect longer-lasting effects on the office market.

2 Determinants of office prices

Generally speaking, property prices mirror the value of future rents, which have to be discounted. Formally, property prices can be captured in the following formula:

$$Property\ Value = \sum_0^n \frac{Net\ Rent * (1 + r)^n}{(1 + i + p)^n}$$

With n=economic lifetime, r=expected annual rental price increase, i=safe interest rate and p=risk premium.

Obviously, the current rent price level as well as the current interest rate level have a direct impact on the price. As these values are observable, investors often focus on these determinants. However, expectations about rental price increases as well as changes in risk premiums and the safe interest rate are also very important. Sound forecasts on these values are simply

not available, specifically not over the economic lifetime of a property (which is another source of uncertainty especially in the office market). Typically, market participants, at least implicitly, tend to extrapolate current developments, but in periods of economic crisis, such expectations can dramatically change. As a consequence, over-shooting in these markets is a common phenomenon.

To measure the effect of the current crisis on prices, a two-step procedure is conducted. First of all, the effect on rents is determined. Unlike in housing markets, office rents are volatile and can increase and decrease. Housing rents as well as wages typically decrease only in real terms, but not nominally. However, in office markets, a drop in rental prices is common. Given the “new” rent, the effect on prices is derived using the formula. Since expectations on rental increases and risk premiums are not available, one can measure the so-called spread. The spread is simply the difference between the prime yield, defined by the quotient of net prime rents and the purchase price, minus the safe interest rate, which is defined hereinafter as the interest rate for long-term sovereign bonds. This spread captures the expectations about rental price increases, the risk and the future safe interest rate simultaneously. By analysing the spread and changes in the spread in former crises, a likely effect on current prices can be derived. Of course, as the formula pinpoints, the expectations on the future development of investors are decisive, meaning that if for instance the bulk of investors are optimistic, price reactions could be very moderate. However, as investors are also looking back, by using the aforementioned method a likely scenario can be presented.

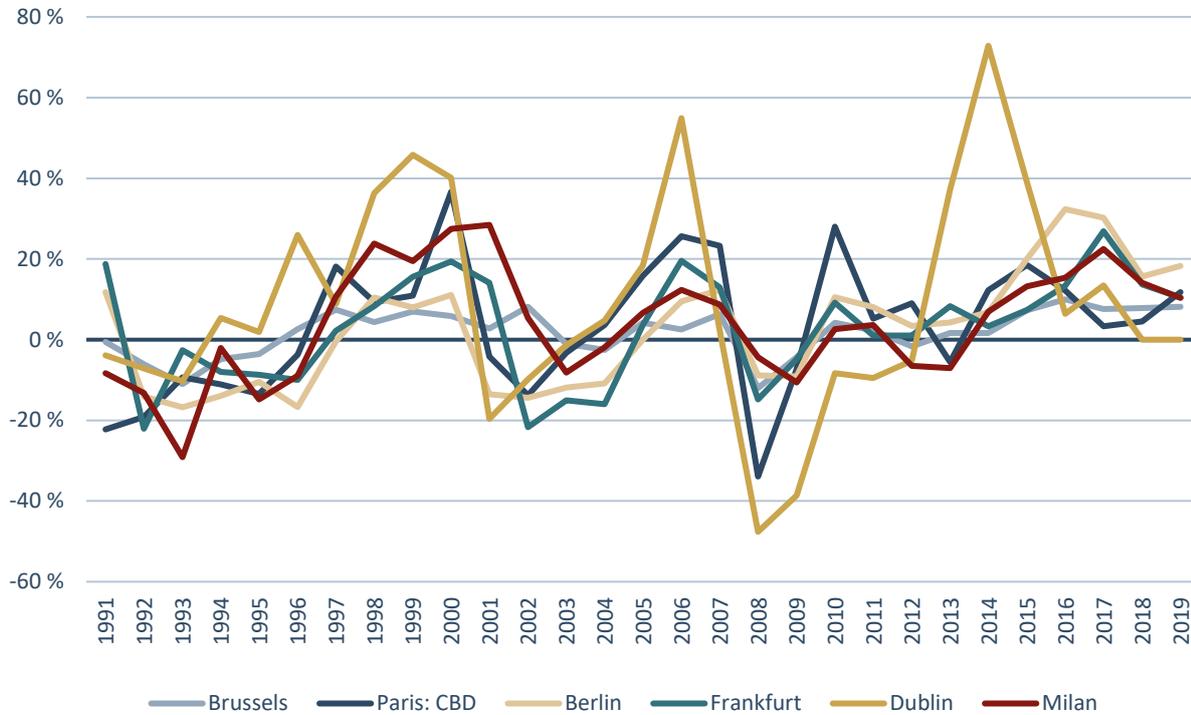
3 Price developments in office markets

In recent years, rents and prices in the office market have developed very dynamically. Data on European office markets was provided by Property Market Analysis (PMA), a market research company. They display net prime rents and net prime yields for all major European office markets. The prime market includes the most expensive offices in the best locations. This segment of the office market is more volatile than the entire market, but has a signaling effect for all other segments in the market. Prices can be calculated based on net rents and net yields.

Figure 3-1 displays the price growth for a selection of European office markets. Specifically, in the last year, annual growth rates have been massive. In Dublin, prices for prime offices increased by more than 70 percent in 2014, which may be an exception, but also in Berlin prices increased by more than 30 percent two years in a row. And even in Milan, office prices climbed by 22 percent in 2017. Reasons for this were the falling mortgage rates in combination with increasing rents. Especially in large German cities, employment rates increased considerably, thus stimulating office demand.

Figure 3-1: Growth rates in property prices in selected European office markets

Annual changes in the prime office market



Sources: PMA; own calculations

However, Figure 3-1 also shows that prices can fall dramatically in the case of an economic crisis. Three crises have to be named since 1990. In the beginning of the 1990s, prices plummeted as a result of a prior over-valuation of the markets and as a reaction to the Iraq war, which overshadowed economic perspectives. At the beginning of the 2000s, prices fell as a consequence of the crash in the new economy. The insolvencies of many start-ups not only dampened office demand, but also triggered an economic recession. And finally, the financial crisis hit the office market hard in 2008/09. In 2008 alone, prices fell 4 percent in Milan, 14 percent in Frankfurt, 33 percent in Paris and 47 percent in Dublin. While Milan was quite resilient in the financial crisis, prices plummeted by nearly 30 percent in the Italian metropolis in 1993. Significant price reductions, therefore, are typical in office markets.

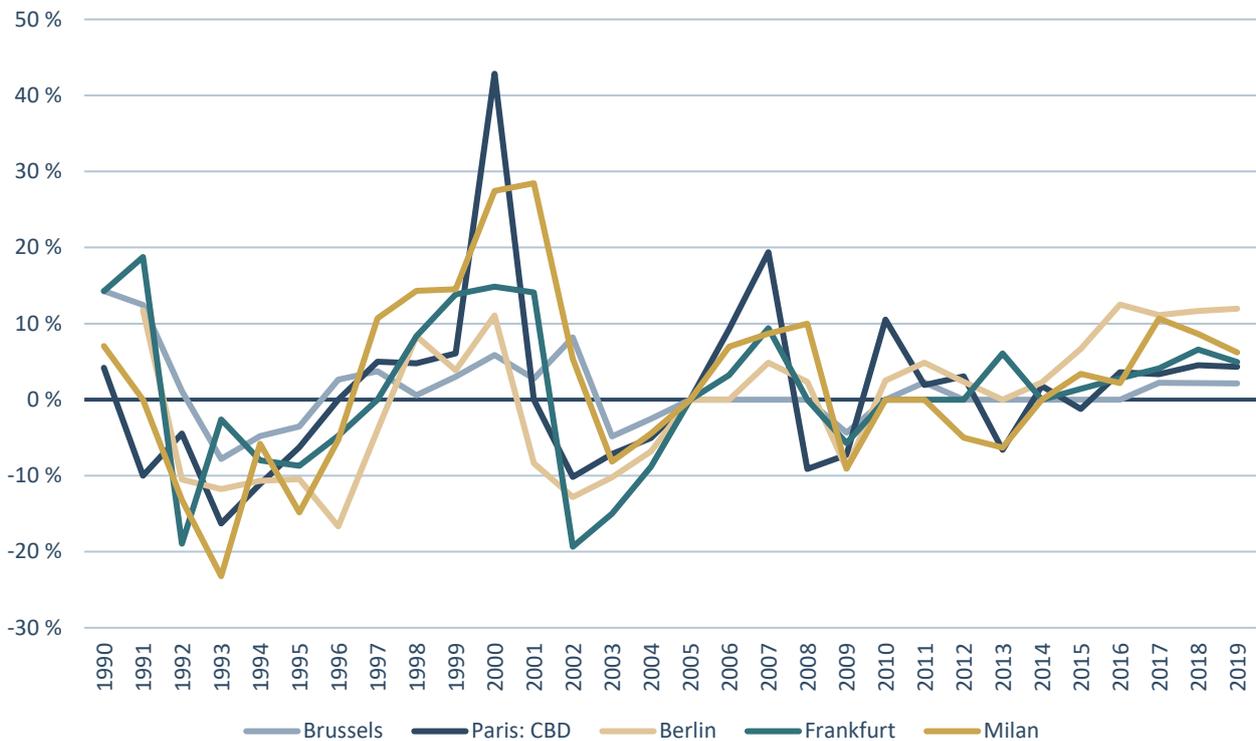
One reason for this stems from the volatility of prime rents. Bargaining rents is common in this market since big landlords overlap with big companies. Depending on the economic situation and the market tension, rents thus vary considerably. Figure 3-2 displays the growth rate in prime rents for the afore-selected cities.

Paris in particular stands out. In the central business districts (CBD), prime rents increased by more than 40 percent in 2000, but also fell by 10 percent in 2002. Frankfurt experienced a fall in prime rents of 20 percent in 2002, while in Milan prime rents were reduced by 23 percent in 1993. In the housing market, at least in countries like France, Germany or the Netherlands, rents develop smoothly, whereas in the office market, strong movements in both directions are

typical. Consequently, a crisis not only hits the market via an overshadowing of expectations, but also directly via an adjustment of prime rents.

Figure 3-2: Growth rates in net prime rents in selected European office markets

Annual changes in the prime office market

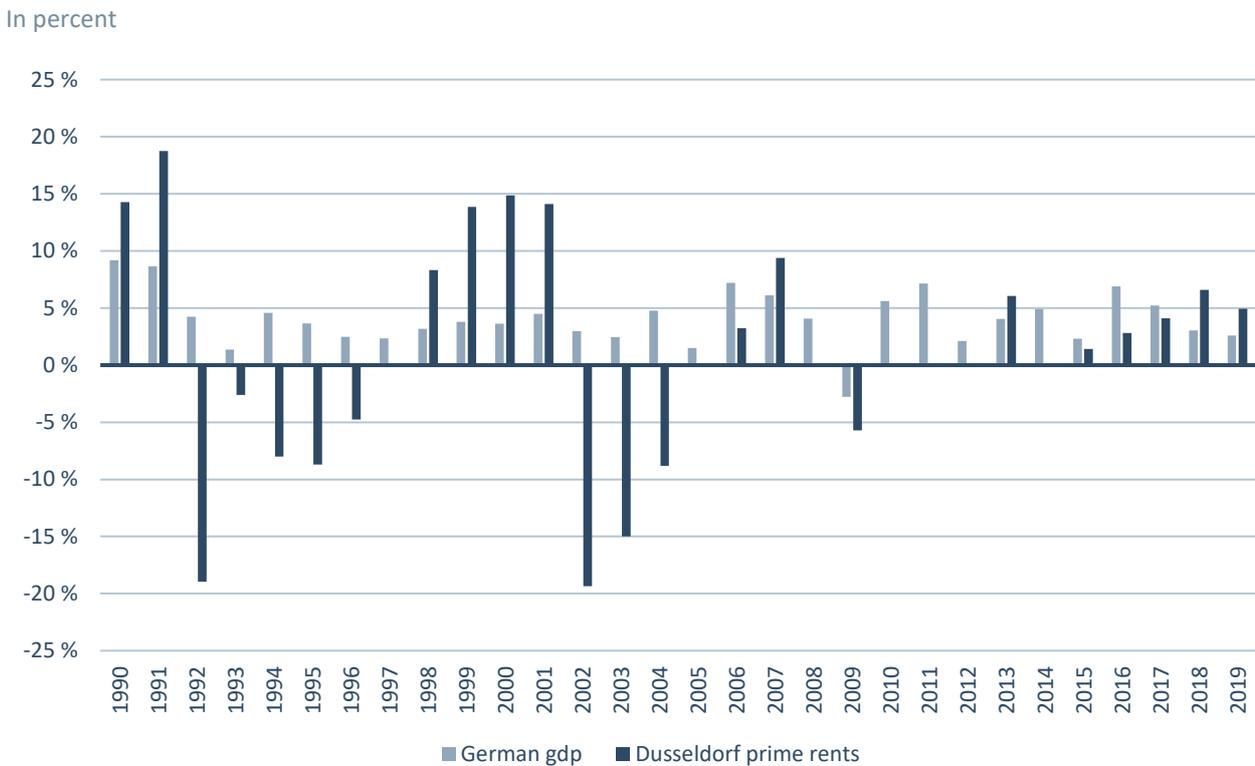


Sources: PMA; own calculations

4 Prime rents and economic growth

Office rents can be explained surprisingly well by economic growth. Figure 4-1 shows as an example the annual growth rate of rents and national GDP for Dusseldorf. This city was chosen as it has only a minor share in national GDP.

Fluctuations are higher in prime rents, but in most years the development of rents and economic growth is strongly correlated. Particularly since the mid-2000s, prime rents and economic growth have been hand in hand, and even developed simultaneously in the financial crisis. Seldom in the new economy crisis, which hit real estate markets more strongly than the real economy, or during the mid-1990s, were GDP growth and prime rent development disconnected.

Figure 4-1: Growth rates of German GDP and net prime rents in Dusseldorf


Sources: OECD; PMA

Against this background, the impact of economic growth and prime rent development is estimated using a simple ordinary least square regression. Of course, more sophisticated approaches like time-series methods would have been feasible, but would not have delivered better results, especially with regard to the interpretation.

The changes in rents are the dependent variable and the economic growth rate of the respective country was chosen as the independent variable. In most cases, the R^2 – which measures the explanatory power of a model – is well above 20 percent, which is a high rate for such a simple regression model and the use of growth rates instead of levels. Growth rates have been chosen to circumvent problems of spurious correlation (Baumöhl/Lyócsa, 2009).

Only for some cities does this simple regression not work. In Luxembourg, Warsaw, Helsinki, Prague and some other cities, economic growth rates were unable to explain the development of rents, and the p-values for economic growth were insignificant. Apparently, in these markets, the office cycle and the business cycle were not in synch for whatever reason. Therefore, these cities have been excluded from the following analysis. Also, all UK locations have been excluded. The combination of the Covid-19 crisis and Brexit complicate all predictions based on past experiences. Therefore, London and other cities are missing in the analysis.

Table 4-1 presents the results for the change in rents in 2020. In addition, the European Commission's forecast for economic growth for the respective country is listed as well as the

maximum rent price decrease in the period 1990 to 2019. The European Commission's forecast (2020) was used to conduct an out-of-sample estimation. However, as a further restriction, the change in rents was limited to a maximum of 120 percent of the maximum prime rent reduction.

Table 4-1: Probable effects on office prime rents

	GDP forecast 2020	Estimated change in prime rents 2020	Max prime rent reduction 1990-2019
Amsterdam	-6.8	-11.7 %	-9.9 %
Berlin	-6.5	-20.0 %	-16.7 %
Brussels	-7.2	-9.4 %	-7.8 %
Cologne	-6.5	-11.1 %	-12.7 %
Dublin	-7.9	-14.5 %	-36.4 %
Dusseldorf	-6.5	-16.8 %	-14.0 %
Frankfurt	-6.5	-15.7 %	-19.3 %
Hamburg	-6.5	-12.2 %	-15.9 %
Lille	-8.2	-18.1 %	-15.2 %
Lisbon	-6.8	-20.7 %	-24.7 %
Lyon	-8.2	-10.9 %	-9.1 %
Marseille	-8.2	-10.8 %	-9.1 %
Milan	-9.5	-23.3 %	-23.2 %
Munich	-6.5	-15.3 %	-13.7 %
Paris: Central	-8.2	-19.5 %	-16.3 %
Paris: Western Business District	-8.2	-17.1 %	-14.3 %
Rotterdam	-6.8	-4.9 %	-4.1 %
Stuttgart	-6.5	-9.5 %	-7.9 %
Vienna	-5.5	-18.2 %	-15.1 %

Sources: European Commission; IW

The reduction in prime rents can be significant, varying between 4.9 percent in Rotterdam and 23.3 percent in Milan. However, given the massive reduction in economic growth and past experience in the office market, a sharp reduction in prime rents seems to be plausible. Nevertheless, some of the results provoke questions. The effect in Dublin seems to be moderate against the background of a very volatile market. Especially in the 1990s, however, the Dublin office market developed smoothly, which also had a smoothing effect on the model. During the financial crisis, prime rents decreased by more than 35 percent in a year, so a harsher reaction might be feasible. Differently to the financial crisis, this time not only the financial industry is hit by

the crisis, so it may hit Dublin less than 2008/09. Another case is Berlin. The German capital experienced an amazing office market boom over the last number of years. As a consequence, the elasticity of prime rents in relation to changes in economic growth is quite broad; thus a reduction in economic growth reduces prime rents. A 20 percent reduction seems to be very high, but this would only mean that the market falls back to the prime rent level of 2017.

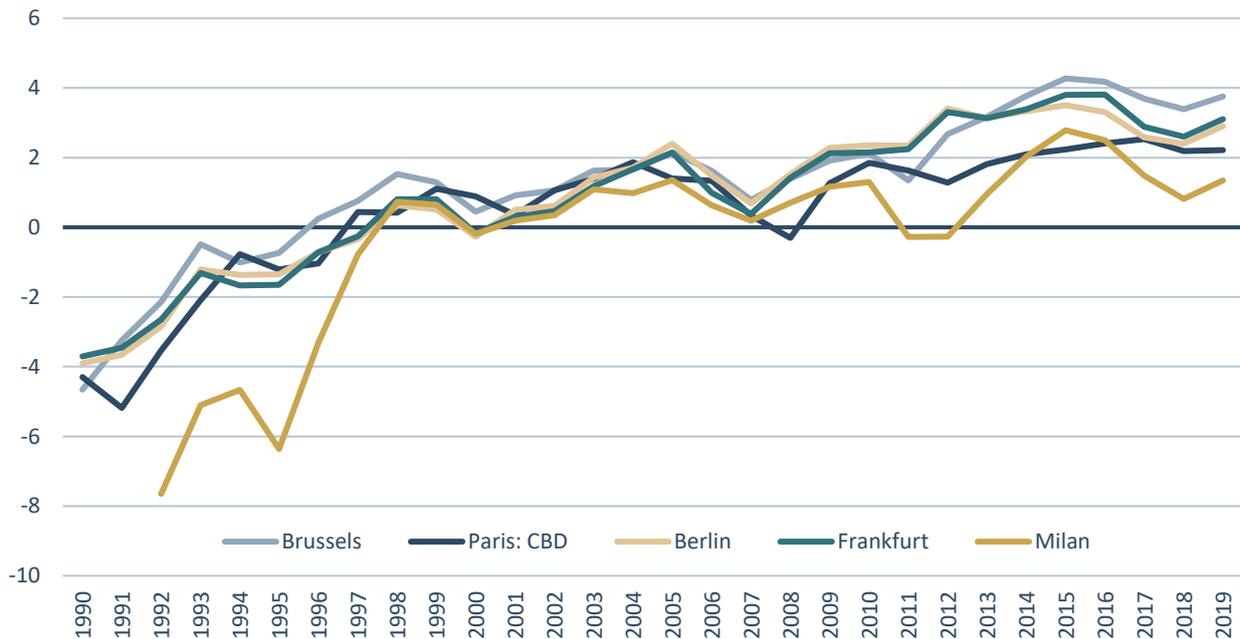
In general, the results for cities are interesting, but, of course, specific local factors like vacancies, new construction and the mix of tenants are not captured. The big picture, nonetheless, shows that rents in office markets will fall considerably – and this, in turn, will have an impact on prices.

5 Price effects of the economic crisis

Rent reductions diminish in a first step yields for office properties. Yields, however, will as well change as a result of adjusted expectations. In addition, the prime yield not only depends on the rental price expectations and the risk premium, but also on the interest rate level of a safe asset like sovereign bonds.

First of all, it is assumed that the interest rate for safe assets, i.e. sovereign bonds, tends to be stable. Given that states increase their debt level in all OECD countries, this may come as a surprise. However, at least two reasons support the idea of stable interest rates. Firstly, central banks combat a recession by increasing money supply considerably. For instance, the ECB has increased its bond purchasing programme by 750 bn Euro. Secondly, historic evidence shows that interest rates often fall in the aftermath of a pandemic as households and companies hold more liquidity (Jordá et. A., 2020). Of course, long-term interest rates fluctuate, but a sideward movement appears most plausible.

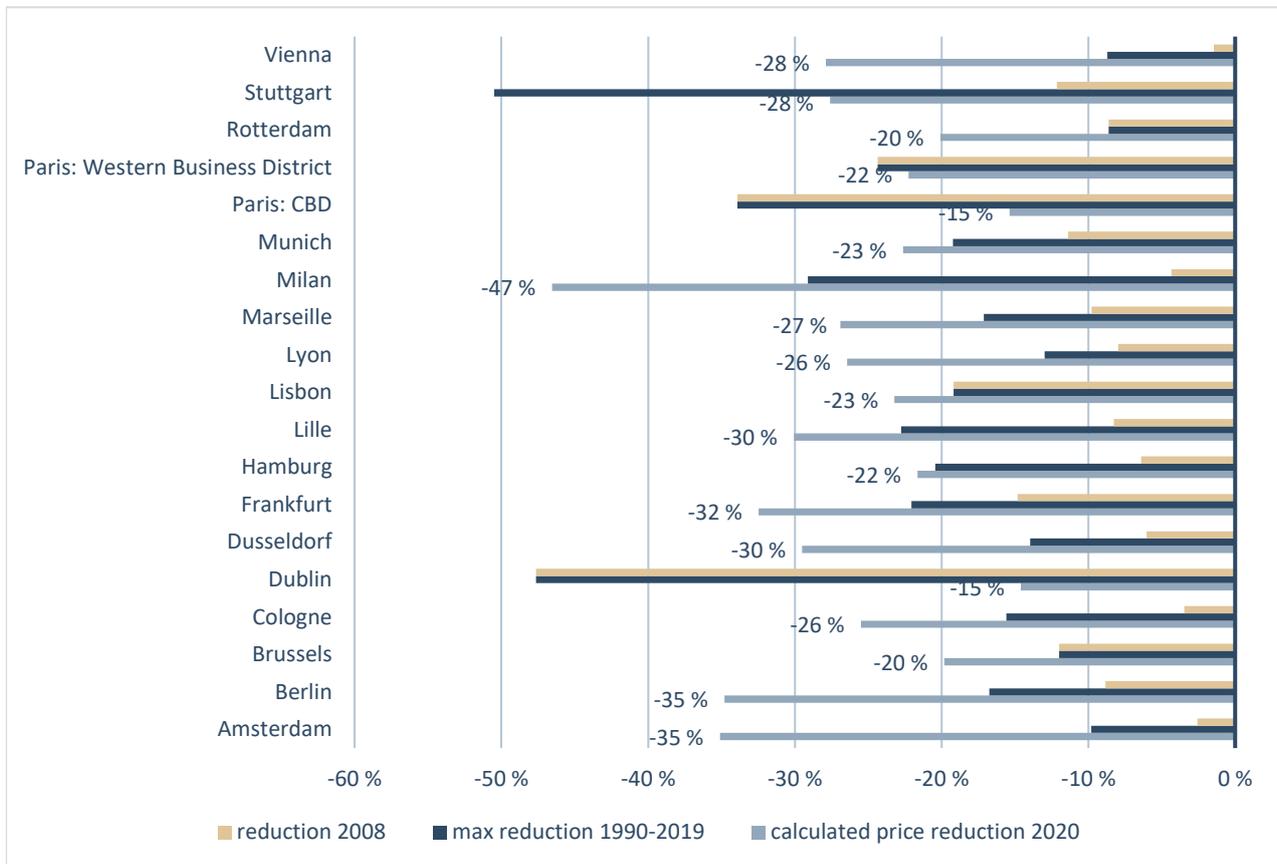
Against this background, the analysis can focus on the spreads. For illustration, the development of spreads for five European metropolises is displayed in Figure 5-1.

Figure 5-1: Development of spreads for selected European prime office markets


Sources: PMA; OECD; own calculations

Spreads develop by and large parallel, with differences in level, but barely with regard to trend. While spreads used to be negative in the 1990s, presumably based on optimistic expectations with regard to rents and the interest rate level, spreads have increased to levels of 1.4 percentage points in Milan and 3.7 percentage points in Brussels. The fact that office markets enter in this crisis with comparatively high spreads is a plus since higher spreads indicate a higher risk premium and dampened expectations with regard to rental price increases. However, as spreads are the result of expectations about future developments, a forecast on spreads is hardly feasible. Nonetheless, to give an idea of a likely impact on prices, it is assumed that spreads increase to the maximum spread in the period of 1990 to 2019. As Figure 5-1 shows, this spread was reached between 2014 and 2017 in most cases.

Based on this assumption and the calculated effect on prime rents, possible price effects can be derived. The results can be found in Figure 5-2.

Figure 5-2: Possible price effects of the Covid-19 pandemic on office markets


Sources: PMA; own calculations

In order to interpret the results, the price reductions in the wake of the financial crisis as well as the maximum annual reduction in the period 1990-2019 is listed. In most cases, according to the calculations, estimated price reductions exceed former price reductions. However, the current economic crisis seems to outperform the previous crisis and affects all kinds of economic activity. Thus, a stronger reduction of prices seems to be plausible. The range of possible price effects is between 15 and 47 percent. That price shocks are less severe in Dublin and Paris seems odd against a backdrop of very volatile markets, but this is an outcome of current high spreads in these markets. On the other hand, the fact that price effects in Milan are very significant seems plausible as the Italian economy is badly hit by the Covid-19 pandemic. Naturally, one can argue at length about each city. This analysis is kept simple and specific local factors, like construction activity, the mix of tenants and, for example, population growth are not included. Thus, the best way of viewing the results is to take a look at the average result and the range of effects. The mean value of price reductions is 26 percent, which is 5 percentage points higher than the average of maximum price reductions in the period of 1990 to 2019. The calculations, thus, indicate an exceptionally strong impact of the current crisis on the office market. Yet, such an exceptional impact seems to be likely if one takes into account that not only the cyclical economic upswing, but also a structural change can reduce the long-term demand for office space.

6 A perfect storm?

A perfect storm would not only entail an economic downturn, but also a longer-lasting effect due to structural changes.

Normally, office markets recover fast. After the financial crisis, and after the plummet in property prices, many markets experienced double digit growth rates in property prices. One reason for this fast recovery was the return of economic growth, but another factor was the reduction in interest rates. While an economic upswing is at least possible, a similar drop in interest rates like in the financial crisis or after the new economy crisis seems unlikely given already ultra-low interest rates. Maybe interest rates will drop slightly, but definitely not in a comparable manner to previous crises.

Yet, what really could turn out to be a burden for the office market is the drop in office space. In recent years, office demand increased as employment increased and disproportionately more jobs have been built up in the service sector. Now, with the Covid-19 pandemic, a lot of office workers and their employers have learned that working remotely does work, which meets with the aim of companies to reduce costs. According to a study by Bloom et al. (2014), working from home is associated in most cases with higher satisfaction; for instance the job attrition rate dropped by 50 percent. Home workers appreciate less commuting and a better work-life balance. Employers, on the other hand, want to save costs. According to a survey of Corenetglobal (2020), 69 percent of office tenants assume that their real estate footprint will be reduced, and 94 percent of respondents say that remote work will last beyond the current crisis (Bloom et al., 2014). According to a recent study by Dingel/Neiman (2020), some 37 percent of jobs in the US are eligible for remote work, while this share is even higher in some European countries and especially in big cities. It is unlikely, that in future this potential is fully used. More probably, remote work will increase, but remote and office work complement each other. Yet, even such a gradual shift might have a strong impact on office demand. In the short term, this effect might be offset by distancing rules, forcing employers to supply office workers with more space. Yet, in the mid or long term, office spaces can be reduced. According to a study by Capital Economics (Wood, 2020), an increase in remote working time by 10 percent would result in a drop in office demand by 5 percent.

However, this is not the only reason why office demand could drop. Another is the demand for office workers. The off-shoring of standardised office activities as well as the substitution of office workers with all kinds of artificial intelligence solutions has been widely discussed, but for now postponed (Acemoglu/Restrepo, 2018). One reason was the good economic performance in most countries, reducing the need to increase efficiency, especially when it results in firing workers. Yet, now the situation has changed, companies are forced to save costs and find more efficient solutions. For instance, in the banking sector efficiency could be increased by processing credit enquiries automatically by using machine learning tools to screen checking accounts (Jakšič/Marinč, 2018). Accounting is another activity that offers potential for efficiency gains.

Another reason why the current demand could result in less need for office workers is demography. All across OECD countries, baby boomers are preparing for retirement. As the workforce is therefore shrinking (as a result of low fertility rates), companies are forced to deal with fewer employees. Therefore, the current crisis could spur this development, demanding an earlier adoption of the potential of new IT techniques than planned.

As a consequence, the demand for office space could not only decrease in the short term, but also in the long term. This in turn would depress rental prices and rental price expectations, which could result in permanently lower prices.

7 Conclusion

The current economic crisis, which is due to the Covid-19 pandemic, is causing major challenges for all branches of the economy. One sector that could be hard hit is the office sector. First of all, past experience shows that office markets react strongly to economic up- and downswings. Thus a significant reduction in rents and prices is likely given the magnitude of the crisis. Yet, a fast recovery like in the past is less likely for structural reasons. Unlike after the financial crisis or the new economy bust, a considerable reduction in interest rates is hardly feasible given the already ultra-low interest rates. What is more, long-term office demand might be impaired since companies aim to reduce costs and workers prefer more remote work, at least gradually. In addition, companies could use the potential of digitisation in order to reduce employment. All in all, perspectives for the office market are therefore gloomy.

What does that mean for investors? Firstly, one should take into account that the data refers to the prime market, the trophy objects in the market, which always tend to react more strongly than the average market. Secondly, although office markets will shrink, there is still a need for offices. Remote work will increase, but the exchange of ideas, networking and discussing strategic plans, to name only a few, are still more efficient when people meet in an office. Presumably, there will be more intensive competition with new concepts and innovations that meet the new demand and needs of office users. For example, designing offices in a way that offers more flexibility for the exchange of ideas may give suppliers of offices a competitive advantage. Also, competition will discover whether centrally located offices are the best way to meet users' demands or if also satellite offices in suburbia are better suited to give commuting workers opportunities for personal exchanges, to give one example. Thirdly, there is still scope for new project developments. Yet, investors should check whether they can take precautions for possible reuses. For instance, including water pipes enables owners to rebuild an office into a residential property more easily.

Generally speaking, current developments pose a challenge to all office investors and will result most probably in losses, but also offer opportunities to those who are able to adjust quickly. Thus, market observers can look forward to intensive competition that not only is driven by the aim to save costs, but to make use of the potential of digitisation, meet workers' preferences and meet companies' needs.

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German Abstract

Die Covid-19-Pandemie gefährdet nicht nur die Gesundheit der Menschen weltweit, sondern verursacht auch eine wirtschaftliche Rezession. Angesichts der bisherigen Erfahrungen reagieren die Büromärkte, insbesondere der Prime Market, sehr stark auf konjunkturell abstürzende Märkte. In diesem Papier wird versucht, ein wahrscheinliches Szenario für die Auswirkungen in ausgewählten europäischen Büromärkten abzuleiten.

Basierend auf Daten von PMA (Property Market Analysis) werden in einem ersten Schritt die Auswirkungen des wirtschaftlichen Abschwungs auf die Büromieten im Prime Markt geschätzt. Infolgedessen könnten die Mieten in einer Spanne zwischen 5 und 23 Prozent sinken. In den meisten Fällen sind die Reduzierungen mit den Entwicklungen in vergangenen Krisen vergleichbar, in einigen Fällen übertreffen die Reduktionen diejenigen früherer Krisen. Angesichts der Schwere der Krise ist dies jedoch nicht unplausibel. Die Krise wird sich auch auf die Erwartungen auswirken, was sich wiederum auf die Preise auswirkt. Aufgrund einer Analyse der Spreads wird ein wahrscheinlicher Effekt auf die Preise abgeleitet. Die Preise werden demnach um 15 Prozent bis 47 Prozent sinken. Offensichtlich können die Ergebnisse kritisch betrachtet werden, zumal lokale Faktoren nicht berücksichtigt wurden. Daher sollten Ergebnisse für einzelne Städte mit Vorsicht betrachtet werden, aber dennoch zeigt der Blick auf die Gesamtergebnisse sehr deutlich, dass der Abschwung auf dem Büromarkt gravierend sein wird.

Darüber hinaus besteht das Potenzial für einen „perfect storm“ in den Büromärkten, da auch strukturelle Veränderungen wahrscheinlich sind. Insbesondere werden die Arbeitnehmer auf mehr Homeoffice drängen, und die Arbeitgeber werden dies wahrscheinlich befürworten, um Kosten zu sparen. Auch die Digitalisierung bietet mehr Kosteneinsparungen im Hinblick auf den Personaleinsatz. Dadurch könnte die Büronachfrage langfristig beeinträchtigt werden, was Eigentümer und Investoren im Büromarkt vor langfristige Herausforderungen stellt.

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