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German office market

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Traditional office will remain at the centre of economic activity

- **The aggregate number of office workers is likely to rise by about 62,500 in 2021 and 92,500 in 2022, respectively**. The aggregate figure for the 126 cities in our sample looks set to increase from 7.8 million in 2019 to 7.9 million in 2022.
- **By the end of the decade, the number of office workers will probably be significantly above 8 million.** There are several reasons for this development. One of them is high net immigration, another a more flexible handling of remote working standards, particularly as the population is ageing.
- **Demand for office space will depend to a large extent on developments in the area of remote working.** A complex mix of numerous factors, such as the remote work ratio, the remote work intensity and the concentration of remote work on certain weekdays plays a key role.
- **Remote work may certainly reduce demand for office space considerably.** While our projections are currently subject to unusually high uncertainty, they show that demand for office space will remain high even if remote work becomes much more popular. We still expect the traditional office to remain at the centre of economic activity. From our vantage point, any funeral odes to traditional offices are premature.
- **Our analysis does not take into account the impact of digitisation beyond the issue of remote work.** Demand for office space may rise or fall during the decade, as digitisation will, on the one hand, create many new jobs and may, on the other, lead to significant job losses.

2020: The no. of office workers probably remained largely unchanged

As the economy slumped in spring 2020, about 700,000 people lost their work. The number of self-employed people and mini jobbers fell most. The labour market stabilised afterwards, and the aggregate number of workers moved sideways, at about 44.5 million. Short-time work schemes prevented a more significant decline in the number of workers with a job that is fully subject to social security contributions. In fact, the number of these employees remained roughly constant and amounted to about 33.5 million in February 2021. Most office workers have jobs that are subject to full social security contributions. This suggests that their number remained roughly unchanged from 2019. All in all, it seems that about 14.8 million people are working in an office in Germany, with about 7.8 million of them doing their jobs in the 126 cities in our sample.

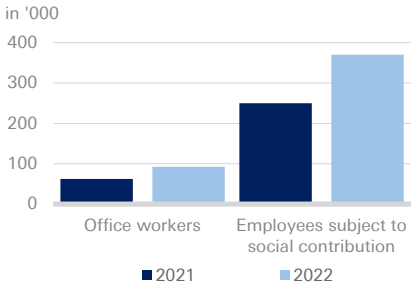
Outlook for 2021/2022: The number of office workers is likely to rise

Following a weak Q1, we forecast a significant upswing for the remainder of 2021. Most of the more than 2 million employees who are currently working short hours will probably return to full working hours. New jobs may be created in some sectors, even as a greater number of insolvencies is likely to lead to fewer jobs in others. Overall, we expect the number of employees in jobs subject to full social security contributions to rise by about 250,000. The labour market is likely to overcome the corona crisis completely by 2022. The lack of qualified labour looks set to become the predominant issue again by then. All in all, the number of jobs subject to full social security contributions is likely to rise by about 370,000. In the past, about half of this total increase took place in the 126 cities in our sample. Office jobs will probably account for half of the total new jobs in these cities. These ratios are unlikely to be impacted by the discussion about remote work. Ultimately, this means that the number of office workers will probably rise by 62,500 in 2021 and by about 92,500 in 2022, respectively, to a total of 7.9 million. Between 2009 and 2019, the average annual increase was considerably stronger, at about 105,000. Our calculations already include the impact of the pandemic on the economy.

Office market in 2020: Higher vacancy rates in 57 out of 126 cities

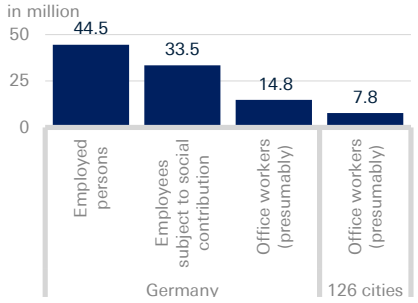
Due to the corona crisis, vacancy rates rose by 0.3 of a pp, to 3.8%, in 2020, after having declined steadily from 8.2% in 2011. One reason for the increase in vacancy rates is that available space increased by about 1% in net terms in 2020 (2009-2019: 0.6% p.a. on average). This means that available office space in the 126 cities in our sample increased from 187.1 m to 188.9 m sqm. Vacancy rates rose most in the large cities, but the development was not limited to them. The strongest increases, by about 1 pp each, took place in Krefeld, Mannheim, Munich, Oberhausen, Ratingen, Stuttgart and Wiesbaden. It is still true that vacancy rates tend to be lower in larger cities. Average vacancy rates in smaller cities remained roughly unchanged in 2020. In eastern Germany, they even fell marginally overall, with larger declines being registered in some cities. It seems that supply in these locations shrank due to the pandemic. Many properties that had proved difficult to let were probably withdrawn from the market. Despite the considerable increase, the vacancy rate in Germany as a whole is still below its historical average of about 5%. This also applied to 89 out of our 126 cities in 2020. Moreover, the vacancy rate was below 3% in 38 cities and even below 2% in Albstadt, Berlin, Braunschweig, Erlangen, Freiburg, Göttingen, Jena, Ludwigshafen, Münster, Regensburg, Tübingen, and Wolfsburg.

Figure 1: 2021 and 2022 increase in employment in 126 cities expected



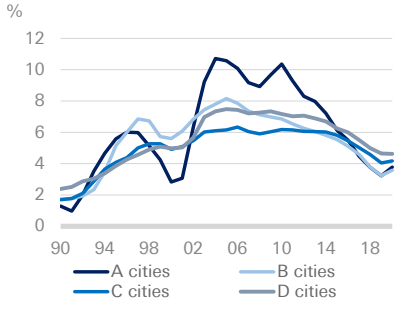
Source : Deutsche Bank Research, Federal Statistical Office

Figure 2: 2021 Employment situation



Source : bulwiengesa, Deutsche Bank Research

Figure 3: 1993-2020 Office markets in 126 cities: Vacancy ratio



Source : bulwiengesa, Deutsche Bank Research

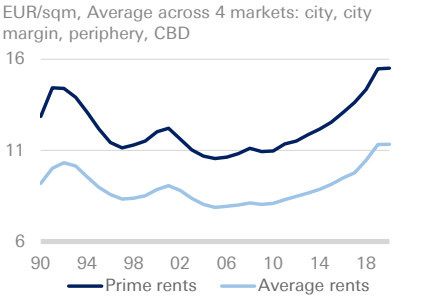
Office market in 2020: Stagnating rents despite the boom in remote work

Despite the corona crisis and the spike in remote work, both top and average rents for newly let space moved sideways. This applies not only to the different city categories (ABCD), but also to the different submarkets (city, city margin, periphery and CBD locations). In 2020, average, population-weighted top rents in our 126 cities remained at EUR 15.50/sqm and average rents stayed at EUR 11.30.[1] Rent yields also remained unchanged, at 4.2% for city-centre properties and 5.6% for properties outside the city centres.[2] Economic uncertainties and the potential drop in demand due to the discussion about remote work on the one hand and steadily increasing supply shortages for office space on the other seem to have offset each other.

Some formulas: Modelling demand for office space

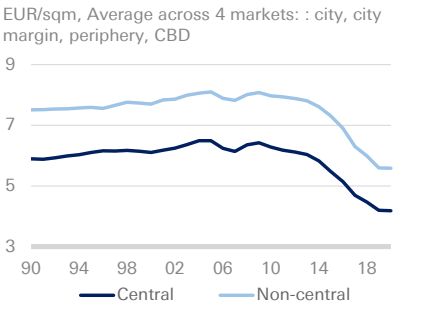
We will now describe the basis for our two demand scenarios until 2030. Demand for total space consists of demand for traditional office space and demand for more residential space by those employees who work some of the time from home.[3] In this article, we will take a look at demand for office space (Figure 1). Demand for office space can be calculated by multiplying the average space per office worker by the number of employees working at the traditional office. Employees fall into two categories, namely those who only work at the office and those who work some of the time at home and the remainder at the office. Remote employees will work more of the time at the office if their remote work intensity, defined as the number of weekdays spent at home, is lower. Demand for office space by remote workers will also depend on how the days spent at the office are distributed across the week. Potential space savings will be largest if the days spent at the office are distributed evenly across the work week. If, however, all remote workers go to the office on the same day of the week, no office space will be saved. Demand for total office space will also depend on how workers distribute their total number of remote work days among themselves. If many employees work rarely at home and a few of them do so often, the impact on office space demand will be different than if all workers spend roughly the same number of days at home. Other factors, such as the number of part-time and full-time workers, will also influence the result.[4]

Figure 4: 1990-2020 population-weighted office rents across 126 cities



Source : bulwiengesa, Deutsche Bank Research

Figure 5: 1990-2020 population-weighted yields across 126 cities



Source : bulwiengesa, Deutsche Bank Research

Figure 6: Our model for analysing potential demand for office space

$$OD = \frac{OD}{OW} \; x \; OW = \frac{OD}{OW} \; [TOW + ROW] = \frac{OD}{OW} \; [OW(1 - RWR) + OW \; x \; RWR \; x \; (1 - RWI \; x \; DoWD)]$$

Legend: OD = demand for office space, OW = no. of office workers, TOW = Office workers which only work in the traditional office, ROW = office workers who work partly remotely, RWR = ratio of remote workers to all office workers in %, RWI = remote work intensity = share of weekdays working remotely in %, DoWD = Distribution on weekdays = indicator which is one if the remote workers distribute their remote working days equally across the whole week (maximal reduction in office demand through remote work = low demand for office space) and which is 0, if the remote workers focus their working days in the traditional office exclusively on certain days (no reduction in the demand for office space).

Source : Deutsche Bank Research

1 The rent averages are based on all four submarkets.
2 Excluding the adjustment for population figures, the averages amount to EUR 10.7/sqm and EUR 8.1/sqm, respectively and to 5.2% and 7.1%, respectively.
3 We have discussed the issue of residential space needed for working from home in our publication "Working from home. Be careful what you wish for", September 2020, DB Research.
4 Take a simple example. Assume that one company employs two people who arbitrarily distribute their remote work days across the week. Case A: Two employees spend two days per week at home, case B: one employee spends three days per week at home, the other only one. While the sum of remote work days is four in both cases, the probability that both or one of the remote work days fall on the same day is $\frac{\binom{2}{2}\binom{3}{0}}{\binom{5}{2}} + \frac{\binom{2}{1}\binom{3}{1}}{\binom{5}{2}}$ + = 0.1 + 0.6 = 0.7 in case A and $\frac{\binom{3}{1}\binom{2}{1}}{\binom{5}{1}}$ = 0.6 in case B.

These factors are taken into account by the "DoWD" variable in our model, which shows how remote working days are distributed across the week. As a rule, the higher the remote work ratio (RWQ), the higher the remote work intensity (RWI) and the higher DoWD, the lower demand for office space will be.

Two scenarios for demand for office space until 2030

Based on our model, we will now describe two scenarios for office space demand in the future. These scenarios should not be taken as forecasts; rather, they describe on the basis of key model parameters how demand for office space may develop until 2030. For our first scenario, we have chosen parameters that imply relatively low demand for office space, and for the second, we have chosen parameters which imply high demand. The two scenarios thus describe extreme outcomes within the parameters we have set. The table on the side gives an overview of the values, which we will explain below.

Parameters for the number of office workers: By 2030, more than 8 million people are likely to work in offices in the 126 cities in our sample

We believe that the number of office workers will continue to rise during the current decade. Once the corona crisis is over, we expect net immigration to come to more than 300,000 people each year. The strong immigration will delay the demographic decline of the working-age population, which may not reach its peak until after 2030. And even if the workforce begins to decline earlier, the number of workers in jobs subject to social security contributions and the number of office workers may continue to increase for some years to come. Between 2009 and 2019, both figures rose considerably more strongly than the total workforce. Moreover, numerous older people might be interested in continuing to work. Office jobs with flexible remote working options would be ideal for this group of employees, particularly if serious illnesses or other living circumstances that require more freedom in working hours need to be taken into account. That is one reason why we do not expect the number of office workers to decline until 2030. We assume that the number of office workers rises by 49,000 each year in the scenario with low office space demand and by 105,000 each year in the scenario with high office space demand. 105,000 is actually the average for the years 2009 – 2019, and 49,000 is equivalent to the lowest increase during this period, which was registered in 2010. In addition, we assume that space per capita remains constant at its 2019 level (23.3 sqm). This assumption may be too cautious. First, it is possible that workers do routine tasks from home in the future and prepare and discuss creative, communication-based projects at the office. Second, many workers expect that they will increasingly be able to decide themselves where they are going to work. Many employers may therefore try and increase the attractiveness of traditional offices in order to lure their workers to the office. As a result, the quality of office properties may become more important on the market. Either of these two trends may increase the office space per capita. However, we have no idea of the potential increase in the per-capita space. That is why we stick to 23.3 sqm per capita. Still, higher per-capita space may drive total demand up.

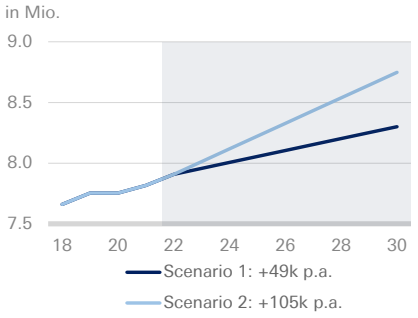
Figure 7: Two scenarios for the demand for space: Overview of key parameters

Scenario	Factor of the remote work ratio	Remote work intensity	Distribution on weekdays
	RWR	RWI	DoWD
	dimensionless	in %	[0,1]
1	1.2	50	0.6
2	1.0	30	0.4

Scenario	Growth in no. of office workers	Office space per office worker
	OW	OS
	in k p.a.	in sqm
1	49	23.3
2	105	23.3

Source : Deutsche Bank Research

Figure 8: 2018-2030 Annual growth in employment in 126 cities

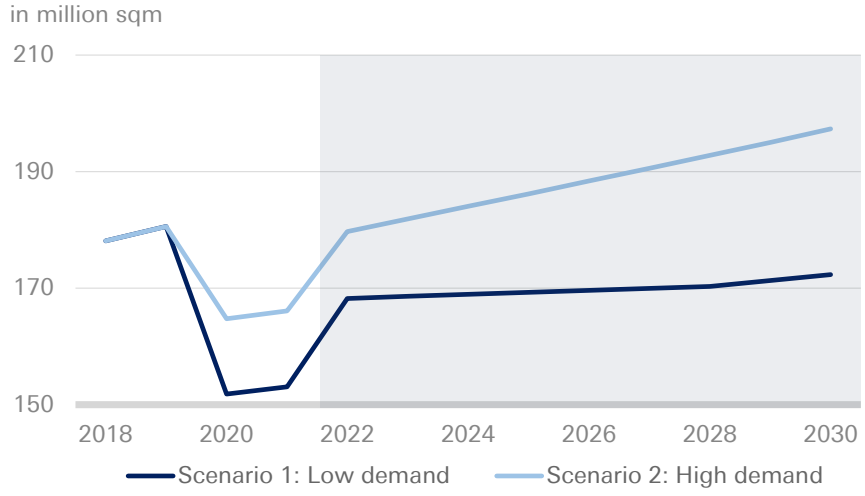


Source : Deutsche Bank Research

Parameters for remote work: Ratio, intensity and distribution of remote work days across the week

The May 2021 issue of our Focus Germany publication contains a projection of potential remote work ratio developments in the coming years. In 2021 and 2022, the average remote work ratio will probably amount to 29% of all employees. It looks set to rise palpably later on and reach its maximum towards the end of the decade. We believe that 35% is a reasonable guess. The ratio may be higher for office workers, which is why we multiply it by 1.2 across the decade for the low-demand scenario.At the same time, remote work intensity is likely to rise strongly. Numerous enterprises signal that a mix of two days per week spent at home and three days at the traditional office is likely to become the new post-corona normal. This would put the remote work intensity at 40%. We have used 50% for the first and 30% for the second scenario. Taken by itself, remote work intensity does not yet imply that demand for office space is going to decline. Workers will probably try to put their office days in the middle of the work week. If all office workers come to the office from Tuesdays to Thursdays and work at home on Mondays and Fridays, employers will still need to provide the same amount of office space. Moreover, employers might find it useful to introduce mandatory office days. We believe that most of them will do so, as having all workers at the office will make it possible to hold spontaneous meetings without having to rely on technology. Moreover, regular office days will make it easier to make progress with communications-intensive projects and improve corporate culture as team members can have lunch together or meet in person. At the same time, there is a limit to attempts to concentrate employees' presence at the office to a few workdays. Operative requirements and employer incentives will also utilize offices on Mondays and Fridays, too. We believe that, in practice, DoWD is unlikely to reach extreme values. Rather, it will regularly hover around 0.5. We have put it at 0.6 in the first and 0.4 in the second scenario.

Figure 11: 2018-2030 Office market in 126 cities: Demand

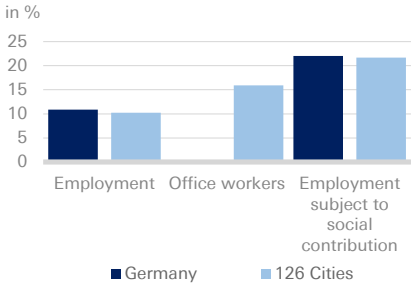


Source : bulwiengesa, Deutsche Bank Research

Demand for office space likely to rise until 2030

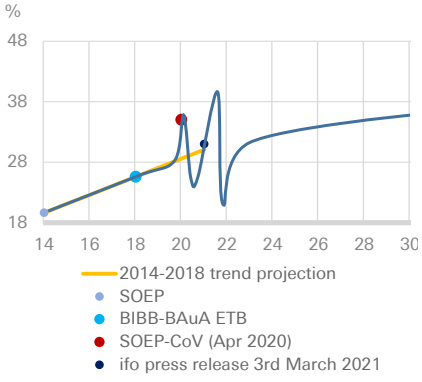
Based on the parameters for the number of office workers, office space per capita and the three remote work variables (RWQ, RWI, DoWD) discussed above, we can now calculate potential demand for office space. In 2019, aggregate demand for office space in the 126 cities in our sample amounted to 180.6 m sqm. The figure

Figure 9: 2009-2019 Labour market: Employment growth in Germany and in 126 cities



Source : bulwiengesa, Deutsche Bank Research, Federal Statistical Office

Figure 10: 2014-2030: Percentage of those who work from home (potential scenario)



Source : SOEP, BIBB-BAuA, Labour Force Survey 2018, cesifo Forum Alipour, Falck et al (2020)

below illustrates how demand for office space may develop until 2030 under the assumptions made above.

The first, low-demand scenario suggests that post-pandemic demand will be relatively steady, at about 170 m sqm. The effects of the rising remote-work ratio and the larger number of office workers will roughly cancel each other out by the end of the decade. The second scenario sees demand decline to 179.7 m sqm in 2022 and rise successively to 197.3 m sqm by 2030 as the number of office workers increases. This is equivalent to about 10% growth during the decade.

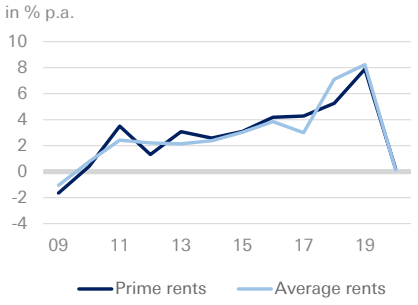
The two scenarios imply highly different market equilibria and different trends in rents

The first scenario implies a decline in supply, as demand slides. Many construction plans may be delayed or cancelled. If we assume an annual supply decrease by 0.2%, the vacancy rate will nevertheless decline slightly during the decade (see figures 15-22). In our second, high-demand scenario, we simply assume that the annual supply growth rate of 0.8% per year registered between 2009 and 2020 remains unchanged until 2030. In that case, demand, supply and vacancies will develop as described above, and there will be no crisis on the office market. The corona-related declines in demand and the high vacancy rates in 2020 and 2021 described above will probably have only a limited impact on the market. Our projections will not really apply until 2022 and beyond. Our different projections of the vacancy rates and the ratio between vacancy rates and rent growth lead to considerable differences between the two scenarios for the period until 2030. Our forecasts for top and average rents are almost identical in both scenarios, as the two variables show similar marginal effects. Between 2009 and 2019, a decline in the vacancy rate by 1 pp led to an increase in annual rent growth by 1.6 pp on average. In the first scenario, rent growth will remain negative until 2028 due to high vacancy rates. In the second scenario, rent growth will turn positive again from 2022. Nevertheless, rents will grow much more slowly than before the pandemic. In 2019, both top and average rents grew at a rate of about 8%, whereas the second scenario foresees rent growth of only 2.4% for 2022.

Summary and final assessment

We have developed and described two highly different scenarios. The first implies a slump in office space demand, which will cause supply and rents to decline for years to come. Still, even in this relatively pessimistic scenario demand will decline only by slightly more than 10% compared to the pre-pandemic situation. The second scenario implies that demand for office space will steadily rise after the pandemic. Moreover, the baseline in 2022 is only slightly below the pre-pandemic level. With a small decline in demand and a further increase in supply, the vacancy rate will nevertheless increase in 2022 and not return to its low pre-pandemic level until the end of the decade. However, rent growth will be positive from 2022 onwards and accelerate steadily during the decade. We are still skeptical about the remote work hype, which seems to be abating, and believe that the remote-work ratio and remote-work intensity will increase gradually and reach an upper limit during the coming years. That is why we think that the second scenario gives a better picture of the future. In either scenario, the traditional office will remain at the centre of economic activity. Neither scenario considers upside risks, such as more space per capita or a stronger increase in the number of office workers.

Figure 12: 2009-2020 Office market in our 126 cities: Rent growth



Source : bulwiengesa, Deutsche Bank Research

Figure 13: Potential impact of higher quality requirements on office properties after the pandemic

The different adaptability of existing office properties to new user demands will probably be a non-negligible issue after the pandemic. If it is particularly expensive or difficult to refurbish a property, it may be withdrawn from the market. The resultant decline in supply may reduce potential vacancies. This development may help to prevent excessive post-pandemic market imbalances and to cushion a potential decline in prices or rents.
Moreover, the office market may become more differentiated. There may be a market for high-quality properties suitable for creative work, intensive communication, large client meetings or company parties and another market for standard properties, which meet current, traditional requirements and enable employees to do traditional office work.

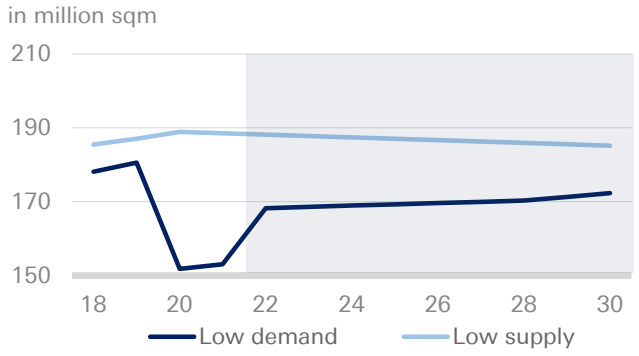
Source : Deutsche Bank Research

Figure 14: Beyond the remote-work issue, digitisation may hold both upside and downside risks to our forecast for the years until 2030

- During the coming decade, digitisation, in particular automation based on big data and artificial intelligence, is likely to both generate and destroy many jobs. The net impact is unclear.
- History has shown that such disruptions dampen demand for labour only in the short term, if at all. As a whole, they tend to provide positive stimulus.
- However, digitisation is not fully comparable to many other technological disruptions. One aspect in particular is new: jobs which traditionally require an academic background, such as journalists, translators or researchers, may get lost. That is why uncertainty is particularly high.
- What makes us cautiously optimistic is that the broad-based introduction of computers during the 1980s and 1990s did not reduce the number of office jobs in Germany.
- All in all, compared to our scenarios, which focus on the remote work issue, digitisation will harbour both upside and down-side risks to demand for office space.

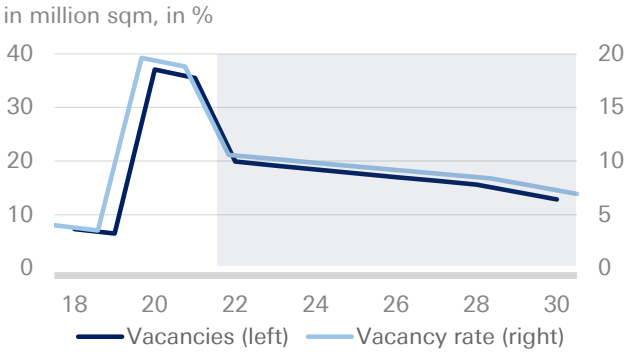
Source : Deutsche Bank Research

Figure 15: 2018-2030 Office market in 126 cities: Scenario 1 Supply and demand



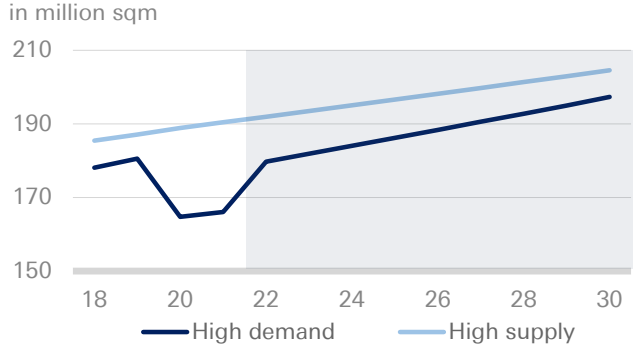
Source : bulwiengesa, Deutsche Bank Research

Figure 16: 2018-2030 Office market in 126 cities: Scenario 1 Vacancy and vacancy rate



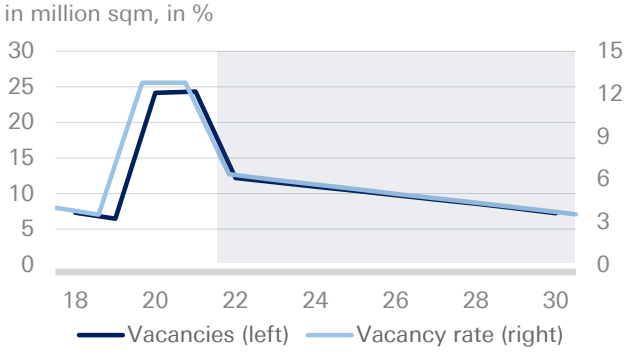
Source : bulwiengesa, Deutsche Bank Research

Figure 17: 2018-2030 Office market in 126 cities: Scenario 2 Supply and demand



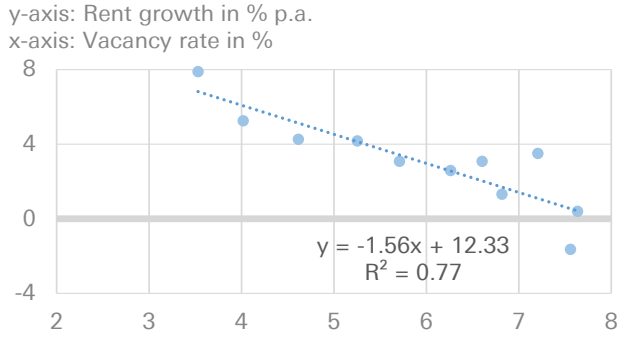
Source : bulwiengesa, Deutsche Bank Research

Figure 18: 2018-2030 Office market in 126 cities: Scenario 2 Vacancy and vacancy rate



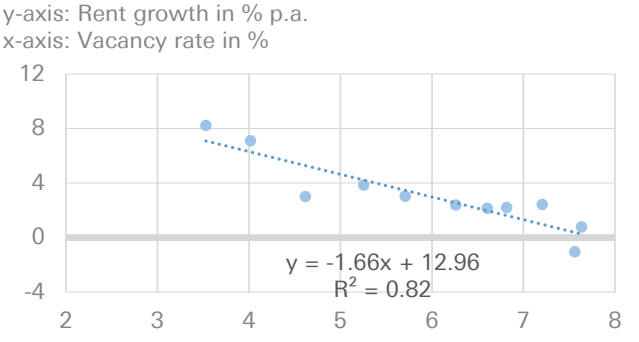
Source : bulwiengesa, Deutsche Bank Research

Figure 19: 2009-2019 Office market in 126 cities Vacancy rate vs. prime rents



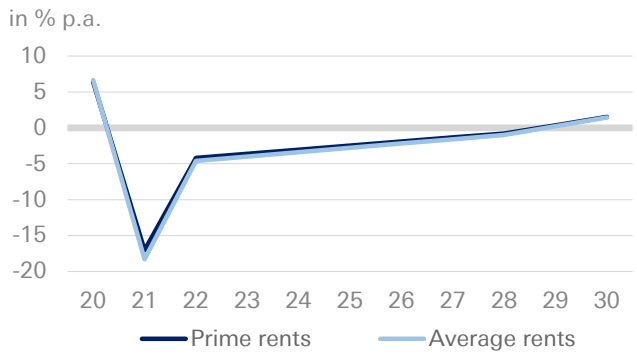
Source : bulwiengesa, Deutsche Bank Research

Figure 20: 2009-2019 Office market in 126 cities Vacancy rate vs. average rents



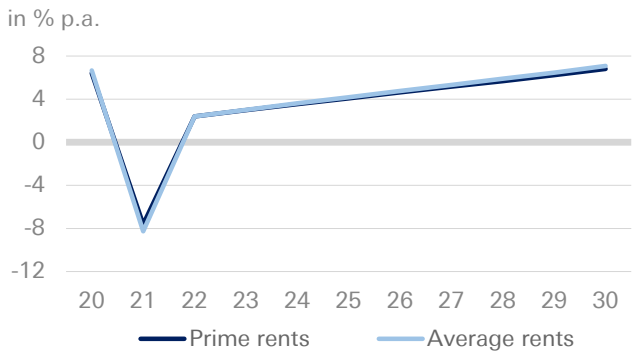
Source : bulwiengesa, Deutsche Bank Research

Figure 21: 2020-2030 Scenario 1: Rent growth based on vacancy rate



Source : bulwiengesa, Deutsche Bank Research

Figure 22: 2020-2030 Scenario 2: Rent growth based on vacancy rate



Source : bulwiengesa, Deutsche Bank Research

Appendix 1

Important Disclosures

*Other information available upon request

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