9 September 2021

A TALE OF TWO CLASSES: PRIME OFFICE SUPPLY IN LONDON AND PARIS

Economic historians tell us that the Black Death helped birth the domestic silk industry in Europe. Until the fourteenth century, silk was mainly imported from Asia. But the Black Death led to a consolidation of European wealth, which funded fresh investment in fixed capital, enabling local entrepreneurs to produce silk at scale for the first time. As we'd expect, the Covid-19 pandemic has already bred some new industries, too—for example: the cottage industry of "thought leaders" and writers who hold forth about the death of the office and the birth of "distributed work". We have monitored this one closely over the last year. As you could probably guess, though, we're not buying what these pandemic entrepreneurs are selling.

In short, their predictions about a new status quo—where remote work rules, offices empty out for good, and office buildings lose virtually all value—strike us as overgeneralised. That's because we believe that composition matters a lot: office buildings come in different varieties, and, going forward, these differences will loom increasingly large. Although some sub-classes of office space will no doubt struggle, other sub-classes will thrive. We have plenty to say about this idea, but here we want to focus on the narrower point that prime office space in select gateway cities, like London and Paris, will do just fine. We think this view is already borne out by what's happening in actual real estate markets.

In London, top-flight office space outperformed in 2020. Despite sluggish take-up, prime rents held the line, and capital values rose. London's prime office market owes its resilience to persistent demand on the part of blue-chip tenants, which evidently don't intend to embrace the distributed work model: Latham & Watkins signed a 15-year, 220,000 sq ft lease at £81 per sq ft in the City of London, and TikTok agreed a 15-year, 90,000 sq ft lease at £85 per sq ft in Farringdon. Latham & Watkins and TikTok are not exceptions. Active requirements for office space in Central London and the City now total approximately 7.1 million sq ft, up from the five-year average of about 6.4 million sq ft. Meanwhile, with developers spooked into retreat by the pandemic, new starts in the first quarter of 2021 fell by about a third year-over-year. We think these facts point to a widening gap between supply and demand in the market for best-in-class office space in Central London.

Notably, London isn't alone. We see a similar imbalance emerging in Paris, where the market for top-quality office space is increasingly strained, too. Although take-up in Greater Paris suffered last year—registering just 1.3 million sq m, about 45% below the city's take-up level in the year prior—prime yields barely moved. As of March, prime CBD yields stood at 2.75%, unchanged from a year earlier, and 10 bps below their pandemic-era peak of 2.85% in September 2020. Meanwhile, prime rents in Paris increased by 7% last year, reaching €935 per sq m in the first quarter of 2021. As we saw in London, prime rents in Paris were shored up by stable demand on the part of blue-chip tenants. For example, last year, Boston Consulting Group agreed a 20,000 sq m lease at L1VE, and Goldman Sachs agreed a 6,500 sq m lease at 83 Marceau. When completed, both buildings will be brand-new redevelopments, located in the swanky 16th arrondissement. So much for cutting costs by abandoning the office, right?

Although traditional blue-chip tenants continue to want grade A office space in Paris, a broader "flight to quality" means that non-traditional occupiers will increasingly want top-tier space, too. This growing preference for quality is driven by several factors, including tenants' interest in showcasing their ESG bona fides and their desire to entice employees into the office with five-star workplaces. As occupier preferences upgrade, prime-office supply will struggle to accommodate demand. Just like in London, offices in Paris are often old, refurbishment is difficult, and new development is costly. That makes high-quality buildings precious. The fact that prime rents increased last year, even amid the chaos of the pandemic, illustrates just how tight the market already is. All told, prime office space in Paris remains sought-after and expensive.

GROWING PAINS: OFFICE REAL ESTATE TODAY VS. INDUSTRIAL REAL ESTATE A DECADE AGO

As we said, though, not all office buildings are alike. Office real estate is growing increasingly bifurcated between high-quality prime space and lower-quality sub-prime space. While we're confident that demand for prime space will hold up well, we think that sub-prime space is due for a long and painful correction; the existing stock of sub-prime office supply is just not capable of accommodating the

demands of future occupiers. Unless owners can figure out how to make their buildings better fit-for-purpose—which won't be easy—these properties will languish. In that way, we believe that office real estate today bears a close resemblance to industrial real estate a decade ago.

A decade ago, industrial real estate seemed trapped in a strange position. With the advent of e-commerce, the logistics industry had entered a period of enormous disruption. First, occupiers wanted large warehouses to accommodate soaring volumes of shipped goods. But existing sheds were mostly too small. Second, as stored products turned-over faster and faster, operators started to automate warehouse processes that had previously been done manually. Automated warehouses use vertical racking systems, which stack pallets high, enabling occupiers to squeeze more goods into their sheds. But old warehouses had lower-than-optimal ceilings. (Before automation, it was too burdensome to deposit and retrieve packages placed 25 ft above the ground, so height was less important.) Third, location mattered more now, too, since distribution warehouses had to be situated near major population centres to support swift deliveries. But many warehouses were located in the middle of nowhere. (This worked fine when goods moved between relatively few distinct locations.) So, although occupiers needed warehouse space, the old stock of warehouses often wasn't well-suited to their new operational requirements. Sheds had to be bigger, taller, and better-located.

We see analogues to that predicament in the office market today. On the one hand, a portion of the office stock in cities like London and Paris consists of recently built, high-quality buildings. As we observed above, occupier demand for this sub-market has held up well in the last year, and we believe that that "flight to quality" will accelerate. This only represents a small part of the market, though. On the other hand, London and Paris have millions of square feet of old, stodgy, and environmentally unfriendly office space. As occupiers demand newer, prettier, and more sustainable buildings, few tenants will want that space, except at dirt-cheap rents. We believe that companies will still want to lease office space—but we think that the type of building they want will evolve, and that the existing office stock won't cut it.

What happened to all those outdated sheds? Some warehouses—especially ones in locations ill-suited for distribution—wasted away, collecting low rents from mediocre tenants. But a lot changed. Industrial developers with enough vision (and patience) bought other warehouses, demolished them, and constructed new ones that could meet the requirements of modern occupiers. Companies like Amazon undertook similar development projects. Within a decade, industrial real estate was remade. Compared with sheds built just a decade earlier, new warehouses in the United States were 143% larger and 13% taller. New distribution warehouses, in major population centres, were considerably larger and taller still. Warehouse rents soared, too.

The future of sub-prime office buildings in major cities is less clear. Refurbishing old buildings isn't straightforward. Floorplates are often too small, and, in London, many old buildings are listed, which means that developers can't just knock them down. *Something* will have to change, though. Part of the solution will involve offsetting mediocre building-quality with higher levels of services and flexibility. Yet more will be needed in the long run. Indeed, warehouses outperformed in the last decade—but only after undergoing an expensive correction, which left them better-equipped to suit occupier needs. As they grapple with their own futures, office owners should look for lessons.

HOT SPOTS IN COLD STORAGE: RISING DEMAND FOR TEMPERATURE-CONTROLLED WAREHOUSES

Think of cold storage as a solution to a problem that's created by the convergence of four facts. First, we like to consume perishable food. Second, perishable food is produced and consumed in different locations, often weeks or months apart. Third, the microbes that spoil food thrive in moderate temperatures (i.e., between 20 °C and 45 °C). Fourth, we tend to live in moderate-temperature climates, or at least in places where temperatures often fall within that moderate range. You probably get the point: so long as we want our perishable food to arrive unspoiled, we need a way to temperature-control that food as it travels along the supply chain. At the most fundamental level, that's what cold storage solves.

This set-up points to the basic levers that tug at demand for cold storage. **If we adjusted the intensity of any one of these four facts—for example, if everybody relocated to the Arctic, or if consumption preferences tilted in favour of non-perishables—then we'd observe a change in demand.** In the next

few years, we expect these kinds of adjustments to elevate demand for cold storage warehouses and for the services that their operators provide.

But a reality check is in order first. Last year, the pandemic dragged cold storage into the spotlight. This was big news for a typically unglamorous corner of industrial real estate. While virtually all vaccines need to be kept chilled, most Covid-19 vaccines require storage at especially low temperatures. (Initial guidance required Pfizer's to be long-term stored at -80 °C, although that's due to be relaxed.) As government officials started plotting the logistics of vaccination roll-outs, worries about cold-chain infrastructure loomed large. Last September, British newspapers warned that the country's shortage of refrigerated lorries and cold storage space would delay vaccinations by two years. A month later, JLL proclaimed that "a potential vaccine is creating a boom in cold storage". We're still waiting.

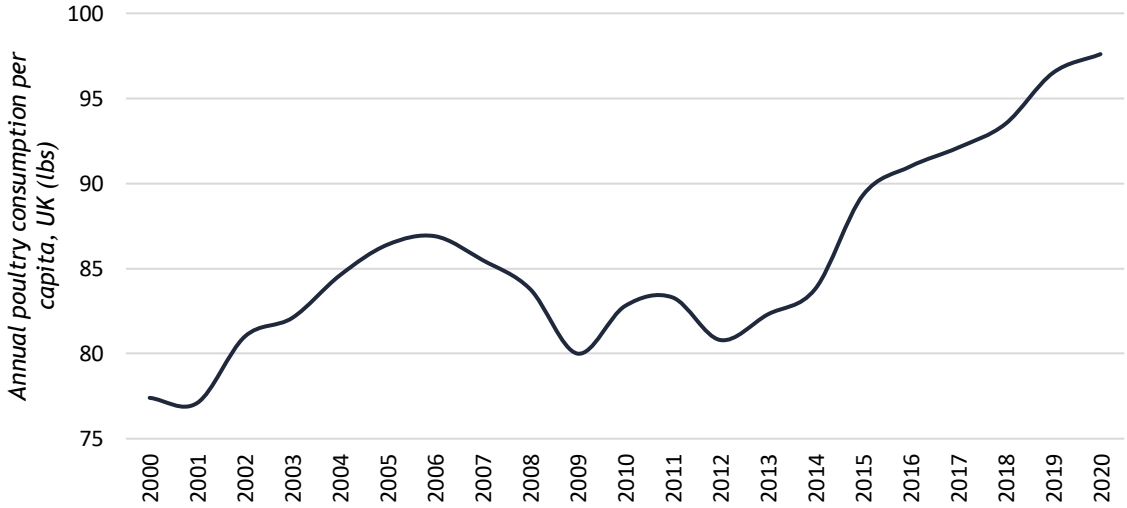
Indeed, with the benefit of hindsight, predictions about a giant vaccine-induced demand shock now look misdirected. Although supply chains had to be reconfigured to support the inoculation push, it's difficult to see how vaccinations could have overwhelmed the existing stock of cold storage warehouse space.

A little back-of-the-envelope math suggests why. A single warehouse pallet can hold about 36,000 doses of Astra-Zeneca's vaccine. Let's suppose (generously) that the UK will administer 130 million Covid-19 vaccines each year. (We assume two booster jabs per year per person in a population of about 65 million.) This translates into about 3,600 pallets over the course of a whole year. However, the vaccines will be produced and injected throughout the year, which means that this storage will not occur simultaneously. If we suppose (again, generously) that the pallets turn over just twice per year (i.e., once per booster), then Covid-19 vaccines will only require 1,800 pallets of dedicated storage space. If you want to put that figure in perspective, consider that a single, mid-sized cold storage warehouse can hold at least 30,000 pallets. Despite the conventional wisdom, we therefore doubt that demand for cold storage real estate will be driven in large part by vaccination requirements.

Like stopped clocks, though, people can be right for the wrong reasons. So, let's return to food, cold storage's core constituency. We think that food supply chains are evolving in three major ways that stand to benefit cold storage enormously, even if vaccine supply chains are not.

The first major trend is that, in the last decade, a cultural obsession with "health and wellness" emerged in developed countries, and consumer tastes turned against highly processed and artificially preserved foods. That encouraged a "flight to quality", or a "premiumisation" of consumption habits. This shift created higher demand for both frozen and non-frozen perishable foods, widely regarded as fresher, less processed, and more nutritional. (In a sense, freezing is just a substitute for artificial preservatives.) In Europe, fresh-food consumption—e.g., of meat, seafood, and produce—and frozen-food consumption—e.g., of "ready-made" meals and minimally processed vegetables—both increased sharply on the heels of that trend. For example, in Britain, per capita poultry consumption grew by 22% between 2009 and 2019. Across the Channel, Germany's frozen-food market expanded by almost a third during that same period.

FIGURE 1: EVERYTHING'S STARTING TO TASTE LIKE CHICKEN[1]



We don't think this trend will slow. As younger generations come to dominate the consumer class, food markets will increasingly reflect their preferences. According to Nielsen, millennial households spend about a tenth more than the average household on frozen foods per supermarket trip. Indeed, Technavio projects annual frozen-food sales in Europe to rise by $37 billion between 2021 and 2025, at a pace of about 6% each year (on top of last year's 11% expansion, thanks to the pandemic). Other perishable foods, which often have healthy reputations, should see robust demand growth, too. The United Nations' Food and Agriculture Organisation predicts that per capita fish consumption in Europe will increase by 7% within the decade.

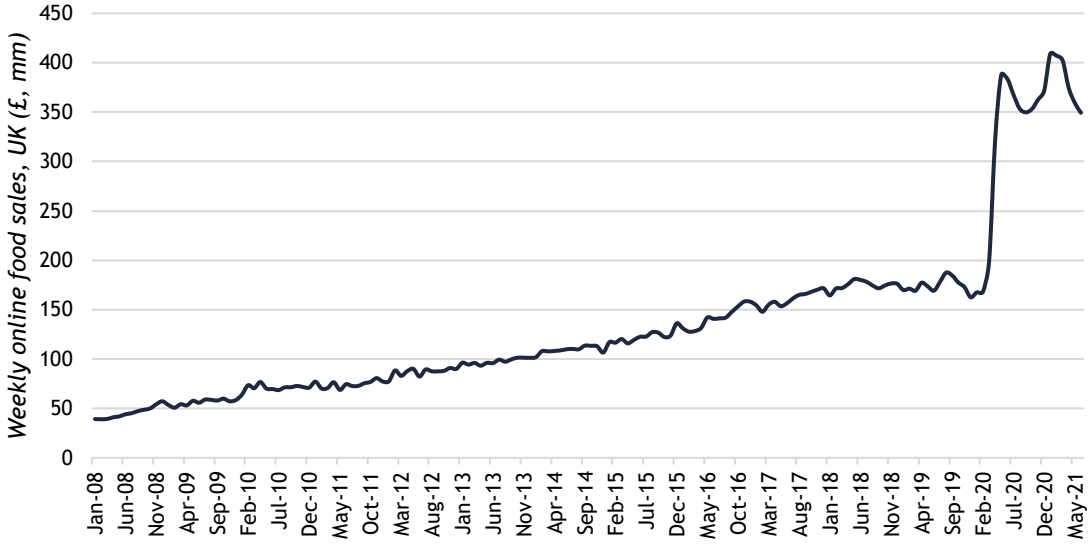
What follows? Well, the main thing about frozen food is that it's frozen—which means that somebody needs to freeze the food in the first place, and then somebody needs to store that food somewhere cold until it's shipped to supermarkets. As food producers look to optimise efficiency by focusing on their core business of food production, they increasingly outsource the logistics of freezing the food to specialist firms. These are typically the same cold storage companies that operate the warehouses in which the producers' food is subsequently stored. Rising demand for frozen food should therefore increase demand for both cold storage warehouses and the ancillary services that their operators provide. Non-frozen perishable foods—like fresh meat, including poultry—also need to be stored cold. (Government regulations require producers to maintain fresh poultry below 4 °C throughout each leg of the supply chain.) All told, as people consume larger quantities of the foods that require refrigeration, demand for cold storage should rise in tandem.

At the same time, "premiumisation" tends to benefit small and medium-sized food producers, which often lack the capacity to blast-freeze or cold-store their own products on-site. McKinsey finds that leading packaged-food brands generated just 27% of the sector's aggregate sales growth between 2016 and 2020, despite having accounted for 46% of total packaged-food sales in 2016. Food production is effectively shifting away from large firms capable of handling processing and distribution in-house, towards smaller firms that need to outsource. This change bodes well for cold storage, too.

The second major trend is that online-grocery shopping is set to grow rapidly in the next decade. As we've seen in other contexts, the pandemic accelerated this trend, especially in the UK, where it boosted online food sales to 16% of total retail-food spending (up from 7% pre-pandemic). Even if a portion of that growth is lost when ordinary life resumes, nobody expects a reversion to pre-Covid-19 levels. Ultimately, in the longer term, online-grocery shopping will continue to cannibalise retail—just like ordinary e-commerce has, and for many of the same structural reasons.

[1] Source: National Chicken Council

FIGURE 2: THE RISE OF ONLINE-GROCERY SHOPPING[2]



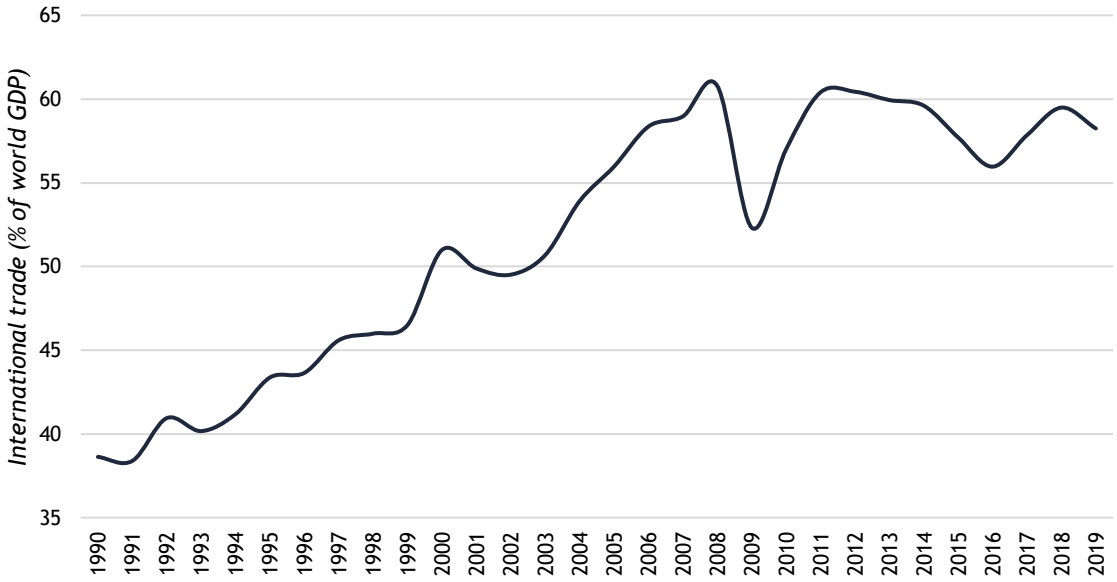
Food supply chains will be retooled to suit this transition. Until now, brick-and-mortar grocery stores have effectively controlled last-mile distribution. But the whole point of online shopping—for both regular goods and groceries—is that it cuts brick-and-mortar stores out of the distribution network. So, although the rise of online-grocery shopping doesn't imply a reduction in the total required volume of refrigerated space, it does suggest a shift in the composition of that requirement: instead of waiting on cold supermarket shelves until retrieval by in-person shoppers, food will increasingly travel directly to consumers from cold storage warehouses. In other words, online-grocery shopping will force distributors to swap refrigerated shelves for refrigerated sheds.

We have watched this play before: it's exactly analogous to what regular e-commerce did to retail shops and dry warehouses in the last decade. Grocery e-commerce, and therefore cold storage, just lags a few years behind.

Finally, as we've observed in previous letters, the third major trend is that globalisation has recently entered a period of decline. International trade flows peaked just before the Global Financial Crisis, as did international remittance payments, and in China—the original engine room of globalisation—exports as a share of total output have declined from 36% in 2006 to 18% in 2019. As de-globalisation sets in, advanced economies will start to move supply chains onshore. Britain seems well-placed to lead here, with Brexit as its proof-of-concept. (We will reserve judgement about whether that's something to brag about.) Already, thanks to the twin shocks of Brexit and Covid-19, imports fell by almost 15% year-over-year in 2020. That drop is part of a long-term adjustment that we expect to persist.

[2] Source: Office for National Statistics

FIGURE 3: DE-GLOBALISATION DAWNS[3]



Cold storage will benefit as food production moves onshore. That's because onshoring generates inefficiencies, and cold storage is fundamentally a business that profits from friction. Food producers store their finished products in warehouses because they can't instantaneously deposit their products into the hands of consumers. More generally, when the time lag between production and consumption widens, producers require a higher quantity of storage space.

Global trade enabled us to consume seasonal, perishable foods year-round by allowing us to import these items from whatever places could produce them most efficiently in the seasons during which we wanted to consume them. Another way to think about it: free international trade in perishable food tends to reduce the *time lag* between production and consumption by permitting a larger *physical distance* between production and consumption. English consumers don't need to wait for local strawberries to bloom in June if strawberries can be imported from distant places that enjoy year-round sunshine.

However, as international trade becomes more costly and difficult, food production must increasingly relocate onshore. Even though post-Brexit agreements have preserved tariff-free trade between the UK and Europe, customs checks, paperwork requirements, and border delays are already serving to make trade more expensive in practice. This tends to elevate the attractiveness of domestic production relative to imports. Ultimately, as it grows more expensive for England to import strawberries from Spain during the winter months, England will produce more strawberries domestically in the summer, and then extend their shelf-life by stockpiling them (fresh and frozen) in cold storage warehouses. As de-globalisation pulls food production back onshore (if only at the margin), cold storage stands to benefit.

Britain's cold storage sector is well-positioned for growth in the next decade. Even once we cut through the bluster about vaccines, we think demand for refrigerated warehouse space will rise as food supply chains evolve. Although industrial real estate underwent enormous changes in the last decade, perhaps the revolution isn't over just yet.

WHEN EVEN "THE EXPERTS" HAVE A TOUGH TIME WITH IT

Plenty of ink has been spilled lately on the future of the office. While we've already contributed our fair share to that discussion, our own office move earlier this month has given us a chance to reflect more personally on the moving process, how it can be improved, and what tenants will want in the years ahead. We'd like to share some of our conclusions here.

[3] Source: World Bank

It all began in May 2020, when we discovered that the landlord of the office we were preparing to move into couldn't commit to getting us fitted out and moved in by August 2020, when we needed to vacate our old premises. After scrambling to relocate everyone temporarily, we began again searching for a new home in September 2020. By the end of the month, we had settled on our top choice. Then, the "fun" began.

Despite having a half-empty building, the institutional UK fund landlord-to-be took an extraordinarily long time to respond to our emails and phone calls. And this wasn't just any owner—we had sold a building to them a few years back and knew the fund's entire decision-making team. After agreeing on terms in principle in November, it took about three months to agree the full, legally binding lease documents. But because the building was historically designated, even as a tenant, we needed to get planning permission, *just for our fit-out*. That took another three months. By April—seven full months after we started searching—we had finally signed the agreement. Now we needed to hire a contractor to fit our space out, which took another four months.

At last, in August 2021—a full year after we had started our search for office space, after countless emails and phone calls, a planning permission process, contractor appointments, and months of project management—we moved into our new 8,000 square foot office space.

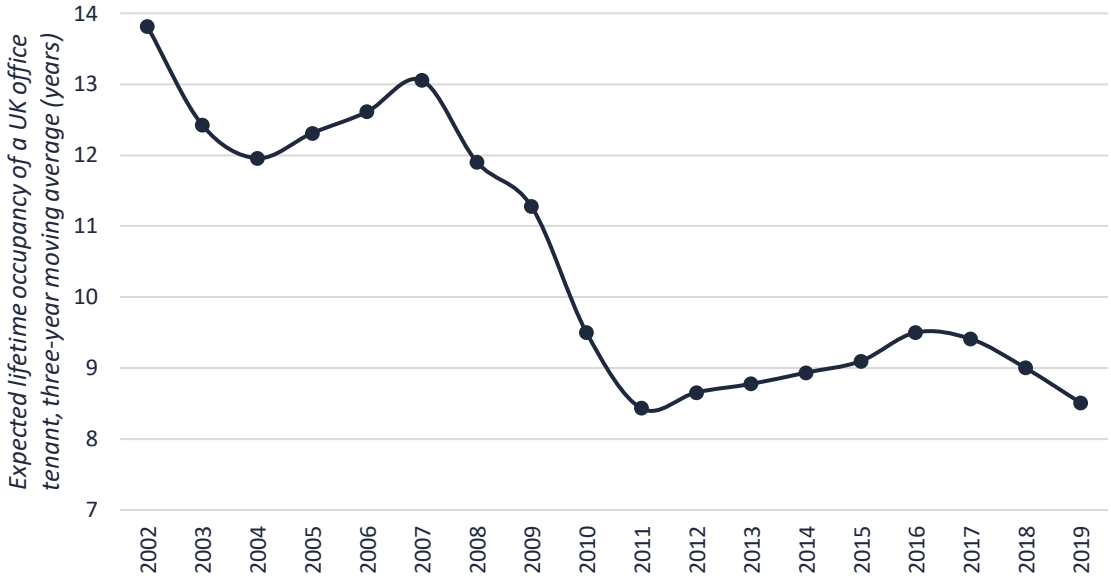
Who in their right mind wants to—or should—go through a saga like this every time they take a lease? Sure, DLA Piper, a global law firm that leased all 200,000 square feet at 160 Aldersgate from us, or a property investor that specialises in refurbishments like us, might find it worthwhile (or at least doable). But what about the vast majority that has neither the expertise nor the size to play this masochistic game every five to ten years? Furthermore, small- and medium-sized businesses are potentially growing or shrinking too quickly to remain in the same space for more than two to three years.

There *has* to be a better way.

And there is, but only recently has it become widely available.

Tenants' preferences have been changing for a while. They want the ability to move into new space more easily, and they want more flexibility around timing and sizing. That's what the flexible office market caters for. Until recently, traditional landlords have tried to adapt their old business model (with high upfront tenant leasing costs of time and money) to a world where revenue streams are increasingly short-term. But that model is now broken. The graph below shows the total expected tenure of a typical tenant in an office building, taking into account not just the initial lease length but also the average renewal probabilities. This figure has been cut almost in half over the last two decades. If landlords cannot depend on the lifetime value of a typical tenant being almost 15 years' worth of revenue, then landlords and tenants cannot continue with the high customer acquisition cost model.

FIGURE 4: EXPECTED LIFETIME OCCUPANCY OF A UK OFFICE TENANT[4]



We believe there is a gap in the market that will be increasingly obvious to landlords over time. Flexible office providers accept that most tenants will now only assure shorter income streams. In order to counterbalance the higher level of customer churn, providers have massively lowered their upfront costs associated with tenant acquisition: (i) Clockwise licenses are three pages long and do not require vast legal teams negotiating over monthly terms; (ii) brokers form only a minority of our customer acquisition channels, while word-of-mouth and online advertising generate most of our tenant demand; (iii) and offices are pre-fitted out to exactly what we know smaller tenants want, which eliminates the time and financial burden of upfront fit-out costs. Tenants can move in the same afternoon as they sign the lease online.

And tenants don't mind the simplification and the lower-touch nature of the new customer acquisition journey. In fact, compared to the typical old-style experience exemplified by our recent office move, most tenants *prefer* it.

Best Regards,

Michael Kovacs

Adam MacLeod

Evan Garnick

[4] Source: MSCI. Calculations our own.