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The weight is over: How GLP-1 treatments are reshaping pharma and beyond

Executive Summary

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- **A golden formula for pharma growth.** The pharmaceutical industry is cooking up a storm, with weight-loss drugs serving as the main course. Diabetes and obesity have become the star ingredients driving the sector's expansion, sidelining traditional staples like oncology and immunology. Sales of GLP-1 blockbusters Semaglutide and Tirzepatide have risen from a modest EUR4.5bn in 2021 to a sumptuous EUR21.2bn in 2023. This year's sales of GLP-1 drugs are on a rapid boil at +92% y/y. Particularly, Ozempic is expected to be the second best-selling drug globally (EUR17bn of revenues) in 2024. Novo Nordisk and Eli Lilly, the chefs behind these hits, are forecasted to see their revenue simmering at +24% and +33% growth this year, well above the industry's average of +7% y/y and feeding the expectations that the GLP-1 market could balloon to EUR92bn by 2030. With investor appetites whetted, Novo Nordisk now reigns as the largest European company by market cap, while Eli Lilly has positioned itself as a hefty rival to the US stock market's Magnificent 7.

- **A recipe for trouble. Despite the sizzle, there's a risk of the dish burning.** Regulatory scrutiny over the safety of weight-loss drugs and the encroachment of generic and copycat products could sour the feast. Some consumers have reported side effects such as nausea and diarrhea, raising questions about long-term palatability. Meanwhile, the competitive kitchen is heating up: generic alternatives may debut as patents expire, particularly for Semaglutide in China in 2026. Copycat versions are already nibbling at market shares, threatening the established players' pricing and profitability. To stay on the menu, price reductions may become essential.

- **Slimming down health expenditures.** Weight-loss drugs might just serve as a miracle meal for the global health system, with a potential EUR3.3trn in cost savings. Obesity, the overstuffed problem affecting 884m adults worldwide (16% of the global adult population in 2022, up from 7% in 1990), comes with hefty side orders such as diabetes and heart disease. These health issues rack up EUR698bn annually in direct costs, or 7.7% of global health expenditures, not to mention lost productivity. Widespread use of GLP-1 medications could act as a dietary intervention, saving EUR2.0trn in health costs over the next decade if obesity rates plateau, or EUR3.3trn if they shrink back to 2010 levels. In the US, where the burden is heavier, these savings could reach EUR1trn and EUR1.8trn, respectively.

- **Food Industry on a forced diet.** Weight-loss drugs are putting the food industry on a calorie count, with nearly 15mn expected users by 2030 likely to suppress cravings for high-calorie and processed foods. This shift in appetite could slim down the US food market by USD40bn by 2035, with the snack and confectionery aisles feeling the biggest pinch. To stay competitive, food manufacturers will need to whip up smaller portions, healthier recipes, and even explore "natural GLP-1 boosters" for those unable or unwilling to take the pharmaceutical route.

- **Denmark's Michelin star dependency.** The Danish economy is savoring the success of its pharmaceutical industry, particularly Novo Nordisk, which has contributed to a sixfold increase in real gross value added (GVA) since 2005. Labor productivity in the sector has tripled, leaving other industries behind with a mere +20% rise. Novo Nordisk's contribution to Denmark's real GDP growth soared to 90% in 2022 and remained robust at 50% in 2023. However, putting all the eggs in one basket comes with risks: any downturn in Novo Nordisk's fortunes could leave Denmark's economy hungry. Rising drug exports are also seasoning currency appreciation, potentially eroding the competitiveness of other sectors.

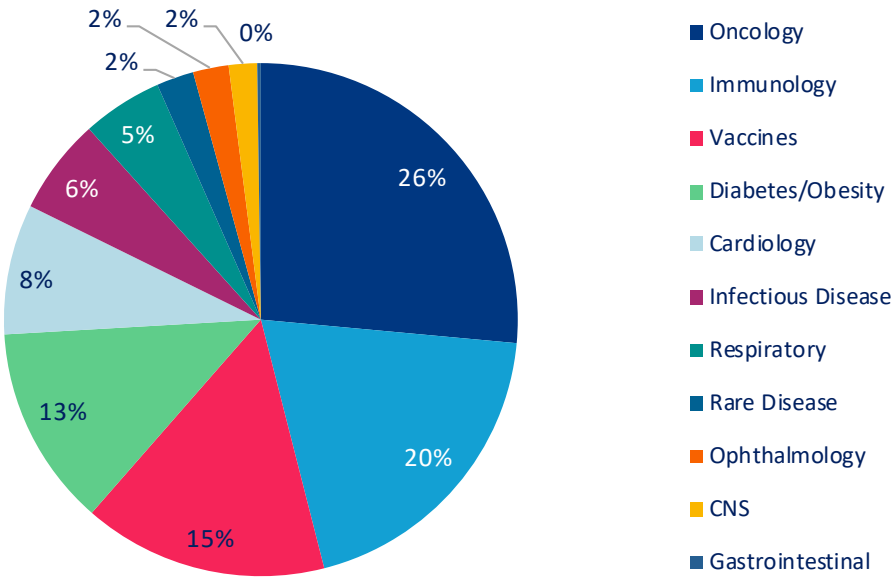
- **Insurers' plate gets lighter.** The insurance industry could be a big beneficiary, enjoying smaller claims and healthier underwriting margins. Obesity often piles on health-related claims, from chronic conditions to long-term care. As GLP-1 drugs reduce obesity rates, insurers could see fewer payouts. However, the full flavor of this impact depends on access to these medications, their long-term effectiveness, and whether populations embrace healthier habits. For now, the outlook for insurers remains cautiously optimistic.

Transforming pharma: The GLP-1 gold rush

GLP-1: Pharma's secret recipe for success. Historically, the pharmaceutical sector has spent most of its research and development capital on oncology and immunology (around EUR30bn and EUR20bn annually, respectively). These treatment areas generate the largest revenues (46% of total global sales in 2023, Figure 1) and hence also benefit from the largest investment growth rate (between +10% and +15% in 2023). Nonetheless, diabetes and obesity have recently become the new bright spots for the sector's growth after the successful development of GLP-1 receptor agonists[1] that can suppress appetite while reducing blood sugar.

[1] GLP-1 drugs are a class of medications that mimic the action of the glucagon-like peptide-1 (GLP-1) hormone, which plays a key role in regulating blood sugar levels. GLP-1 drugs are primarily used to treat type 2 diabetes and can also promote weight loss.

Figure 1: Global revenue breakdown by MOA* in 2023 in the pharmaceutical sector

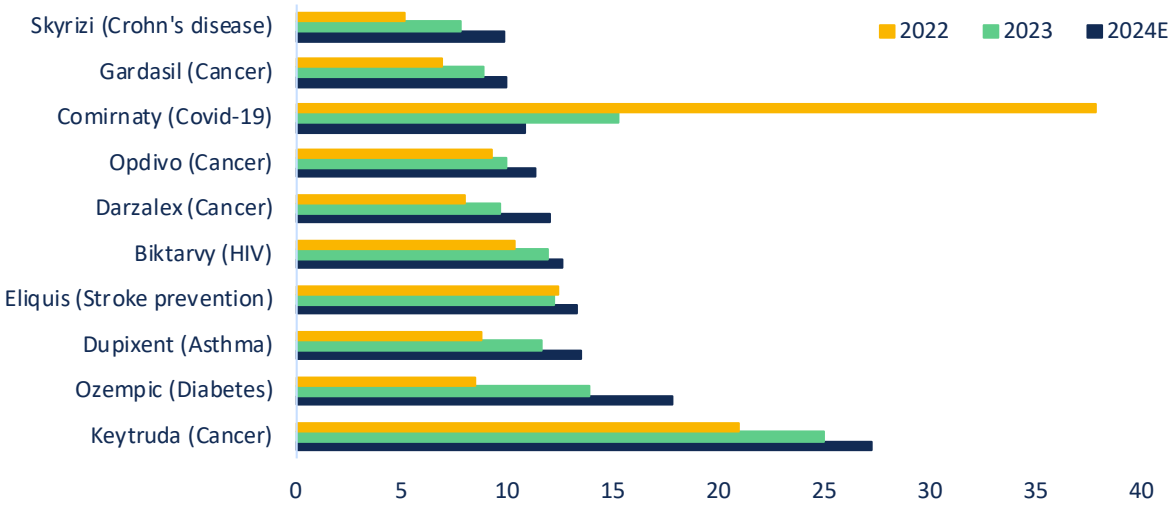


Sources: Bloomberg, Allianz Research. Note: MOA stands for mechanism of action.

Today, four GLP-1 treatments have been approved and they are in high demand, making diabetes and obesity the fastest-growing areas for the pharmaceutical sector. While Covid-19 vaccines were the best-selling pharmaceutical products in the world in 2021 and 2022 (around EUR80bn and EUR95bn of revenues each year), things have changed with the approval and commercialization of abdominal Semaglutide and Tirzepatide injections[2]. Semaglutide was the first type of GLP-1 medication introduced in the market, discovered by researchers at Novo Nordisk[3]. The Semaglutide revolution started with the successful launch of Ozempic, initially created to treat type 2 diabetes . It received marketing authorization from the FDA[5] and the EMA[6] in 2017 and 2018, respectively, and since then sales have been skyrocketing. Last year, it ranked third on the list of best-selling drugs in the world (EUR13bn) and in 2024 it is expected to move up to second position, with sales likely to jump +28% y/y after soaring +60% in 2023 (Figure 2). Novo Nordisk also developed Wegovy, which was authorized in the US in 2021 and in Europe in 2022. It is now being launched in more than 15 countries. Although it is also injected, its dose of Semaglutide is higher than that of Ozempic as it targets obesity instead of diabetes. Wegovy's sales increased by more than +400% last year, while in the first nine months of 2024 sales have jumped to EUR5.1bn (+76% y/y), with booming demand causing product shortages in some countries. In fact, Wegovy has also proven to reduce the risk of heart attacks, strokes, and cardiovascular death, on top of its weight-loss benefit, while both Ozempic and Wegovy are also being tested as a treatment for Alzheimer's disease. To ramp up capacity and meet skyrocketing demand, Novo Nordisk announced last year that it will invest more than DKK75bn (EUR10bn) on top to its cash allocations on R&D, aiming to expand its current capacity of 16 production sites and 12 R&D facilities in five countries.

[2] Semaglutide and Tirzepatide are the active ingredients present in branded drugs aiming to fight type 2 diabetes and obesity. While Semaglutide is a GLP-1 receptor agonist, Tirzepatide is a dual agonist that targets both GLP-1 and GIP receptors.
[3] Novo Nordisk A/S is a global healthcare company founded in 1923 and headquartered in Bagsværd, Denmark.
4 Type 2: The most common form of diabetes, characterized by insulin resistance and eventual pancreatic beta-cell dysfunction. It usually occurs in adults and is often linked to obesity and lifestyle factors. It estimated that around 537mn adults globally are living with Type 2 diabetes today. Type 1 diabetes, an autoimmune disorder where the body does not produce insulin, is usually diagnosed in children and young adults.
[5] FDA: Food and Drug Administration
[6] EMA: European Medicines Agency

Figure 2: Top 10 selling drugs worldwide, in USD billion



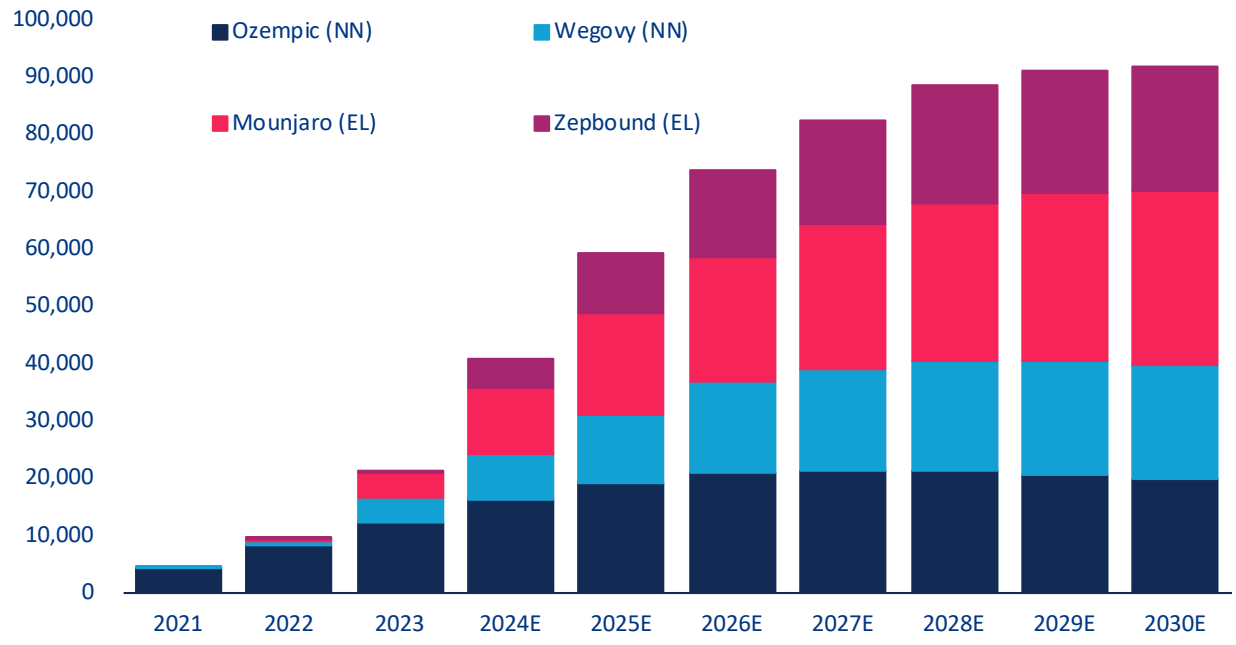
Sources: Company data, Allianz Research

Eli Lilly[7] joined the GLP-1 revolution later by developing Tirzepatide, the active ingredient in two other equally successful drugs: Mounjaro, introduced in 2022 for type 2 diabetes, and Zepbound, launched in 2023 for treating obesity. Having also proved their efficacy, the sales of both medicines together have climbed to USD11bn (EUR10.5bn) in the first nine months of this year (+273% y/y), positioning Eli Lilly as another leader in this booming market and bolstering the company's financial performance. As awareness grows and clinical data support their effectiveness, demand for GLP-1 drugs is expected to continue soaring, generating a strong revenue stream for these two companies (figure 3). For instance, while the entire Big Pharma industry is expecting revenues to grow by +7.2% y/y on average this year, total revenues of Novo Nordisk and Eli Lilly are expected to soar by +24% and +33% y/y, respectively. Particularly, the revenues of these four products together are expected to jump by +92% this year, followed by a further increase of +45% in 2025 as they progressively penetrate other new markets, production continues to accelerate, and consumer uptake intensifies.

Weight-loss drugs are making investors hungrier than ever. The success of GLP-1 drugs has pushed investors' appetite for Novo Nordisk and Eli Lilly's stocks to an all-time high (Figure 4), with the price-to-earnings (LTM) ratio reaching 37.5x and 87.1x, respectively. In comparison, the average P/E ratio of the S&P-500 index is 24x. Since the beginning of 2023 (when sales started booming), the market capitalization of Novo Nordisk and Eli Lilly has soared by +70% and +152%, respectively, with the former becoming Europe's most valuable company by market cap and Eli Lilly the biggest US firm after the Magnificent 7[8]. This makes it clear that investment opportunities go beyond the AI boom of the technology sector.

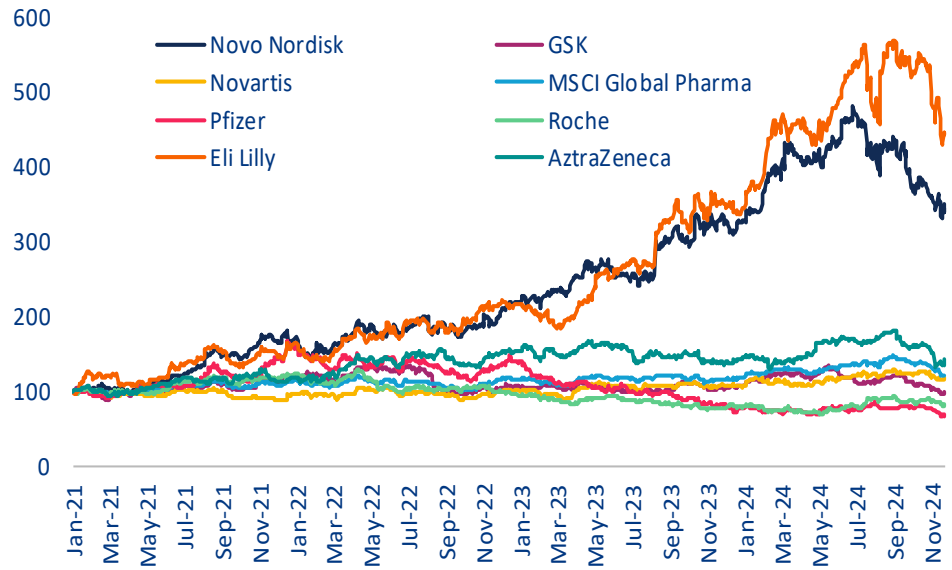
[7] Eli Lilly & Co: Is an American pharmaceutical company founded in 1876 and headquartered in Indianapolis, Indiana.
[8] The Magnificent 7 refers to the high-performing and influential technology companies in the US stock market: Apple, Microsoft, Amazon, Alphabet, Tesla, NVIDIA and Meta Platforms

Figure 3: Annual sales of GLP-1 drugs and potential growth, EUR millions



Sources: Company data, Bloomberg, Allianz Research

Figure 4: Share price evolution (Jan 2021 = 100) in the Big Pharma industry

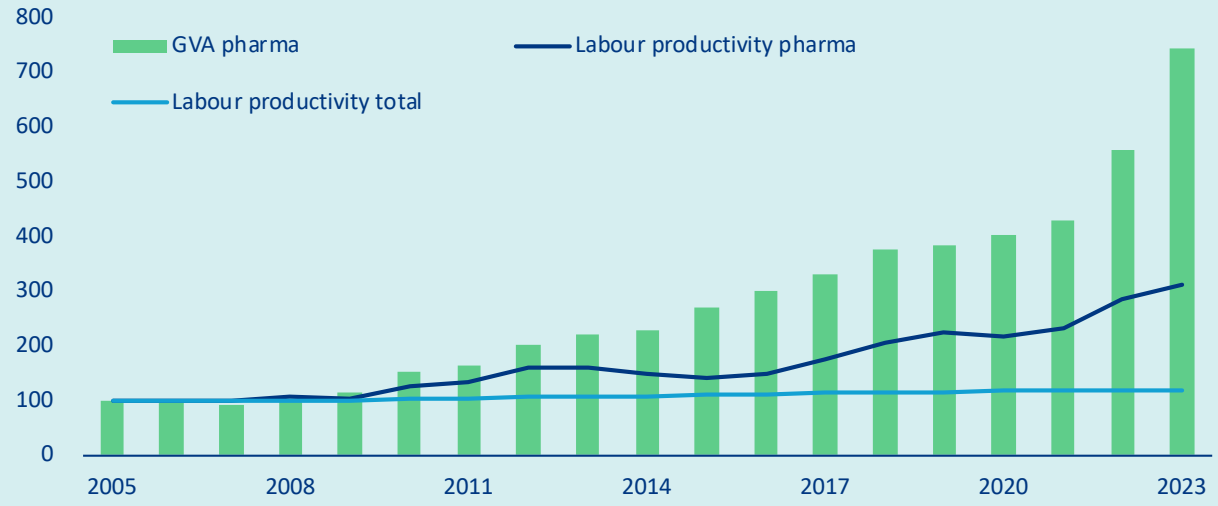


Sources: Bloomberg, Allianz Research

Pharma-fueled growth: Denmark's secret to staying (economically) healthy

The Danish economy is experiencing remarkable growth, largely driven by the rapid expansion of its pharmaceutical industry. This sector has seen an impressive sixfold increase in real gross value added (GVA) since 2005 (Figure 5). This remarkable growth over the last two years can be attributed to heightened export demand for the new weight-loss medications developed by Novo Nordisk, Denmark's leading pharmaceutical company. Moreover, labor productivity within the pharmaceutical sector has more than tripled since 2005, in stark contrast to a mere +20% increase observed across all other industries. The pharmaceutical industry has significantly increased its contributions to both real GDP and exports. A closer look at growth decomposition reveals its extraordinary impact: while it contributed 10% of real GDP growth from 2020 to 2021, this figure surged to 90% in 2022 and remained substantial at 50% in 2023. In fact, in 2023 alone, the pharmaceutical industry's contribution to Danish GDP rose by +1.8%. Without this vital contribution, Denmark's GDP would have declined by -0.1%.

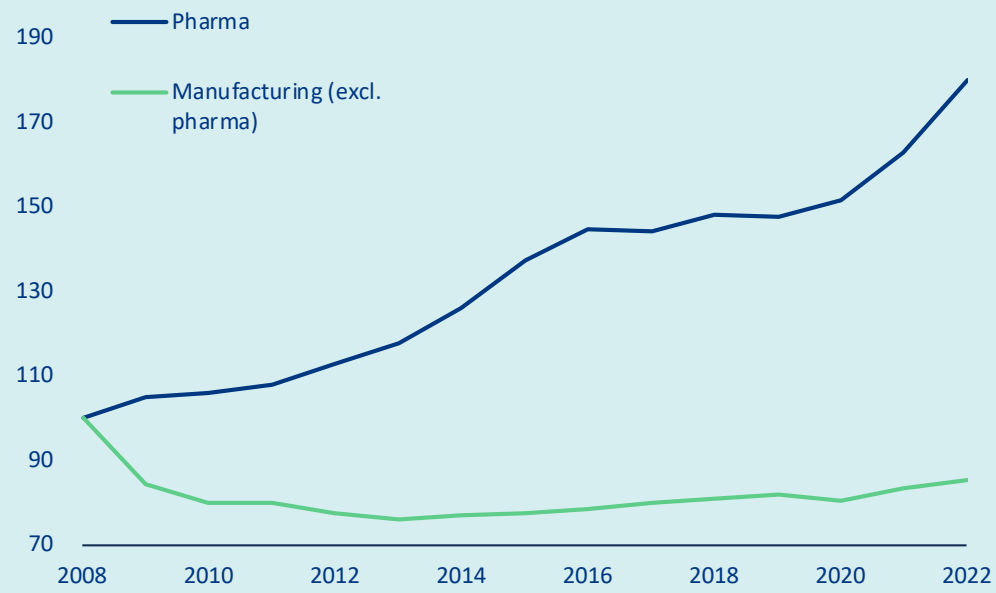
Figure 5: Denmark - Pharmaceutical gross value added and productivity, 2005 = 100



Sources: Statistics Denmark, Allianz Research

The rapid growth of the Danish economy is also reflected in exports and employment. Over the past 15 years, Danish exports have consistently hovered around 30% of GDP. Notably, pharmaceutical exports have seen a steady rise, increasing from 2% of GDP in 2007 to 6% in 2023. Employment within the pharmaceutical sector has showed a long-term upward trend (Figure 6). From 2008 to 2022, the industry added approximately 13,000 jobs, with Novo Nordisk alone accounting for 70% of this growth. However, despite this increase, overall employment levels in the pharma sector remain relatively low. This can be attributed to the industry's heavy reliance on specialized knowledge and the fact that a significant portion of production occurs overseas. As a result, the pharmaceutical sector's contribution to domestic employment is smaller than its impact on value added. While it represents 6.7% of nominal value added, its share of total employment stands at around 1%.

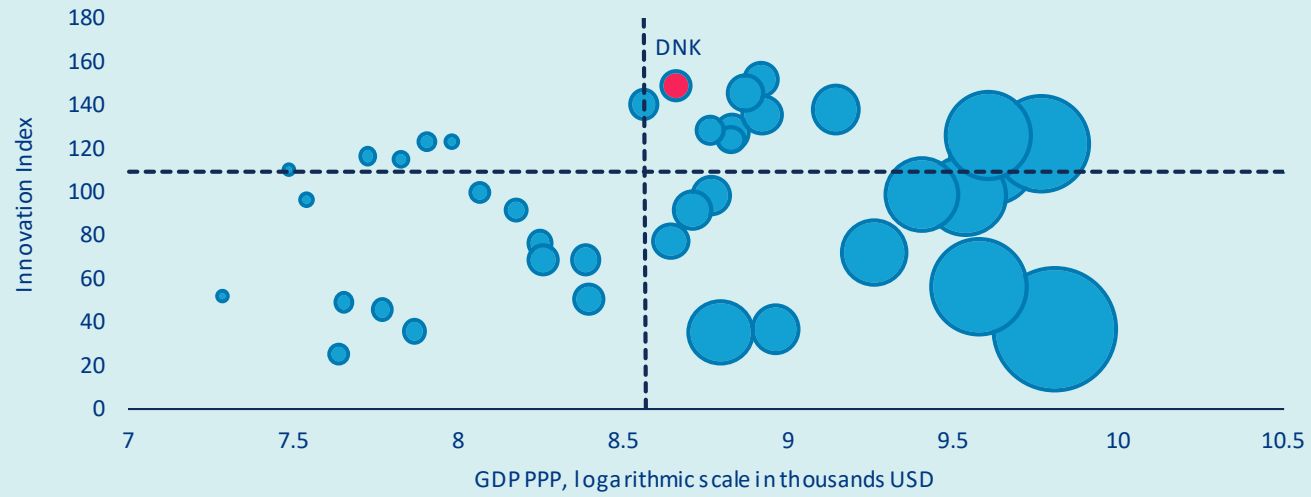
Figure 6: Average number of employed, Index 2008 = 100



Sources: Statistics Denmark, Allianz Research

Denmark is once again a leader in innovation within Europe, alongside Switzerland. According to the European Innovation Scoreboard (EIS), Denmark has solidified its status as a global innovation powerhouse, excelling in various areas such as venture capital investment, intellectual property generation – including patents, trademarks and designs – and employment in knowledge-intensive sectors. With a score of 149.3, it ranks second among EU and neighboring countries. Notably, this score is 135.7% above the EU average, showcasing the impressive achievements of this relatively small country in terms of GDP and population when compared to European peers (Figure 7).

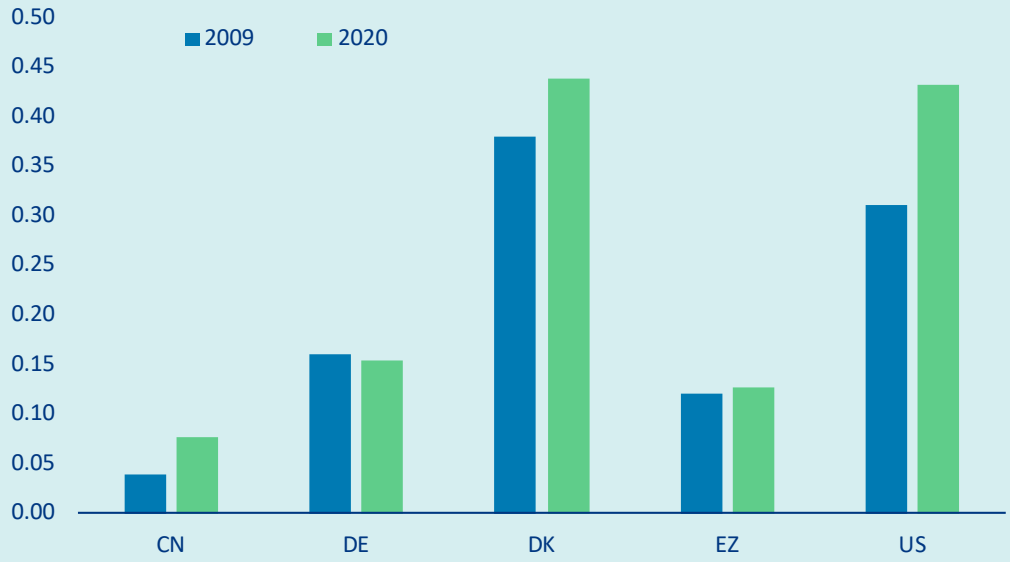
Figure 7: European Innovation Scoreboard 2024 (EU27 2017 = 100), GDP PPP (logarithmic scale in thousands USD) and total population



Sources: European Commission, World Development Indicators, Allianz Research. Notes: The dashed lines represent the EU average in the innovation index (horizontal) and GDP PPP (vertical). Bubbles give the total population size. The EIS evaluates the innovation performance of countries across 36 dimensions, considering metrics such as venture capital investment, intellectual property generation (including patents, trademarks and designs) and employment in knowledge-intensive activities.

Denmark's R&D gross expenditure significantly surpasses the Eurozone average, particularly in the pharma sector. The country's gross domestic expenditure on R&D as a percentage of GDP rose from 2.3% in 2000 to 2.9% in 2022, positioning it well above the Eurozone average, which increased from 1.4% to 1.9%. This substantial investment serves as a foundation for innovation, with business enterprise expenditures in the pharma sector reaching 0.44% of GDP in 2022, outpacing all peers (Figure 8). Globally, Denmark ranked 9th with 629 patent applications per million inhabitants in 2022, 9.5% of which are in pharmaceuticals. However, government support for R&D remains modest, with tax incentives for business enterprise R&D at only about 0.1% of GDP – significantly lower than countries such as France and the UK, which receive over 0.5%. This suggests that Denmark's innovation success is primarily driven by private sector investment rather than government initiatives.

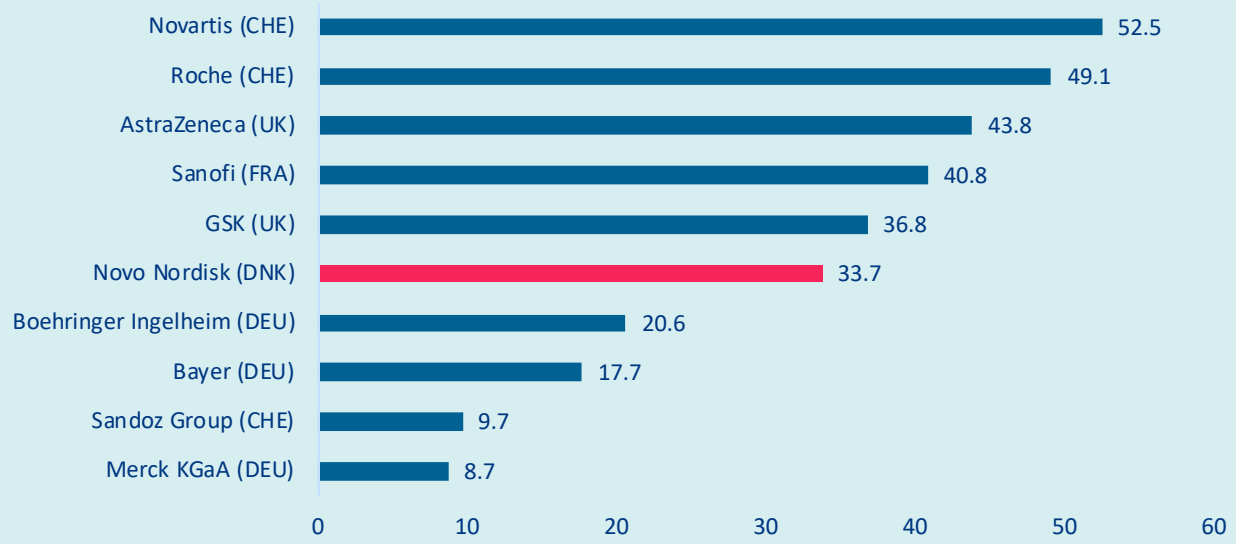
Figure 8: Business expenditure on R&D in the pharmaceutical sector, in % of GDP



Sources: OECD MSTI, Allianz Research

But is Denmark becoming a "pharmastate", dependent on one super performing company? The soaring profits and reinvestment rates of Novo Nordisk have been pivotal in helping Denmark avoid recession and maintain relatively low interest rates. However, this reliance on a single company poses risks. With a market capitalization currently exceeding EUR500bn, Novo Nordisk is Europe's most valuable pharmaceutical company and dominates the Danish pharmaceutical sector (Figure 9). Its share of Denmark's GDP has surged from 1% in the early 1990s to 8.3% last year. To meet demand, Novo Nordisk is expanding production capacity, having recently announced new investments in production facilities at home and abroad. In parallel, corporate income tax payments from Novo Nordisk to the Danish government have doubled over the past five years, rising from 0.3% of GDP in 2019 to 0.6% in 2023. In addition, nearly one in five jobs created in Denmark last year were directly attributed to Novo Nordisk. The company's significant spillover effects also mean that almost half of all private-sector non-farm jobs created in Denmark are linked to its productivity performance. In this context, any slowdown or reversal in the company's sales and production growth could lead to serious repercussions, including a decline in GDP and an increase in unemployment. However, Novo Nordisk has thus far demonstrated itself to be a sustainable investment. While it is unlikely that the company will face imminent collapse, there are challenges on the horizon that could impede its future growth. Some countries are already discussing the implementation of drug price controls and with patents set to expire within the next decade – first in China in 2026 or even sooner due to a legal fight – Novo Nordisk may soon have to contend with increased competition from generic drug manufacturers. If its growth stalls, Denmark's economic expansion could similarly falter.

Figure 9: Business expenditure on R&D in the pharmaceutical sector, in % of GDP



Sources: Refinitiv, Company data, Allianz Research; Notes: Rx sales refer to sales of prescription medicines.

So far, Denmark's policymakers appear to be mindful of the "Nokia trap" and the risks associated with an overreliance on a single company. The concern that the government might grow complacent about maintaining sound public finances due to a perceived reliance on increasing revenue from Novo Nordisk has not yet materialized. Drawing on lessons from Finland's experience with Nokia, Danish officials are diligently monitoring the economy for any underlying weaknesses that may be obscured by the positive impact of Novo Nordisk. While there are similarities in the disproportionate distribution of profits and R&D spending in both economies, Nokia, despite its decline following the launch of the first Apple iPhone in 2007, successfully fostered a vibrant tech ecosystem in Finland through venture capital (VC) investments. Similarly, the Danish company plays a significant role in supporting pharmaceutical and biotech research, investing approximately USD500mn annually in life science opportunities worldwide. Additionally, the Danish government is actively working to establish a thriving pharmaceutical and biotech hub within the country. Recently, Novo Nordisk has also ventured into a new technology sector, allocating USD200mn to develop a quantum computing hub in Denmark to further enhance research efforts.

However, initial windfalls can also have detrimental long-term effects In the Danish case, the success of Novo Nordisk could strengthen the Danish currency, making exports more expensive and potentially harming the competitiveness of other companies. Indeed, rising drug sales, particularly in North America, have significantly boosted Danish exports and brought substantial foreign currency into the country. As these foreign earnings are converted into Danish kroner for employee salaries and taxes or reinvested in expanding local factories, there is upward pressure on the krone's value relative to other currencies like the USD. However, since Denmark maintains a fixed exchange rate with the EUR, the krone cannot appreciate much. To counteract this strengthening effect on the currency, the Danish central bank has kept interest rates as low as possible. Thus far, these interventions have been effective in stabilizing the krone's value and had no impact on other Danish companies' competitiveness.

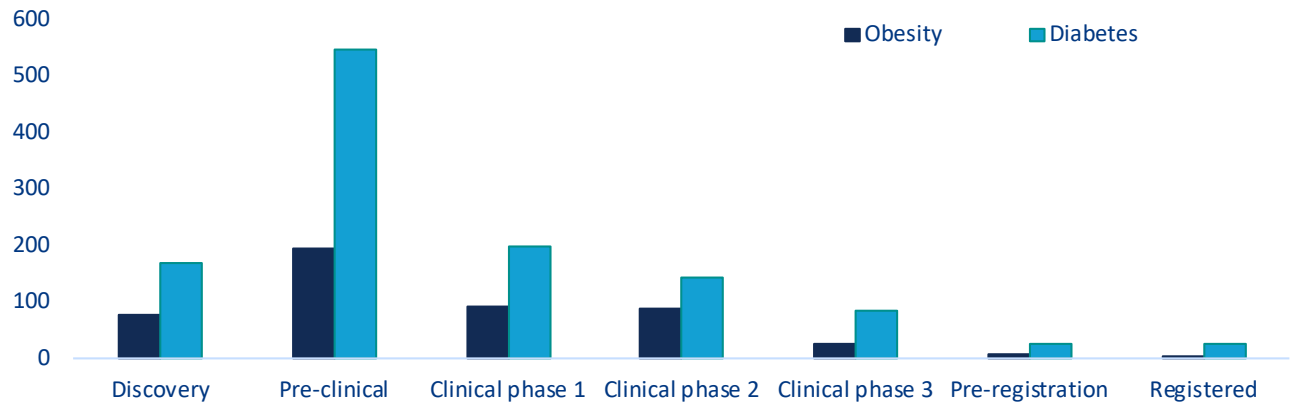
What could go wrong?

GLP-1 drugs offer both hype and hope. But there are several clouds on the horizon. We believe the hype around GLP-1 drugs is here to stay and their development marks the beginning of a new chapter for endocrinology and nutrition, which could pave the way for the development of new and perhaps even better medications. However, some patients have faced side effects such as nausea, diarrhea, and stomach disorders, while others have experienced muscle loss, and the long-term side-effects of remain a question. Moreover, regulatory scrutiny regarding drug safety and effectiveness and any negative outcomes from still ongoing clinical trials could be fatal in several ways.

Another big challenge is intensifying competition from brand-new medicines, generics[9] and copycats[10]. Certainly, the sector is investing and exploring more than ever in the areas of obesity, diabetes and metabolic diseases so it is very likely that new treatments similar to and even better than Semaglutide and Tirzepatide will hit the market in the coming years. Figure 10 shows the new drugs pipeline for this segment, with several pharma laboratories (such as Viking Therapeutics and AstraZeneca) on track for developing new formulations and combinations that could offer additional benefits, such as faster and more visible results, improved efficacy or fewer side-effects. If a competitor develops a better drug, this could jeopardize the financial stability of Novo Nordisk and Eli Lilly, for which the four drugs represent 61% and 35% of total sales, respectively. Nonetheless, much of the drug development pipeline (around 40%) is still in the pre-clinical phase, which is an early step in the full research process, meaning it could take between eight to 13 years to have alternative registered and marketed weight-loss options available in the market. On the positive side, competition will also force these companies to continue investing and innovating for the development of other products. One promising example is CagriSema, a new injected drug developed by Novo Nordisk that is currently in late-stage trials and could be launched in 2026 (which is also when Novo Nordisk and Eli Lilly are planning to launch the oral version of their GLP-1 drugs). The innovation behind CagriSema is that it is a combination of Semaglutide and Cagrilintide (a novel long-acting amylin[11] analogue) that can result in more weight loss (25% of body weight) than that produced by Wegovy (15%).

[9] A generic drug is a medication that is equivalent to a brand-name drug in dosage, strength, route of administration, quality and intended use but is sold under its chemical name or a different name after the original patent expires. In other words, generics are legally approved versions of brand-name drugs.
[10] A copycat version typically refers to a medication that is similar to an existing drug but may have slight differences in formulation or delivery. Unlike generic drugs, copycat drugs may not necessarily meet the same regulatory requirements and can target the same condition without being exact replicas of the original drug.
[11] Amylin is a hormone that works alongside insulin to regulate blood sugar and promote feelings of satiety. Cagrilintide is therefore designed to mimic the action of amylin.

Figure 10: Current number of drugs by development phase for selected metabolic diseases



Sources: LSEG Workspace, Allianz Research

Generic drugs should start being commercialized in China as soon as 2026. While patents grant pricing power over a time period and substantial market share protection to the holder (which has exclusive rights to the active ingredients, formulations, and manufacturing processes), sooner or later these will expire. As shown in Table 1, the expiry date for the compound patent for GLP-1 medicines changes from one country to another, with China being first in line for the expiry of Ozempic and Wegovy's patents (in 2026). Although obesity is not as widespread in China for now (only 8% of adults are considered obese, a six-fold increase over 1990), the patent expiry still poses a significant threat to Novo Nordisk as it opens the door for a flood of cheaper alternatives made in China as Chinese laboratories have the capacity to produce faster, on a larger scale and at a lower cost. Nevertheless, the generic versions also have to be approved first by local regulatory authorities. Once this approval is secured, generic versions of the compound can steal around 50% to 70% of the market share in the first year of commercialization.

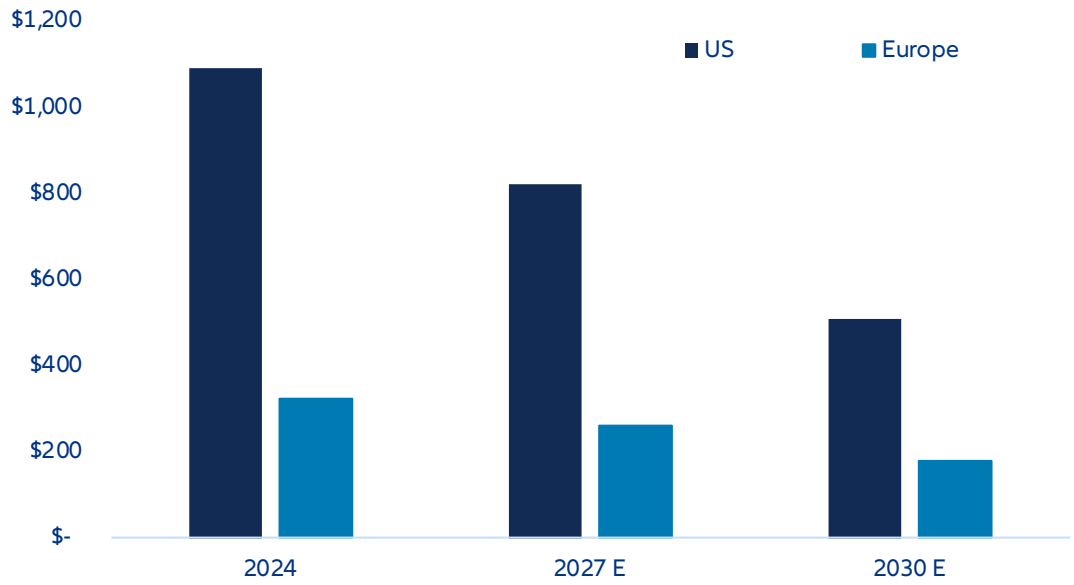
Table 1: Expiration date of active ingredient patents

				Compound patent expiry dates			
Producer	**Active Ingredient**	**Product**	**Targeted for**	**US**	**China**	**Japan**	**Europe**
Novo Nordisk	Semaglutide	Ozempic	Diabetes	2032	2026	2031	2031
		Wegovy	Obesity	2032	2026	2031	2031
Eli Lilly	Tirzepatide	Mounjaro	Diabetes	2036	n/a	2040	2037
		Zepbound	Obesity	2036	n/a	2040	2037

Sources: Company data, Allianz Research

Meanwhile, competition from copycat versions is already a reality. In a context of fast-growing sales prospects and ongoing drug shortages, producers of copycat versions are already creating an even more competitive landscape. The race is becoming particularly fierce in the US where branded drugs have been in short supply for months and they cost over USD1,000 a month. For better or worse, compounding pharmacies in the US are allowed to copy brand-name medicines that are in short supply in order to meet high demand. These copycat versions are not viewed as infringements on existing patents as they are produced by changing the original chemical composition of the branded drug, by combining or altering its ingredients. Although these copycat versions could be hazardous, since they often lack the rigorous testing and safety assurances of their branded counterparts, consumers often prioritize quick and cheap methods, overlooking the importance of safety if they can achieve the same results. Demand for these alternatives is so high that Novo Nordisk and Eli Lilly have no option but to accelerate production to avoid further product shortages.

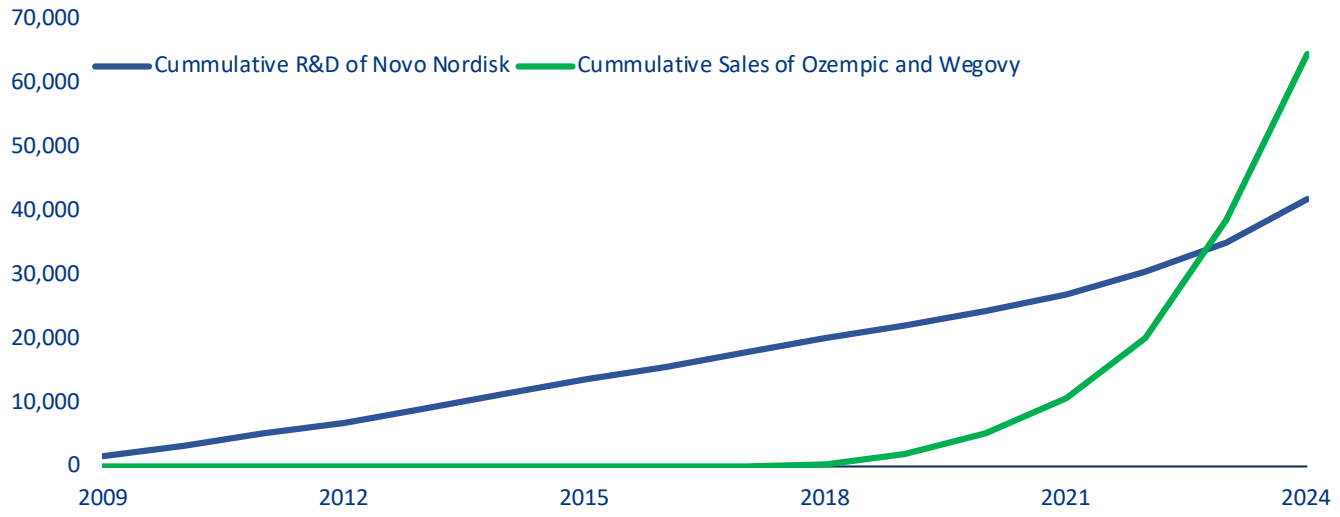
Figure 11: Current versus estimated GLP-1 drugs prices* by region (per month in USD)



Sources: Allianz Research. *Average price for the four branded GLP-1 drugs. For Europe we have considered the figures for seven EU countries for which data is available.

Competition is the prescription for lower prices. From the consumer perspective, high competition is a win as it encourages companies to lower selling prices, notably for life-changing products like these drugs. Intense rivalry not only makes products more affordable but also fosters innovation, ensuring that consumers have access to higher-quality products at lower prices. We estimate that copycat versions together with larger scale production have the power to make prices fall by around -23% by 2027 and halve by the end of the decade, when generics should start to be commercialized. Reductions should be more noticeable in the US as the government is developing some initiatives to make prescription medications more affordable for Americans. Nevertheless, for Novo Nordisk, for instance, the accrued sales over the last five years of its two flagship products have already surpassed its cumulative spending on R&D over the last two decades (figure 12). Since the investment in R&D has been largely covered, price-reduction strategies should be implemented if these pioneering pharmaceutical companies want to compete with copycats and generics.

Figure 12: Novo Nordisk's sales of Ozempic and Wegovy vs company's accumulated investment in R&D in the past 15 years (USD million)



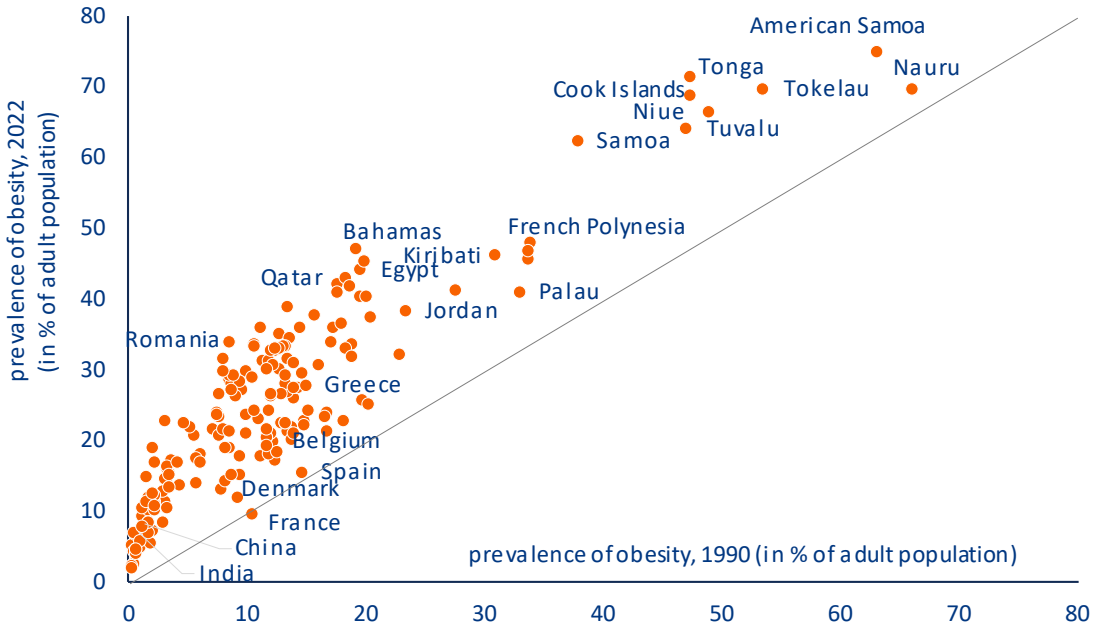
Sources: Refinitiv LSEG, Company data, Allianz Research

What do weight-loss drugs mean for public finances & the insurance industry?

Obesity has become a widespread health problem in the current century. Not only is the global population growing markedly (8.5bn people by 2030) but also the proportion of obese people. In 2022, 16% of the global adult population were considered as obese by the World Health Organization (WHO), up from 7% in 1990[12] (see Figure 13). This increase has been driven by several factors such as unhealthy diets and sedentary lifestyles, as well as the affordability of healthy food and thus economic disparities. All in all, 884mn adults (504mn female and 380mn male) are currently considered to be obese (against 230mn in 1990). But while almost every country – with the notable exception of France – is challenged by rising obesity, the prevalence of obesity differs widely, from only 5.5% in Japan to 42% in the US (and more than 70% on some Pacific islands). Climate change could worsen this trend: Higher outside temperatures tend to prevent outdoor physical activities in tropical countries. At the same time, the unequal distribution of wealth means that not everyone has the same access to an affordable balanced and quality diet. More worryingly, overweight and obesity issues are increasingly starting at an earlier age. Between 1990 and 2022, the prevalence of obesity in the age group from five to 19 quadrupled from 2% to 8%[13]. These rising obesity rates among children together with an increasingly sedentary adult society sets the stage for obesity rates to continue to rise in the foreseeable future.

[12] A Body Mass Index (BMI) of 30 or greater is considered obese. As a reference, a healthy BMI ranges between 18.5 and 24.9.
[13] See WHO (2024): Fact sheet obesity and overweight. In total figures, the number of obese children and adolescents increased from 31mn to more than 160mn in 2022.

Figure 13: Obesity rates % (BMI > 30) among adults (+18 years old)



Sources: WHO, Allianz Research

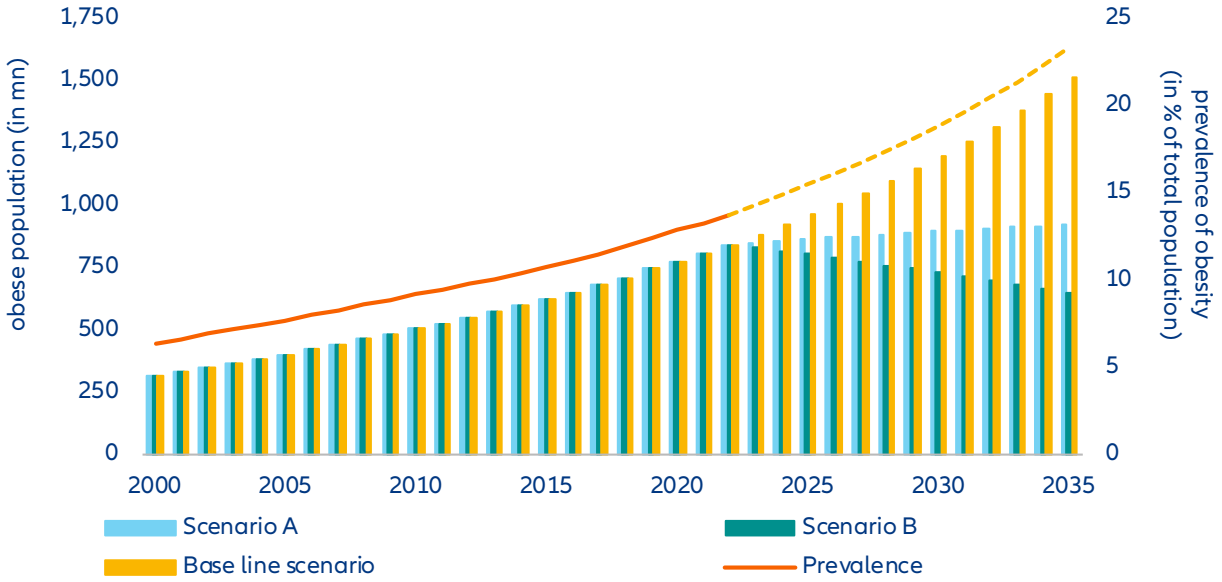
Obesity contributes to several severe health risks, such as diabetes, heart disease, lack of mobility and certain cancers, which increase healthcare costs and strain medical resources. Obesity is estimated to account for up to 80% of the increase in diabetes cases.[14] Risks for suffering from coronary heart disease, strokes, certain forms of cancer and osteoarthritis are also markedly higher for obese people compared to normal-weight peers. Adding insult to injury, obese patients more often have complications from medical treatments than their normal weight peers. The Covid-19 pandemic put this fact into the spotlight as patients with a Body Mass Index (BMI) of 30 or higher had a markedly higher risk of hospitalization and death than other Covid-19 patients. In fact, the number one cause of death globally is ischemic heart disease, which results from reduced blood flow to the heart, often due to atherosclerosis or blockage of the coronary arteries. This condition is increasingly concerning due to rising risk factors such as obesity. Furthermore, persons suffering from obesity in middle age also have a higher risk for developing dementia in higher ages and other neurodegenerative pathologies such as Parkinson's or Huntington's disease. Thus, obesity results in higher health expenditures but also indirect costs due to losses in economic productivity (e.g. earlier retirement).

Treating obesity with weight-loss drugs could make a trillion-dollar difference for global health systems. Weight-loss drugs promise to break the past trend of ever-increasing obesity. To calculate how much savings could be generated by using them to treat obesity, we estimate the direct future health expenditures for obesity by age class in 57 countries[15] based on the latest available data from the WHO, NCD Risk Factor Collaboration, the IMF and the United Nations, as well as our own nominal GDP growth forecasts. To take into account the fact that health expenditures increase with age, we refer to the average health costs by age group provided by the Statistical Office of Switzerland. First, we built our base line without GLP-1 drugs intake, i.e. we modelled a continuous rise of the prevalence of obesity in each age group according to the average annual growth rate between 2010 and 2021. We then compared it to two possible scenarios: A and B. In scenario A, the increase in obesity is stopped i.e. the prevalence of obesity in each age group remains constant at the 2021 levels (medium impact of GLP-1 drugs); in scenario B, obesity is even declining – the prevalence of obesity in each age group goes back to the levels last seen in 2010 (high impact) (see Figure14). In all scenarios we assume that the distribution of health expenditures by age group

[14] See for example Diabetes Ireland (2024): Excess weight [...]
[15] Total health expenditures in these 57 countries amounted to 98% of the global health expenditures in 2021. Furthermore, they represented 76% of the world population and 93% of global GDP.

remains constant.[16] In order to take into account that obesity is not only a major risk factor for developing type 2 diabetes, but also for developing cardiovascular diseases, osteoarthrosis, certain forms of cancer and dementia, and for suffering from (severe) complications in the treatment of other diseases, we assume that the health expenditures for an obese patient are on average 1.3x higher than the expenditures for a non-obese peer.[17]

Figure 14: Prevalence of obesity (in %, rhs) and scenarios for population suffering from obesity scenarios (in mn, lhs)



Sources: NCD Risk Factor Collaboration, UN Population Division (2024), Allianz Research

This would clearly have an impact in the development of health expenditures for obesity. In our baseline scenario, the total number of people suffering from obesity in the analyzed countries would increase from 884mn in 2022 to 1,515mn in 2035, which would correspond to an increase of the prevalence of obesity from 13.8% to 23.3%. In China and India, the number of people suffering from obesity would exceed 200mn, and in the US the number is likely to increase to more than 160mn people in 2035. In this scenario, the overall prevalence of obesity would only slightly increase from 13.8% to 14.2% due to aging effects. The total number of people suffering from obesity would increase to 920mn, with 136mn of them living in the US, 108mn in China and 98mn in India. In scenario B, the prevalence of obesity would decline to 9.9% in 2035, assuming a high impact of GLP-1 drugs. This would be slightly above the average 9.2% in 2010 due to shifts in the age structure. The total number of obese people in this scenario would decline to 645mn. In the US, the number of obese people would drop by 10mn from 126mn today to 116mn.

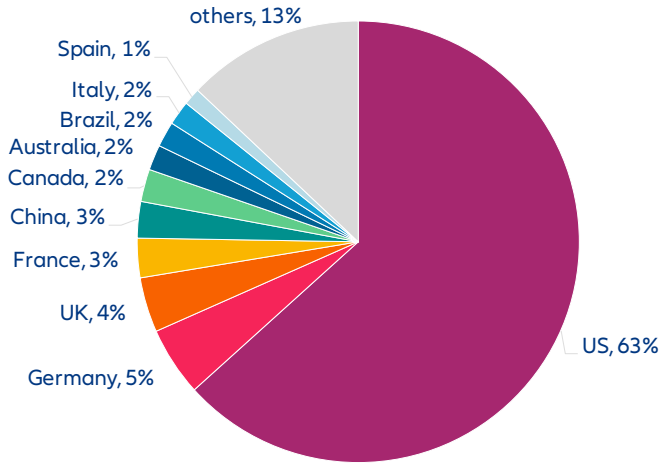
Today, obesity-related health expenditures amount to EUR698bn (7.8% of total expenditures) but the US bears two-thirds of the economic burden, while the top 10 countries together account for nearly 90% (see Figure15). This share could increase for the US in the short term as President Joe Biden just proposed to expand the government coverage

[16] For a more detailed description of the methodology see our report: Allianz | Obesity: Costly epidemic.
[17] According to estimates, the direct medical costs per year for the treatment of an obese patient with a BMI between 30 and 34 are 18% higher, for an obese patient with a BMI between 35 and 39 they are 46% higher and for a patient with a BMI of 40 and greater they are 104% higher than for a non-obese patient. See Kompetenzzentrum für Ernährung (2021), p. 7.

of weight-loss drugs to include obese patients without other health conditions (an additional 7.4mn Americans). This expansion aims to make these drugs available at a reduced cost through Medicare and Medicaid[18], which currently only cover the costs if the patient suffers from diabetes or cardiovascular diseases.

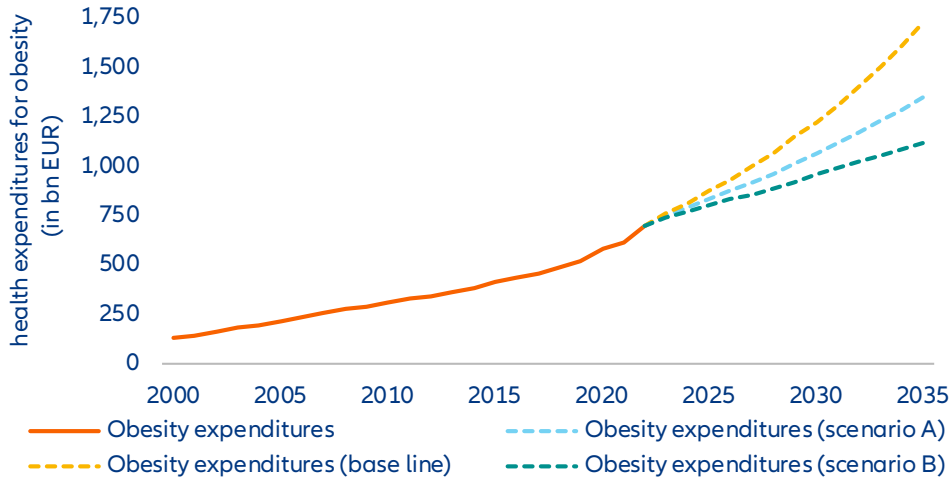
If we assume that average health expenditures per capita in each age group develop in line with the growth of nominal GDP per capita, the continuation of the trends in the prevalence of obesity would lead to an increase in total health expenditures for obesity to EUR1,726bn in 2035, or 9.7% of total health expenditures. If the prevalence of obesity remained stable (scenario A), the increase would be dampened to EUR1,353bn and the share in total health expenditures would remain stable. In the high-impact scenario, in which the prevalence declines (scenario B), the expenditures for obesity would increase to EUR1,124bn, accounting for "only" 6.5% of total health expenditures (see Figure 16).

Figure 15: Split of obesity costs by country in 2022 (in %)



Sources: NCD Risk Factor Collaboration, UN Population Division (2024), Allianz Research

Figure 16: Health expenditures (EUR bn) for treating obesity under different scenarios



Sources: NCD Risk Factor Collaboration, UN Population Division (2024), Allianz Research

[18] Medicare and Medicaid are both US government programs designed to help people with healthcare costs, but they serve different groups of people and have different eligibility requirements.

If annual cost savings are accumulated, the sums are staggering. If the prevalences of obesity gradually declines to 2010 levels, all countries under consideration would need to spend an accumulated EUR3.3trn less on health expenditures for obesity within the next 10 years. If levels remain constant, the cost savings would still accumulate to EUR2.0trn compared to our baseline scenario of rising obesity. These cost savings would be also felt in state budgets, since roughly two-thirds of the expenditures for obesity are financed by the public health system. It goes without saying that the US – where 42% of the population is obese – would benefit the most. If the prevalence starts to gradually decline from 2025 onwards, the accumulated annual cost savings within the next 10 years would amount to EUR1.8trn, while if the rates remain stable it would still be EUR1trn. On top of these savings for the US health system and the improvement in quality of life, Americans would no longer have to pay one of the highest prices in the world for anti-obesity drugs (around 3.5x more on average than in European countries, see Figure 11).

However, when discussing the opportunity costs, one needs to consider that obesity also causes indirect (economic) costs. People suffering from obesity can be less productive due to multiple health conditions. They also have a higher risk of becoming incapacitated for work and to retire early. Hence, the increasing prevalence in obesity also threatens to undermine governments' efforts to make pension systems more sustainable by increasing the retirement age. Furthermore, obese people are often faced with wage discrimination. The Economist calculated that the obesity pay gap for people could be up to EUR65bn per year in the US.[19] The World Obesity Federation estimated that the economic costs of obesity could amount to EUR3.9trn or almost 3% of global GDP in 2035 if it is not prevented and treated accordingly.[20] If new GLP-1 drugs have no severe side effects in the long-run, they could indeed not only help to improve the quality of life of millions suffering from obesity but also help to boost economic growth by trillions of euros.

The rise of weight-loss drugs will also have an impact on the insurance industry. Obesity tends to lead to more health-related claims, including medical treatment for obesity-related diseases. This can lead to longer-term care needs, especially for individuals who develop chronic conditions early in life, increasing costs for insurers. Consequently, as obesity rates rise, insurers may raise premiums for high-risk individuals (people who are obese or have a history of obesity-related conditions). Thus, if the uptake of medicines such as GLP-1 drugs continues to grow and they prove their effectiveness by reducing the prevalence of obesity around the world, insurance companies could benefit significantly from a more favorable environment in terms of profitability, given better underwriting terms and lower claims costs. However, the full impact will depend on access to these medications, their still-unknown long-term effectiveness and how quickly the population adopts healthier habits overall.

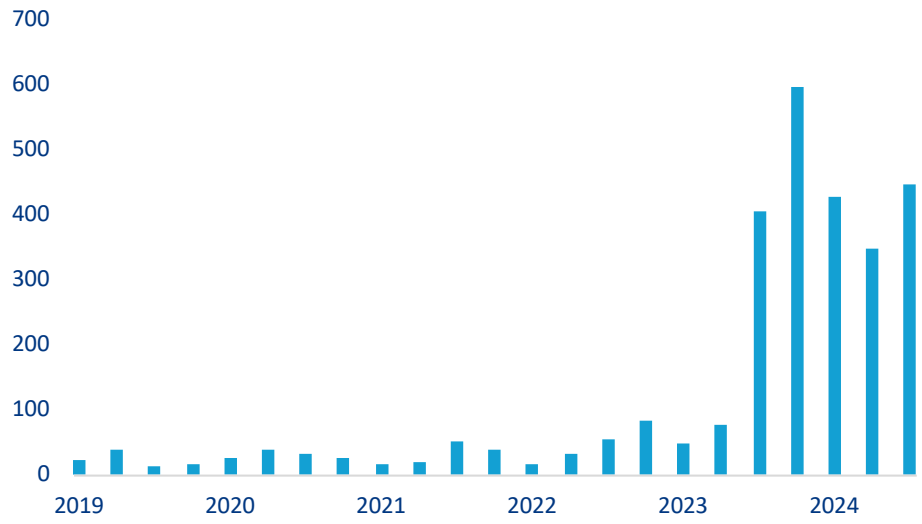
[19] See Economist (2023): The obesity pay gap is worse than originally thought.
[20] WFO (2024): World obesity atlas 2024, p. 10.

The food industry feels the bite

Since weight-loss drugs suppress appetite, they can have far-reaching consequences for the food industry, especially in the US. A recent survey showed that 6% of US adults were taking GLP-1 medications in 2024[21], while prescription and sales data suggest that there were 500,000 users in 2023. It is estimated that up to 15mn US adults could be using GLP-1 for weight-loss by 2030. This trend is prompting food companies to reevaluate their portfolios as they face potential declines in demand. In fact, GLP-1 drugs are increasingly being mentioned in earnings calls (Figure 17). For example, Walmart recently reported a noticeable shift in food purchasing patterns that aligns with increased GLP-1 usage. This development is seen as an early warning for food manufacturers.

[21] KFF Health Tracking Poll May 2024: The Public's Use and Views of GLP-1 Drugs

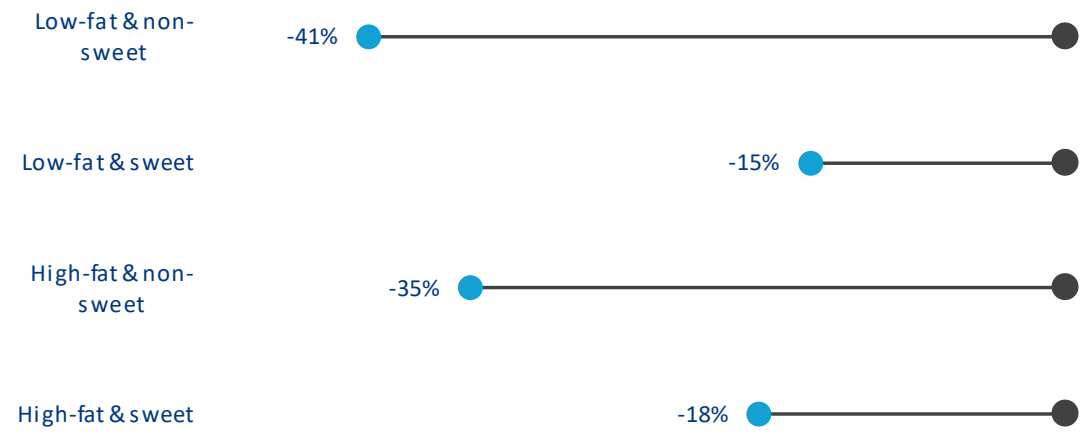
Figure 17: Mention (frequency) of GLP-1 drugs in US earnings calls



Sources: Bloomberg, Allianz Research

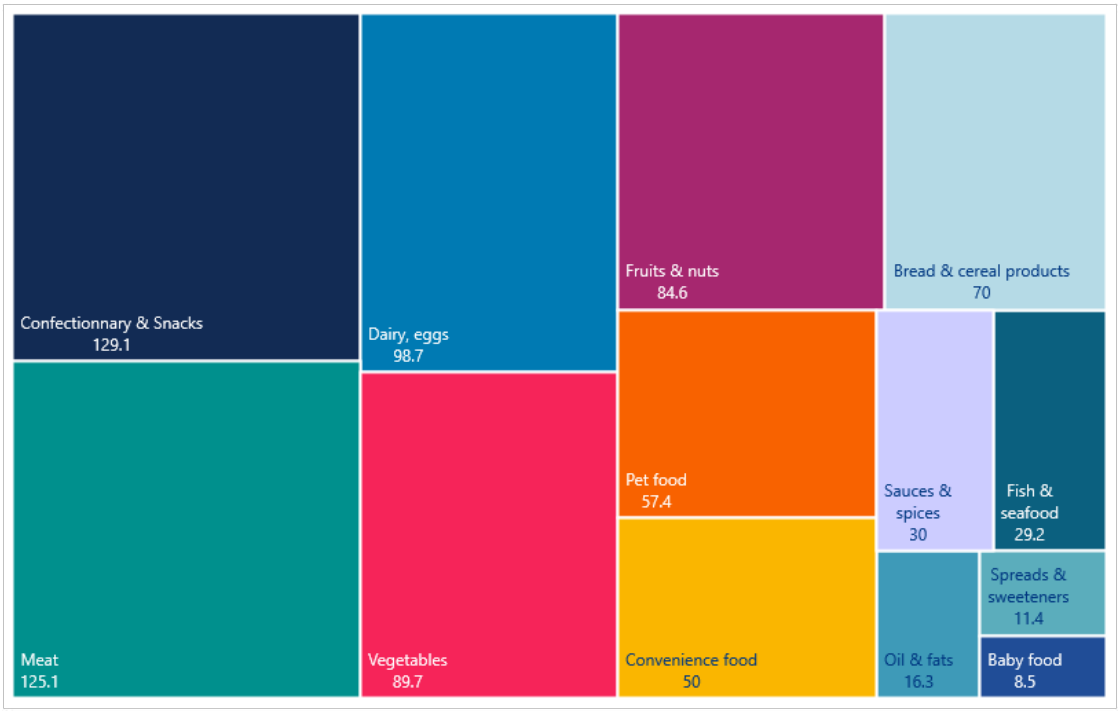
The GLP-1 boom could cut the US food market by USD40bn over the next decade by reducing demand for snacks and high-calorie and processed foods. Clinical studies show that patients on GLP-1 medications experience an average reduction of 20-30% in overall calorie intake. This effect is particularly strong for calorie-dense foods, with users reporting a substantial drop in consumption of sweets, snacks and beverages with high sugar and fat content (Figure 18). The food market in the US is estimated at around USD800bn and segments such as confectionery and snack foods, which amounts to about USD130bn in the US, could be in trouble (Figure 19). Considering the socio-economic profile of different groups of GLP-1 users – i.e. low income obese or diabetic users covered by Medicaid, medium- and high-income obese and diabetic users covered by private insurance and high-income users willing to spend significant amounts on the drug – we estimate a -5% drop in the food market or about USD40bn by 2035. Should other advanced economies follow suit, a similar decrease could also be on the table.

Figure 18: Change in snacking intake (%) by food group by GLP-1 users



Sources: Blundell J., Finlayson G., Axelsen M., et al. (2017), Allianz Research

Figure 19: US food market size by segment in 2023 (USD bn)



Sources: Statista Market Insight, Allianz Research

In this context, food manufacturers need to adapt and seize new opportunities. We identify two broad categories of GLP-users: (i) the easy-going and "lower-motivation" user will continue to eat and buy what he usually does but will reduce volumes and spend while (ii) the "highly motivated" and conscious user will buy lower-calorie, high-protein, nutrient-dense foods and make significant changes to their habits. Food manufacturers should respond with innovations such as smaller portion sizes, protein-rich snacks and functional foods enriched with fiber and essential nutrients. The rise in GLP-1 use also presents considerable growth opportunities for producers of ingredients and nutraceuticals, especially those producing natural GLP-1 stimulators such as prebiotic fibers, berberine, resveratrol, curcumin and ginseng. These ingredients can benefit both current and potential GLP-1 users in multiple ways. Before medication, natural inducers may help boost the body's endogenous production and secretion of GLP-1, potentially preparing individuals for medication use. While taking the medication, nutraceutical products that counter the side effects of GLP-1 drugs could see strong demand. Also, there is an opportunity for the food industry after users quit GLP-1 medications by providing alternatives to sustain some of their effects, aiding in weight management and glucose control. While they may not achieve the same weight-loss effects as pharmaceutical medications, innovative food products can provide a natural and cost-effective option without prescription requirements, potentially supporting a smooth transition off medications. Lastly, the sector can also leverage the client base of individuals unable to take GLP-1 medications – whether due to side effects, cost or limited insurance – by presenting them with alternatives.

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