Economic Research:

# Low Business Investment Is Weighing On German Economic Growth

**September 18, 2019**

## Key Takeaways

- German GDP could have been up to 4.2% higher in 2018 if investment had risen at the same pace as before the financial crisis, enough to maintain the same rise in capital per worker as before the crisis.
- Since the financial crisis, external demand for exports has been the main impetus for business investment. Therefore, we expect the current global economic slowdown to hold the Germany economy back for a long time.
- Other structural factors weighing on business investment are increasingly high pension provisions due to low interest rates as well as relatively high corporate tax rates.

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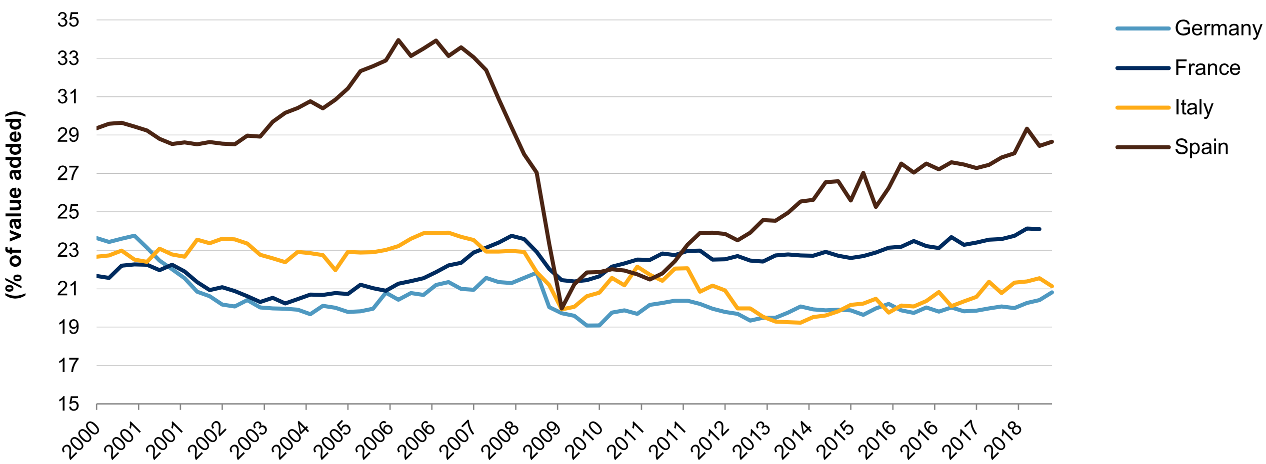
Many economists have pointed to the dearth of investment in Germany as holding back GDP growth. S&P Global Ratings argues that stunted business investment is the main reason the economy hasn't grown as much as it could have. Investment in Germany--public, private, and housing investment--has risen an annual average 2.9% over the past five years. Compared with that in other eurozone countries, German business investment has been weak despite the country's solid economic growth. Here, S&P Global Ratings examines the reasons for weak German business investment, which we believe is the main factor weighing on the country's potential output.

## Business investment has been less dynamic than growth of the manufacturing sector

German business investment has been less dynamic than the performance of the country's manufacturing and export sectors since the global financial crisis. Investment as a share of value added is still below its 2008 peak and has only moved sideways since then. By contrast, the ratio of corporate investment to value added in France and Spain has increased, thus supporting their competitiveness (see chart 1).

Chart 1

**German Nonfinancial Corporates Invest Less, In Value Added, Than Their Spanish And French Counterparts**




Source: S&P Global Ratings.

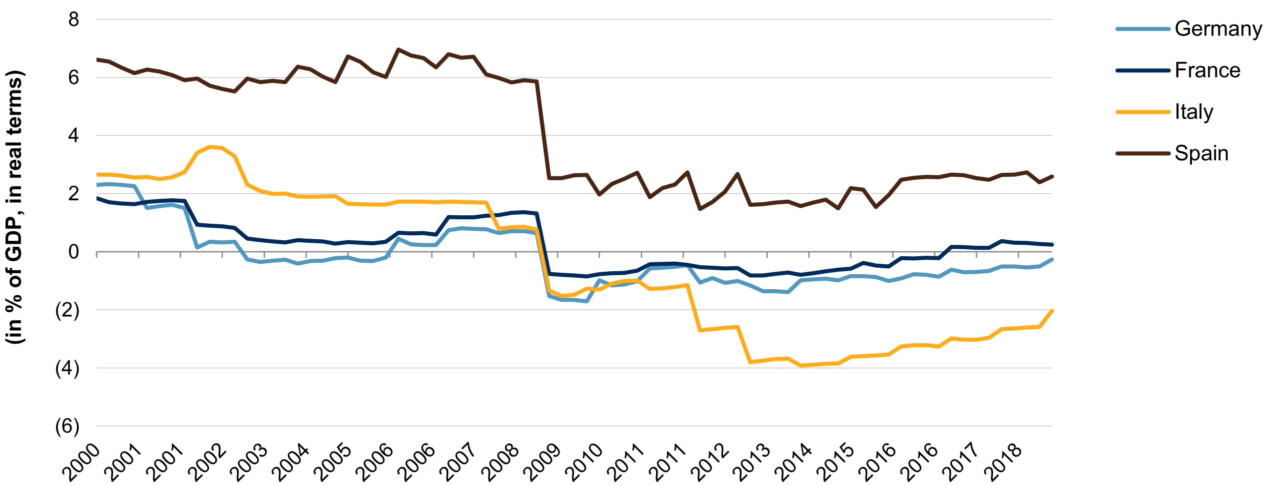


## Business investment has not been enough to replace depreciated capital

German productive investment has lagged behind capital stock depreciation since the beginning of the 2000s and consistently underperformed that of peer eurozone countries. Consequently, production facilities in Germany have seen less renewal over the last two decades than those of other big eurozone countries. Only Italy has done worse than Germany, but that's because of weak economic growth (see charts 2 and 3).

Chart 2

### German Productive Investment Remains Negative, Net Of Depreciation

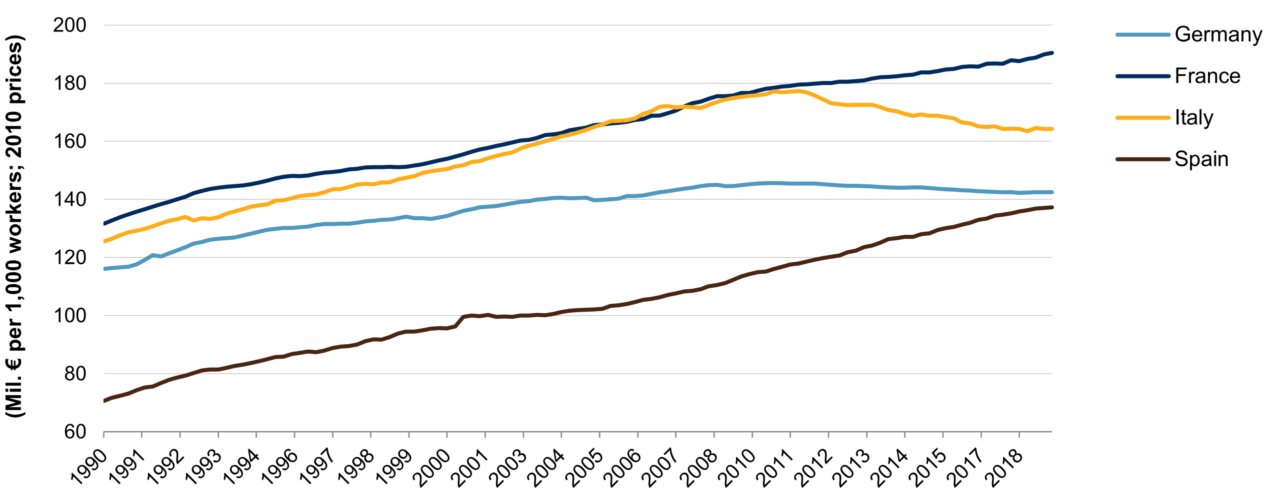



Source: S&P Global Ratings.



Chart 3

### Stagnating Capital To Labor Ratio Weighs On Potential Output




Source: S&P Global Ratings.



Business investment in Germany has flagged in other ways too. The ratio of capital to labor has been flat since the financial crisis, contrary to the trend in France and Spain where it has continued to increase (see chart 5). Due to this lack in investment, we estimate the loss in potential output by end-2018 (calculated as the difference with potential output, had the ratio of capital to labor continued to rise at the same pace as before the crisis) at €124 billion, which represents 4.2% of last year's GDP (see table 1). On the one hand, a lack of factor capital (for example, machines) has directly lowered potential output. On the other hand, weak business investment has also weighed on output technology, according to the basic Solow equation. Less or outdated technology limits workers' productivity and, ultimately, economic growth.

Table 1

## How We Calculated Lost German GDP Due To Drop In Investment

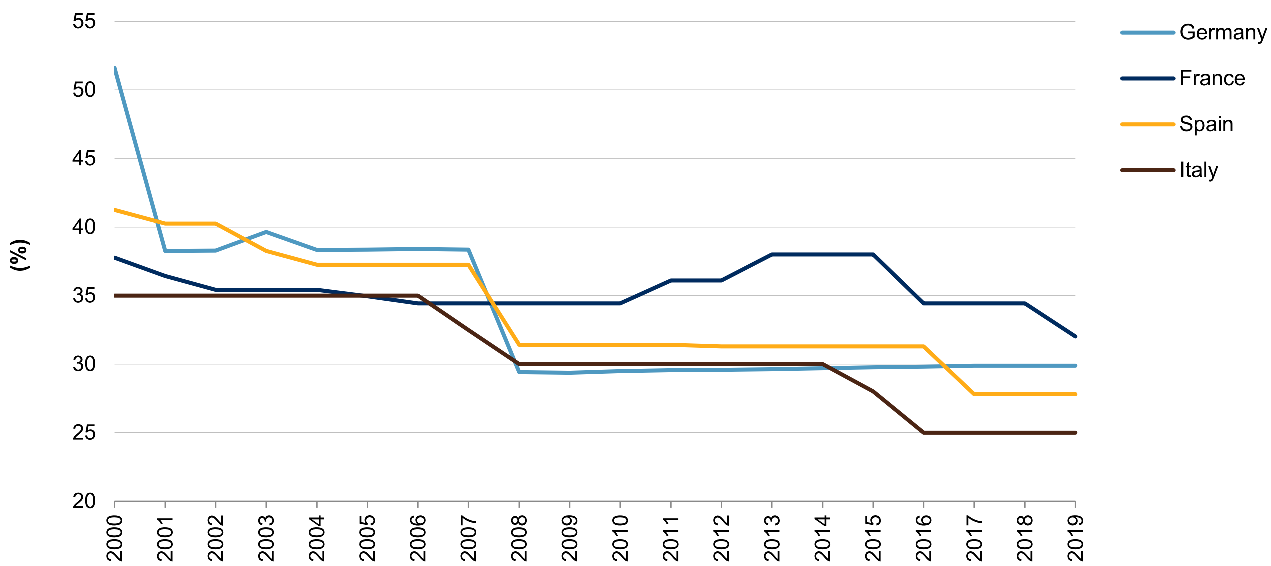
| **(Bil. €)** | |
|---|---|
| Potential GDP 2018 | 2972.02 |
| Potential GDP 2018 (with continued rise in investment) | 3096.09 |
| Difference | 124.07 |
| Share of 2018 GDP | 4.17 |

Source: S&P Global Ratings.

One reason for the brake on business investment is Germany's relatively high corporate tax rate, compared with rates in other eurozone countries. Germany reduced its average tax rate on corporate earnings to 29.5% in 2008 from 51.6% in 2000. However, since then it has risen slightly to 29.9% this year, while other European countries have reduced it further. The EU average stood at 21.3% last year. As a result, the German corporate rate is only slightly lower than the French rate (currently at 32%; see chart 4). With France implementing cuts in corporate tax rates starting this year, Germany is likely to become the eurozone country with the highest tax rates by 2021.

Chart 4

**After Cuts In France, Germany Will Have The Highest Corporate Tax Rates Among Big Eurozone Countries**




Sources: OECD, S&P Global Ratings.



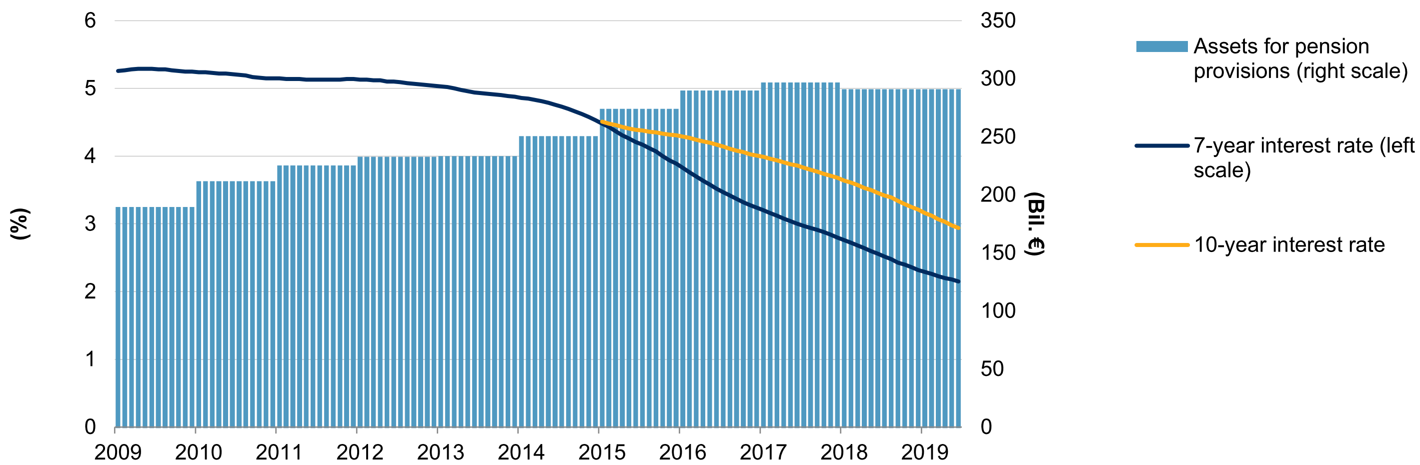
## Rules for pension provisions also hamper more dynamic business investment, particularly in a low interest rate environment

Building up pension provisions is one of the favored options German companies have to provide for their employees' retirement, especially for large firms. Pension provisions, which total about €290 billion and concern 7.8 million employees, are the most prevalent form of pension financing on the firm level in Germany. These provisions need to be the equivalent of the present value of future pension payouts. The German Commercial Code stipulates the rate used to discount the present value of future payouts as the average market interest rate plus a risk premium. Until 2016, the period for calculating the average interest rate had been seven years but has now been extended to 10 years. In the context of low market interest rates, the discount rate has continuously decreased to 2.9% in June (see chart 5). Given the calculation period of 10 years, it is set to decrease further even if interest rates increased, which we do not expect to happen before 2021.

In a survey conducted by the Deutsche Industrie- und Handelskammer (DIHK) in 2015, 10% declared that they had to reduce investment due to higher pension provisions. That figure was 23% of firms with more than 1,000 employees, as especially large firms opt for pension provisions.

Chart 5

**Lower Discount Rates Have Increased Pension Provisions By 25% Since End -2013**




Sources: Bundesbank, S&P Global Ratings.



## Our model shows weak external demand is why German business investment has stalled

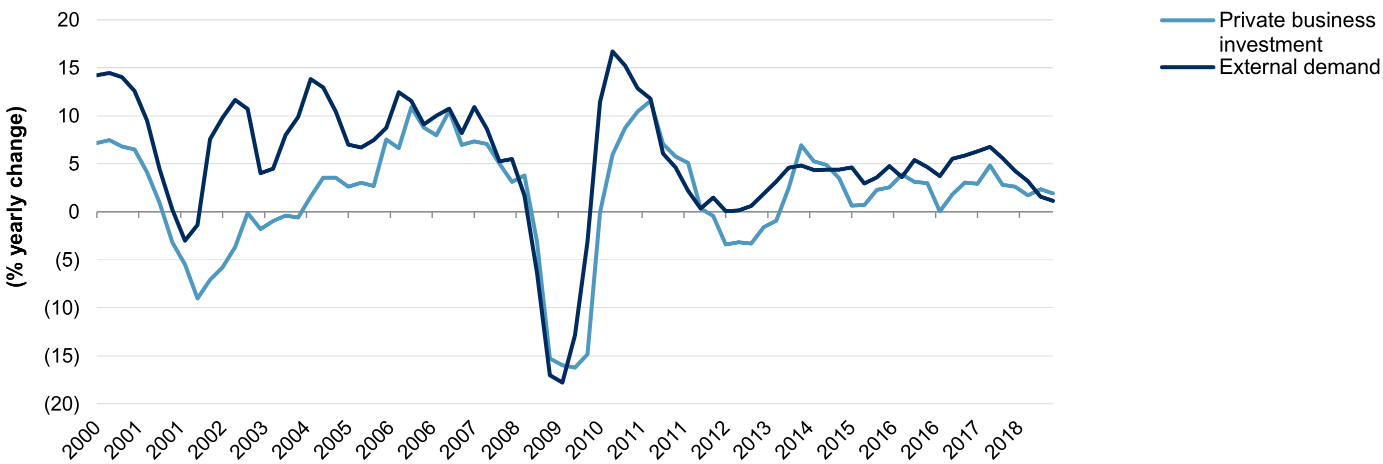
We modeled the main factors driving business investment in Germany and found that since the financial crisis, export demand is the main determinant in the short run (see Appendix). In the long run—when growth rates approach equilibrium, both external demand and interest rates are significant determinants for investment. Counterintuitively, we find a positive relationship between interest rates and business investment, which is in line with other research. The reason is that higher interest rates are usually a result of solid economic growth and indicate a point in the cycle where demand for financing is strong. As such, higher interest rates appear to be a proxy for the economic situation and point in the cycle.

Interestingly, the relationship between external demand and business investment has become more pronounced since the financial crisis (see chart 6). If we look before 2008 or at the whole sample period from 2000 to 2019, we find that other determinants of investment matter. GDP growth and the depreciation rate of capital are significant in the short run, as well as GDP in the long run when looking at the whole sample.

The fact that external demand drives German investment means that Germany's potential output is highly dependent on activity in the rest of the world. For that reason, we believe that a global economic slowdown or recession would have a long-lasting negative impact on the German economy. As we can currently see, although being widely praised after the eurozone crisis, the German "export-driven" model also has its limits.

Chart 6

**Business Investment Is Predominantly Coming From External Demand For German Exports**




Source: S&P Global Ratings.



## Appendix: How We Modeled The Main Factors Driving Business Investment In Germany

We used an error correction model to capture both long-term and short-term determinants of business investment. We modeled quarterly changes in investment (or dlog) for stationarity purposes and also eased the interpretation of coefficients as elasticities.

$$\ln \Delta IPNR = \beta_1 * \ln \Delta GDP_{t-1} + \beta_2 * \Delta DEPRATE + \beta_3 * \ln \Delta WT - \beta_4 * (\ln IPNR_{t-1} - C - \beta_5 * \ln GDP_{t-1} - \beta_6 * INTEREST - \beta_7 * \ln WT_{t-1})$$

Where GDP is Real Gross Domestic Product; DEPRATE: depreciation rate of productive capital; WT: demand for German exports from the rest of the world; IPNR: Real Business Investment; INTEREST: corporate interest rate (nominal); C: Constant.

We also tested other measures of financing conditions, the health of corporates, the economic cycle and economic conditions, as well as economic sentiment indicators, but they were not significant.

Table 2

## S&P Global Ratings' Estimation Results: Testing Factors Behind Business Investment In Germany

| | 2000-2019 | | Precrisis (2000-2008) | | Postcrisis (2009-2019) | |
|---|---|---|---|---|---|---|
| **Short-term relationship** | | | | | | |
| DLOG(GDP(-1)) | 0.662 | *** | 1.206 | *** | | |
| D(DEPRATE) | 0.127 | ** | 0.177 | *** | | |
| DLOG(WT) | 0.588 | *** | 0.245 | ** | 0.657 | *** |
| **Long-term relationship (error correction term)** | | | | | | |
| LOG(IPNR(-1)) | 0.207 | * | 0.22 | * | 0.657 | *** |
| Constant | -3.67 | * | 2.111 | *** | 0.778 | ** |
| LOG(GDP(-1)) | 0.964 | ** | | | | |
| INTEREST | 0.043 | *** | 0.048 | *** | 0.035 | *** |
| LOG(WT(-1)) | 0.36 | ** | 0.454 | *** | 0.764 | *** |
| R-squared | 0.628 | | 0.622 | | 0.863 | |
| Adjusted R-squared | 0.59 | | 0.544 | | 0.848 | |
| N | 77 | | 36 | | 41 | |

***Statistically significant at 1% confidence interval. **Statistically significant at 5% confidence interval. *Statistically significant at 10% confidence interval. IPNR--Real business investment. INTEREST--Corporate interest rate (nominal). DEPRATE-- Depreciation rate of productive capital. WT--Demand for German exports from the rest of the world.