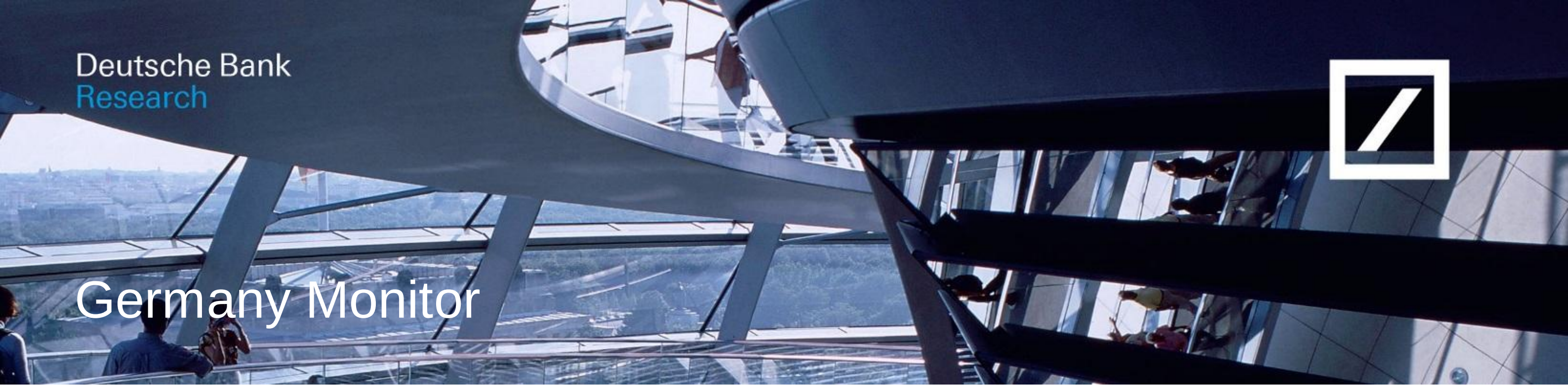

German stock market rises to record highs: All is well – or is it?

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In the last few weeks the Dax has repeatedly climbed to new record highs. However, the commonly used total return index is unsuited for international comparisons. On November 3, the Dax reached a new record high, at 13,505. Its cumulative gain since 2010 amounts to almost 120%. However, as a total return index, this figure includes reinvested dividends. In contrast, international equity indices usually take into account only the share price performance. On a comparable basis, the cumulative Dax increase amounts to only about 70%. Still, this is enough to leave its most important European peers behind.

The German stock market is benefiting from strong economic growth and, just like other capital markets, from unconventional monetary policy. In the last few years Germany has enjoyed considerably stronger GDP growth than its euro area peers. In addition, the ECB's rate cuts and securities purchases have supported the Dax.

The Dax is not representative of the German economy as a whole. Since the financial crisis, the Dax has risen more than the German economy overall. This is not least due to the strong weight of manufacturing in the index: the sector makes up more than half of the Dax market capitalisation, even though it has a share of less than one-quarter in total gross value added. The manufacturing sector in turn has benefited from its strong position in countries with particularly high growth rates and from a global cyclical upswing, whose impact on the much larger services sector has been less pronounced.

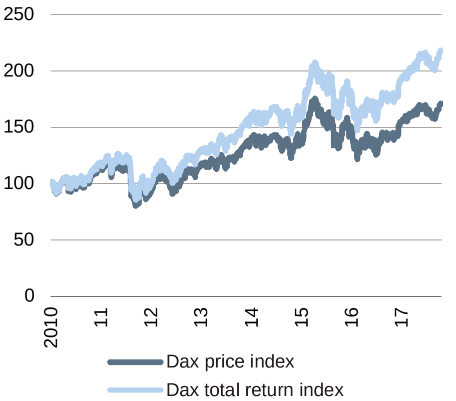
Despite the favourable recent trend, the German stock market remains underdeveloped. In terms of market cap (57% of GDP), Germany continues to rank last among the large European countries and the US. Equity issuance is relatively subdued, too. There are several reasons for this, such as a tax system that discriminates against equity capital, a pension system that hardly involves the capital market, risk-averse retail investors and a large share of family-owned companies (and, consequently, a relatively small number of listed companies).

The new government should take steps to lower the structural hurdles for a flourishing stock market, in our view. A successful stock market is important for companies as a source of financing, for savers as a way to increase returns and diversify their portfolio and for start-up founders as an exit option for venture capital.

On November 3, the German equity index Dax reached another record high, at 13,505 points, after having crossed the threshold of 13,000 points for the first time on October 16. It has risen by a total of almost 50% over the past three years. The German stock market is obviously a success – or is it?

Only 60% of the Dax performance since 2010 stems from higher share prices 1

January 1, 2010 = 100



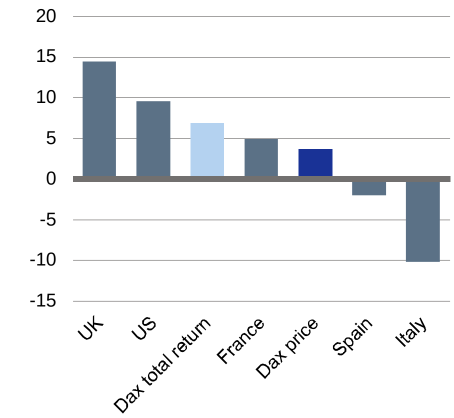
Sources: Bloomberg Finance LP, WEFA, Deutsche Bank

Dividend payments play an important role in the success of the Dax

In contrast to the vast majority of well-known international equity indices, the Dax is a total return index. It reflects the total return of equity investments, not just the share price performance of its constituent firms. In particular, its calculation is based on the assumption that any dividend payments are immediately reinvested in full (although this is not the only distinctive feature). In contrast, most international indices track only the price movements of the shares they contain and do not take into account dividend payments. Under extreme circumstances, a stock whose price remains constant over several years (or rises only in line with the dividend to be distributed) may therefore contribute nothing to the performance of a price index, but make a significant contribution to a rising total return index.

This divergence between the two index types becomes more pronounced over time as dividends accumulate. Let's take Germany as an example. The Dax price index has risen by c. 70% since the beginning of 2010 (i.e. after the end of the financial crisis, but before the beginning of the European debt crisis), whereas the Dax total return index (its better-known cousin) has gained almost 120%. This means that only 60% of the performance of the total return index is based on share price movement. 40% stems from dividend payments. And this is not an anomaly. Rather, the effect becomes even more visible in the long term. On December 30, 1987, the level of both indices was set at 1,000 points. Today, 30 years later, the total return index trades at more than double the level of the price index (c. 13,000 vs c. 6,200 points).

Performance of the benchmark equity index in 2016 in % 2



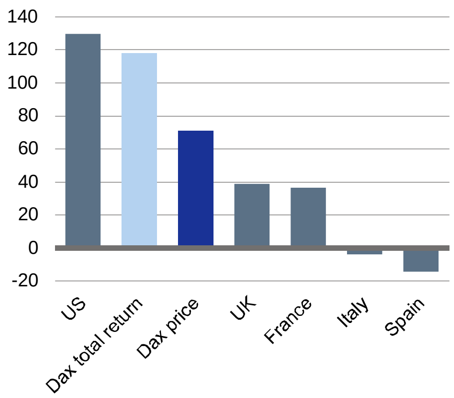
Sources: Bloomberg Finance LP, WEFA, Deutsche Bank

This particular calculation method distorts any comparisons with equity indices from other countries. In 2016, for example, the Dax achieved an average performance when compared with key European and US indices. According to the common interpretation, it lagged the British FTSE 100 and the US S&P 500, but outperformed the French CAC 40, the Spanish IBEX 35 and the Italian MIB 40. However, a closer look reveals that the Dax was less successful than its French counterpart, as the price index gained only 3.7%, i.e. about half as much as the total return index and less than the CAC 40 (4.9%).

Dax considerably ahead of its European peers

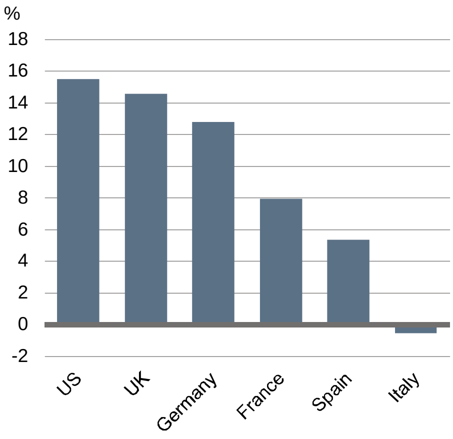
Dax better than European peers, but lags behind US 3

Change in the national benchmark equity index since January 1, 2010 in %



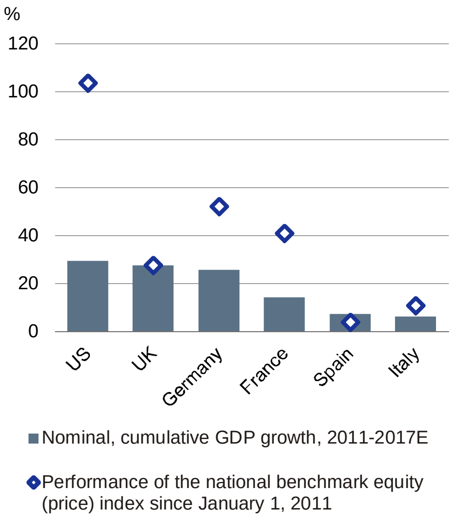
Sources: Bloomberg Finance LP, WEFA, Deutsche Bank

Thus, it is important to choose a uniform standard for comparison, even for a relatively short period. The problem of distortion becomes more pronounced in an analysis over several years. Since the beginning of 2010, the Dax total return index has kept up with the S&P 500 in the US (i.e. more than doubled) and thus left all major European peers far behind. By contrast, the Dax price index with its increase of 70% still outperforms its European peers, but the British and French indices are more in its league (with gains of almost 40%) than the US index (+130%). The Italian and Spanish benchmark indices remain below their pre-crisis levels. Still, the German stock market appears to have outperformed its European peers as expected, due to Germany being perceived as a safe haven during the European debt crisis as well as above-average economic growth. Since the end of 2010, German GDP has grown by a cumulative 13% in real terms, i.e. not much less than US or British GDP (+15.5% and +15%, Cumulative GDP growth 2011-17E 4



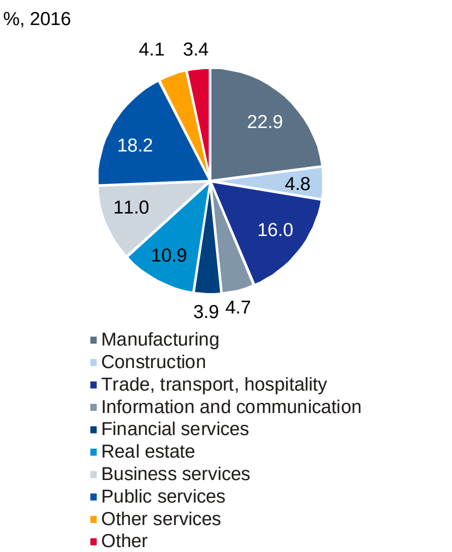
Source: Deutsche Bank Research

DE, FR, US: Stock market outpaces real economy 5



Sources: IMF, Bloomberg Finance LP, WEFA, Deutsche

Gross value added in Germany by industry 6



Sources: Federal Statistical Office, Deutsche Bank Research

respectively) and much more than French (8%), Spanish (5%) or Italian (-0.5%) GDP.

However, the stock market performance has decoupled to some extent from the real economy. The stock market is usually seen as an indicator of the health of the overall economy, even though equity prices are determined more by expectations about the future than by the current situation. It is quite possible that (nominal) equity indices and nominal GDP growth diverge, although they tend to move in the same direction in the long run. This applies to the current upswing, too, but there are some differences. In some countries, economic growth and the increase in share prices have been of similar magnitude since the beginning of 2011; however, the US, French and German stock markets have clearly outpaced GDP growth.

Dax is not representative of the German economy as a whole

An important reason for this decoupling may be the fact that the stock market does not really reflect the economy as a whole, in particular not its sectoral breakdown. (In addition, divergences can obviously result from the fact that benchmark equity indices consist only of large companies, whereas a large share of the value added comes from small and medium-sized enterprises.) In Germany, five industries play a dominant role in the economy as a whole: i) manufacturing; ii) trade, transport, and hospitality; iii) real estate; iv) business services; and v) public services (including healthcare). Taken together, they account for 79% of total gross value added. This underscores the dominating role of the services sector, which is true for all highly developed economies (if somewhat less so for Germany): four of the five largest industries belong to the services sector.

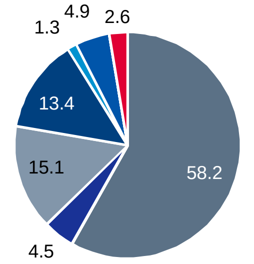
Which industries are the most important for the Dax (measured by market capitalisation)? The Dax heavyweights come from only three industries: i) manufacturing, ii) information and communication and iii) financial services. Manufacturing is far ahead of all other industries, with a share of 58%. Moreover, two industries that play only a relatively small role in the economy as a whole – information and communication and financial services – make up more than one-quarter of the Dax. The Dax is obviously not representative of the German economy overall, as only one of five key industries is meaningfully represented in the benchmark index.

This means that the Dax performance depends much more directly on (global) manufacturing activity than the German economy as a whole. At the same time – not least shown by the recession in 2008/09 – manufacturing, particularly the capital goods sector, which is very strong in Germany, is subject to larger cyclical volatility than most business services, let alone other services industries such as retail trade, real estate or healthcare. Demand for many services is relatively independent of traditional economic up- or downswings.

Moreover, most Dax companies have a strong global presence, which means that for them the share of sales abroad is much higher than for the German economy overall, with its high share of primarily domestic services. While an exact comparison is impossible due to a lack of data, a simple back-of-the-envelope calculation shows the different dimensions. In 2015, the Dax companies generated 45% of their sales revenues outside Western Europe (including Germany), which means that the actual share of foreign revenues was even higher. On the other hand, total German exports amounted to EUR 1,194 bn whereas almost all non-financial companies (the missing industries account for only about 6% of turnover) achieved a turnover of EUR 5,928 bn as estimated by the Bundesbank. While the last two figures do not include any business of legally independent foreign subsidiaries, they clearly show that the

Market capitalisation of Dax companies by industry 7

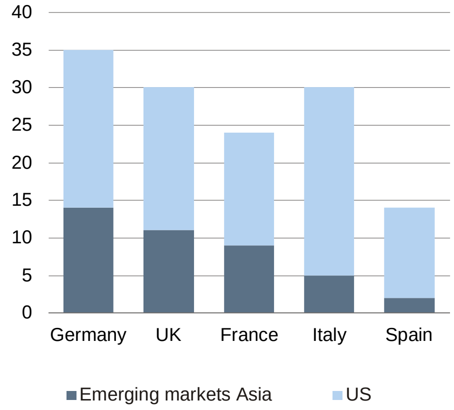
%, October 30, 2017



Sources: Bloomberg Finance LP, Deutsche Bank Research

Share of key growth regions in turnover of European companies* 8

%, 2016

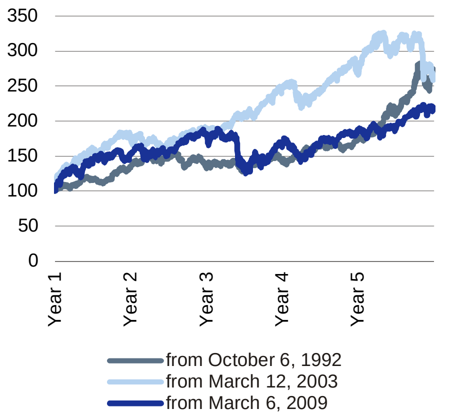


* Aggregate of the companies represented in the national benchmark equity index

Source: Deutsche Bank

After the crash: Performance of the Dax price index 9

Low reached during the recession = 100



Sources: Bloomberg Finance LP, Deutsche Bank Research

corporate sector as a whole generates a much smaller share of its sales abroad than the Dax companies.

Furthermore, the large German companies are particularly well positioned in regions that have seen above-average growth in the last few years. Asian emerging markets have achieved by far the strongest growth rates globally since the end of 2010, and the US was an engine of growth among industrialised countries (even more so than Germany; see chart 4 above). And large listed companies from Germany generate 14% of their turnover in emerging markets in Asia – more than companies from all other major European economies. In addition, the share in the US is the second-highest for German corporates after Italy. This means that the Dax companies have benefited from their international orientation and particularly their strong presence in the fastest-growing economies over the last few years – and probably also from cyclically elevated demand for capital goods.[1]

This effect is smaller for the German economy as a whole, as the share of foreign sales is lower and less-cyclical sectors play a more important role. Since the global economy has been experiencing a cyclical upswing since the end of the financial crisis, it is hardly surprising that the Dax has risen more than German GDP in the last few years.

German stock market upswing moderate in comparison to earlier post-crisis periods

The German stock market rose not only more than German GDP, but also more than all other major European markets. Is this outperformance due to i) unusually strong development in Germany or to ii) only moderate recovery in the other countries?

i) A short look at the movements in the Dax after the recessions of 1992/93 and 2003 shows that the performance after the recession in 2008/09 was not a positive outlier, but rather slightly below the average. Once the Dax had reached its bottom in a recession, the index consistently rose strongly during the following five years and more than doubled in all three instances. The most significant uptrend was registered after the crash until 2003, but then the index suffered again due to the global financial crisis – not even five years after having bottomed. In a historical comparison, the current upswing is not particularly pronounced.

ii) The upswing in other European countries has indeed been weaker than in former economic recoveries. Italy and Spain did not see a major upward trend at all; in fact, equity prices in these two countries are still considerably below the peaks seen before the financial crisis. In France the upswing was considerably slower than in the late 1990s or in the mid-2000s. The same applies to the UK, even though the FTSE 100 at least reached new record highs this year.

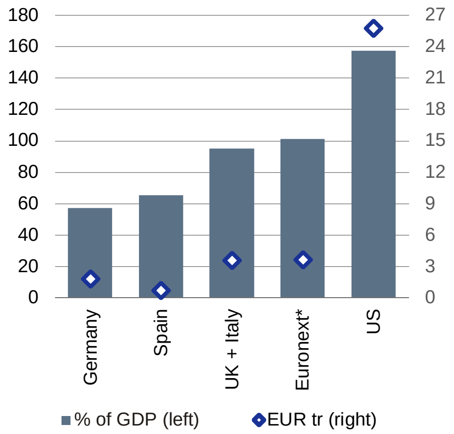
How much did the expansionary, unconventional monetary policy of the last few years contribute to the rise in the German stock market? Securities purchase programmes (also called quantitative easing, or QE) have become popular around the world only since the financial crisis. Portfolio rebalancing is just one channel, in addition to other factors such as a weaker exchange rate and reduced volatility, through which QE may push up equity prices. By buying (typically) government bonds, a central bank squeezes institutional investors out

[1] This international success is reflected only to some extent in the national accounts, as much of the turnover generated by Dax companies abroad (often via subsidiaries) is not registered as exports in the national accounts because the products or services are directly manufactured or provided abroad. Nevertheless, they feed into corporate profits at a group level and are thus reflected in the Dax.

of "safe" assets and induces them to shift their investments into riskier assets. This has an impact on all securities markets, from government bonds to corporate bonds and equities. Moreover, the ECB introduced negative interest rates on bank deposits at the central bank. Overall, monetary policy may have lent considerable support to the stock markets.[2]

Germany carrying the red stock exchange lantern 10

Market capitalisation, Sep 2017



* Comprises the main stock exchanges of France, the Netherlands, Belgium and Portugal

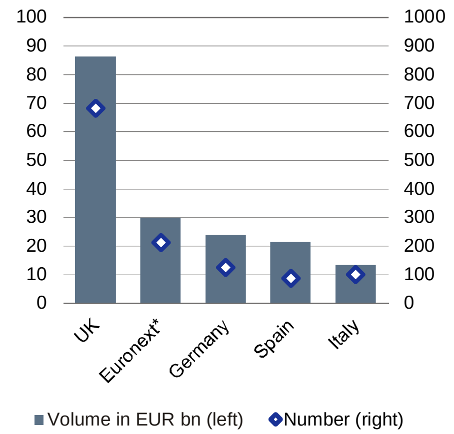
Sources: WFE, IMF, Deutsche Bank Research

German stock market still a lightweight, despite its strong performance

Despite all gains and records that the Dax and even more so the MDax, the index for smaller companies, have registered in the last few years, the German stock market still lags behind in international comparisons. While the aggregate market capitalisation of all listed companies currently amounts to EUR 1,848 bn (an increase of 28% over end-2007), relative to GDP it has stagnated at only 57%. This is the lowest ratio among the large economies in both Europe and the US. Admittedly, the UK and Italy just publish a joint figure (they share a common stock exchange operator) and the figure for France also includes the Netherlands, Belgium and Portugal.

Moreover, the gap between Germany and other countries with a broader and stronger stock market has widened since 2007. In the US, for example, total market cap has risen by 55% and the ratio to GDP has increased from 136% to 157%. Even the UK and Italy, which are suffering or have suffered from Brexit and the debt crisis, have seen market cap relative to GDP rise slightly, to 95%. Thus, the German stock market remains a structural lightweight in comparison to other industrial countries – and this has not changed over the past decade, despite robust economic growth and new Dax records.

IPOs in Europe, 2010-16 11



* Comprises the main stock exchanges of France, the Netherlands, Belgium and Portugal

Sources: PwC, Deutsche Bank Research

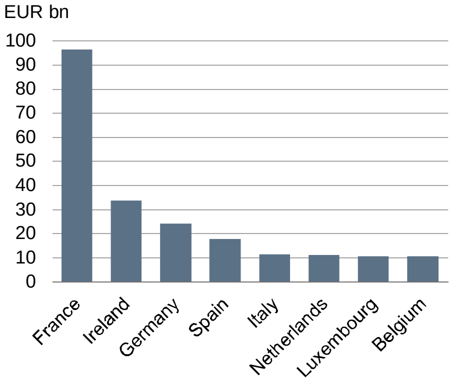
No momentum in new issuances either

How many and which companies are listed on the stock exchange is one thing; the momentum in the market caused by the issuance of new shares and by initial public offerings is another. So how does Germany do in terms of momentum ranking, since it does not do well in status ranking? First, it makes sense to look at the number of initial public offerings, both by new companies that need fresh funds to expand and by companies whose owners want to sell their shares and pull out. Initial public offerings are a volatile business and depend to a considerable extent on current market conditions, which is why any comparison should be based on a period of several years. Since 2010, Germany has taken a middle position among the large European economies, in terms of both the absolute number of IPOs and the capital raised (EUR 24 bn). However, this is the most positive that can be said in this regard. Compared to the size of its economy, Germany once again ranks last in terms of issuance volume, although it is not far behind France and Italy. With respect to the number of IPOs relative to GDP, Germany lags far behind; while a few large IPOs have propped up the overall volume of raised capital, the IPO market is not nearly as broad as in other European countries. On average, 18 companies go public each year in the largest economy of the continent, whereas 98 do so in the UK (whose GDP is smaller).

Secondly, what about share issuance in general, which is typically dominated by capital increases, i.e. transactions where a company that is already listed raises additional equity capital through the issuance of new shares? Figures for the UK are not available, but even within the euro area Germany once again ranks only

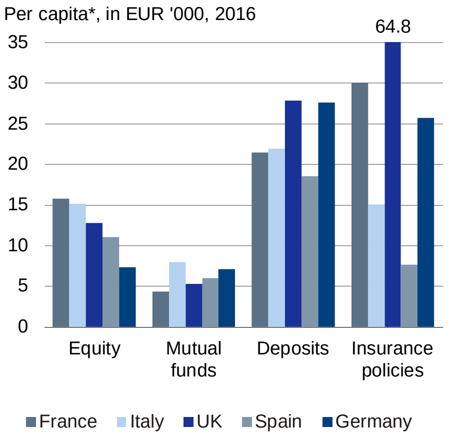
[2] See for example Chen et al. (2017), Bhattarai and Neely (2016), Haldane et al. (2016), Fratzscher et al. (2014) or Engen et al. (2015).

Stock issuance, 2013 - Aug 2017 | 12



Sources: ECB, Deutsche Bank Research

Households' financial assets | 13



* Population as of January 1

Sources: Eurostat, Deutsche Bank Research

somewhere in the middle. Between the beginning of 2013 and August 2017, non-financial listed companies issued new shares worth a total of EUR 24 bn in Germany. A meagre result, compared to EUR 96 bn in France, EUR 34 bn in Ireland or EUR 18 bn in Spain. While Germany has a share of 29% in euro area GDP, its share in equity issuances was only 10% during this period. During the "new economy" era the share was 40-50%, and before the financial crisis it was still almost 20%. Hence, Europe's largest economy overall performs relatively poorly in the stock market momentum ranking as well.

Reasons for the structural weakness of the German stock market

In a financial system that is largely based on bank financing, the stock market obviously plays a less important role than in a financial system that relies more on the capital market. Thus, the German stock market has always been relatively small. There are numerous reasons for this, beyond the historical role of the banking sector as the most important (and well-functioning) intermediary between creditors and debtors. Some of them are:[3]

— The tax treatment of debt capital is more favourable than that of equity capital, as interest payments on debt can be deducted from pre-tax profits whereas dividends must be paid from after-tax profits. Since many other countries have similar rules, this distortion dampens the development of the stock market but does not explain Germany's relative weakness.

— The German pension system lacks a widespread and substantial funded component in individual old-age provisions that could be invested at least partly in the stock market, as in other countries. Demand for Riester schemes, which permit such investments, is declining, and the concept suffered right from the start from the fact that participation was voluntary. No mechanisms were put in place to win over as many participants as possible. In addition, the mandatory guarantee to pay back (at least the nominal) contributions makes it difficult for Riester providers to invest significant amounts in equities.[4]

— German retail investors tend to be cautious and risk-averse, which is reflected in their comparatively low equity holdings and the catchphrase "missing equity culture". On average, German households have invested only EUR 7,300 per capita in stocks (direct investments, excluding mutual funds), whereas the figure for other large EU countries is between EUR 11,000 and EUR 15,700. Instead, Germans invest more in low-risk asset classes such as bank deposits (EUR 27,600 per capita) or insurance policies (EUR 25,700).[5]

— Numerous mid-sized German companies are (exclusively) family-owned, whereas they are often listed on the stock market elsewhere, particularly in Anglo-Saxon countries. To some extent, this may be due to the fact that many German companies are relatively old and have been family-owned for decades, which means that it is not the founder alone who can decide on going public, but a bigger number of heirs who must find a consensus. Furthermore, in such cases there may be considerable pressure to continue a generations-old tradition and not cede control over the family business to the "anonymous" market – not least because external investors might push for fundamental changes. In addition, there are also many listed companies where founder families still hold a large stake, which reduces the free float.[6]

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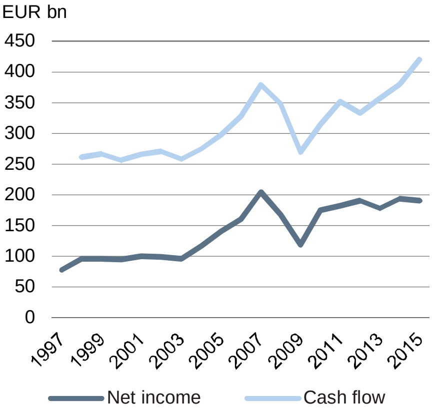
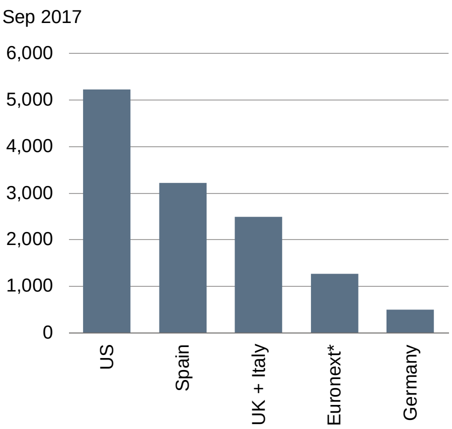
[3] See for example Vitols (2003) or Bundesbank (1997).
[4] See Niggemann and Rocholl (2010).
[5] See also Bundesbank (2014).
[6] See Franks and Mayer (2017).

Profitability of German companies 14



Source: Bundesbank

Number of listed companies 15



* Comprises the main stock exchanges of France, the Netherlands, Belgium and Portugal

Sources: WFE, Deutsche Bank Research

Beyond these structural disadvantages for equity financing in Germany, some more recent trends play a role as well. While the ECB's extremely expansionary monetary policy (zero interest rates and a large-scale bond purchasing programme) supports investment in stocks, it has also reduced debt financing costs to such an extent that share issuance has become considerably less attractive for issuers. Moreover, as German companies are overall very profitable thanks to the prolonged economic expansion, they can comfortably build up equity via retained earnings and do not need to raise it externally from investors.

Still, a lack of domestic demand tends to be offset by foreign investors, who enter the market if share prices are attractive. Consequently, the portion of foreign shareholders in the Dax has risen from 45% to 58% between 2005 and 2015.[7] In an international comparison, the German stock market hardly suffers from a valuation discount but certainly from a very small number of listed companies.

Outlook

Despite all the positive headlines about the Dax and MDax in the past months and years, the German stock market remains underdeveloped in an international comparison. However, we believe a stronger stock market would be desirable for a number of reasons:

— It provides companies with alternative sources of financing beyond credit (bank loans, bonds, etc.) and retained earnings.

— It enables savers to make provisions on their own for future spending, for example in old age, and become less dependent on i) statutory pensions, whose level is driven by political and demographic factors, and ii) traditional, conservative forms of saving, which have generated low or no returns for years now (such as bank deposits or life insurance policies).

— A flourishing stock market also makes it easier for start-up investors to exit from a successful new company and "hand it over" to a broader range of investors via an IPO. In turn, this should increase investors' willingness to provide start-up founders with the necessary seed capital. There is a reason why the most valuable companies in the US (and indeed worldwide) were all founded only during the past 45 years (by declining age: Microsoft, Apple, Amazon, Google/Alphabet and Facebook). During this period only one current Dax member (SAP) was newly established[8], which is, by the way, also the most valuable German company today.

Young, innovative companies are particularly important for productivity growth and employment, above all during an era of technological change such as the current digitalisation. Thus, for an economy like Germany that is heavily impacted by such change, it is all the more important to have a strong and flourishing stock market. Thus, careful monitoring is necessary regarding whether the new government can take steps towards this goal, for example by

— abolishing the discriminatory tax treatment of equity versus debt capital

— introducing a more capital market-oriented pillar of private old-age provision, similar to the Australian or US model, for example, which would increase stock market participation by retail investors and reduce the gap versus other countries

[7] See Ernst & Young (2016).
[8] apart from spin-offs of parts of much older corporations

— cutting red tape with regard to listing a company on the stock market, which would likely prompt more family-owned businesses to consider an IPO, or

— reducing corporate taxes and thus making companies more competitive and attractive for investors – not least in view of the fact that the US, France and the UK are eyeing lower corporate taxes.

Such structural reforms would certainly be timely, not least against the background of the plans to achieve a European Capital Markets Union. The Dax would be able to benefit more from the very favourable macroeconomic environment and would be kept back less by structural factors. Thus, the German stock market could gain further ground on its counterparts in other European countries and continue its positive trend of the last few years.

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Literature

Bhattarai, Saroj, and Christopher Neely (2016). A Survey of the Empirical Literature on U.S. Unconventional Monetary Policy. Federal Reserve Bank of St. Louis Working Paper No. 2016-021A.

Bundesbank (1997). Shares as financing and investment instruments. Monthly Report, January 1997, p. 27-40.

Bundesbank (2014). Ownership structure in the German equity market: general trends and changes in the financial crisis. Monthly Report, September 2014, p. 19-32.

Chen, Qianying, Marco Lombardi, Alex Ross and Feng Zhu (2017). Global impact of US and euro area unconventional monetary policies: a comparison. BIS working paper No. 610.

Engen, Eric M., Thomas Laubach and David Reifschneider (2015). The Macro-economic Effects of the Federal Reserve's Unconventional Monetary Policies. Federal Reserve Finance and Economics Discussion Series 2015-005.

Ernst & Young (2016). Wem gehört der DAX? Analyse der Aktionärsstruktur der DAX-Unternehmen 2015. Presentation.

Franks, Julian, and Colin Mayer (2017). Evolution of Ownership and Control Around the World: The Changing Face of Capitalism. University of Oxford, Saïd Business School Working Paper No. 2017-08.

Fratzscher, Marcel, Marco Lo Duca and Roland Straub (2014). ECB Unconventional Monetary Policy Actions: Market Impact, International Spillovers and Transmission Channels. Paper presented at the 15th Jacques Polak Annual Research Conference hosted by the International Monetary Fund, November 13-14, 2014.

Haldane, Andrew G, Matt Roberts-Sklar, Tomasz Wieladek and Chris Young (2016). QE: the story so far. Bank of England Staff Working Paper No. 624.

Niggemann, Taro, and Jörg Rocholl (2010). Pension Funding and Capital Market Development.

Vitols, Sigurt (2003). Changes in German finance: Introducing more "market" into a bank-based system. United Nations University Maastricht, INTEC Working Paper No. 03-29.

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