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The DAX – Top or Flop?

by KAI LEHMANN

Abstract

Recently, the reputation of the DAX 30 had suffered badly. The DAX is an index full of corporations with poor corporate governance, high levels of debt and dwindling profitability. Critics argue that the backwardness of many business models means that prosperity is unlikely in the future either. The performance of the DAX was, is and will remain weak, they complain. But do these accusations really stand up to scrutiny? How do DAX companies compare with other companies in Europe? Was the earnings development of the index companies really as bad as everyone had claimed? To answer these questions, this analysis compares the DAX with other major European indices. It also compares the DAX with other DAX selection indices.

Abstract

Zusammenfassung

Zuletzt hatte der Ruf des DAX 30 arg gelitten. Der DAX sei ein Index voller Konzerne mit mangelhafter Corporate Governance, hoher Verschuldung und schwindender Profitabilität. Die Rückständigkeit vieler Geschäftsmodelle lasse auch zukünftig kaum Prosperität erwarten, so die Kritiker. Die Wertentwicklung des DAX war, ist und bleibt schwach, so wird moniert. Doch halten diese Vorwürfe tatsächlich einer Überprüfung stand? Wie stehen die DAX-Unternehmen im Vergleich zu anderen Konzernen in Europa da? War die Gewinnentwicklung der Indexkonzerne tatsächlich so schlecht wie allenthalben behauptet? Um diesen Fragen nachzugehen, wird in der vorliegenden Analyse ein Vergleich des DAX mit anderen bedeutenden europäischen Leitindizes vorgenommen. Zudem wird der DAX mit anderen DAX-Auswahlindizes verglichen.



Motivation

So here they are, the eagerly awaited reform proposals from Deutsche Börse to modernise the DAX. From now on, 40 companies instead of 30 will be the mirror image of the German economy. In addition to the timely publication of audited annual financial statements and compliance with rules on good corporate governance, sustainable profits will be a necessary condition for inclusion in the leading German index. In addition, Deutsche Börse will in future discuss the index composition every six months instead of once a year as in the past in order to take changes in the capital market landscape into account in a timely manner. Once the market consultation is complete, the index operator intends to present the revised rules and regulations on 23 November 2020.¹

Deutsche Börse was forced to revise the methodology after the Wirecard scandal revealed that the companies represented in the benchmark index by no means represented the elite of the German economy on the basis of the rules applicable to date. The reputation of the German stock market barometer had suffered too much to simply go back to business as usual after the insolvent payment service provider had been removed from the index. Although the Wirecard case may be unique in terms of its deficient corporate governance and the criminal energy of those responsible, the image of the DAX had already been quite scandalous before. The diesel affair, interest rate manipulation and the rail cartel are just a few examples that have fuelled suspicions that the supposed leading stock market index is in reality a romping place for Sin Stock.

But even apart from poor corporate governance, critics have long complained that the DAX contains many highly indebted and unprofitable companies whose backward business models offer little prospect of prosperity even with a view to the future. The main contributors to this mix of companies are not only the employees, who are worried about job security, especially because they are not resistant to crises. In recent years, investors have also had to be satisfied with comparatively meagre returns. Moreover, these large fluctuations were underlaid, which is the reason for the demand for an expansion of the index landscape by ten additional companies. The sector focus is too narrow and the weight of some cyclically sensitive companies is too great.

But do these allegations really stand up to scrutiny? How do DAX companies compare with other companies in Europe? Were the performance of the DAX and the earnings development of the index groups really as bad as everyone

¹ The proposed amendments are available at: <https://www.deutsche-boerse.com/dbg-de/media/pressemitteilungen/Qualitätskriterien-internationale-Standards-Transparenz-Marktkonsultation-zur-DAX-Reform-gestartet-2277510> Last call for proposals: 21 October 2020.



claimed? To answer these questions, the present analysis compares the DAX with other major European benchmark indices. Specifically, the UK FTSE 100, the French CAC 40, the Italian FTSE MIB 40, the Spanish IBEX 35 and the Swiss SMI 20. The analysis focuses on the development of key balance sheet ratios of the companies included in the respective indices. The observation period extends from 01.01.2010 to 30.09.2020. The financial years 2010 to 2019 are thus included in the fundamental analysis.

1. How does the DAX compare with the rest of Europe?

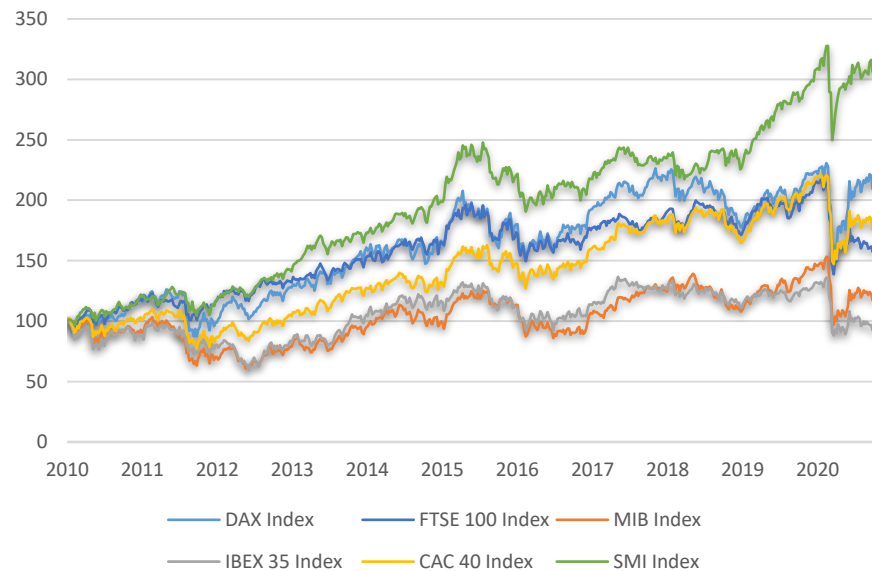
As **Figure 1** shows, the DAX 30 has performed well over the past decade compared to the other European stock indices considered. Since 2010, the increase in value including dividends amounted to 113.0% by the end of the third quarter of 2020. This means that the performance of the index was significantly higher than that of almost all the counterparts considered. The French CAC 40 and the British FTSE 100, for example, already performed significantly weaker than the DAX at 79.0% and 60.8% respectively. The difference to the Italian FTSE MIB 40 is even more serious, with a performance of 19.5%. The Spanish IBEX 35 even showed a negative performance of -5.8% over the period considered. Only the Swiss SMI 20 was able to outperform the DAX by far with a plus of 207.9%.²

In particular up to the price turbulence in the wake of the Corona pandemic in February 2020, a three-way split can thus be identified. Shares of companies from the Swiss SMI are clearly at the top of the performance comparison. The DAX leads the midfield consisting of German, French and British companies. Companies from the Italian and Spanish leading indices are clearly at the bottom. However, the returns in individual calendar years vary enormously. As **Table 1** shows, the relative outperformance of the DAX and the SMI 20 is due in part to the value stability seen in calendar year 2020. In contrast to the DAX, however, the SMI 20 did not show any markedly negative performance in any of the calendar years considered.

² The returns indicated refer to the performance from the perspective of a euro investor.



Figure 1: Performance of selected European stock indices in the period 01.01.2010 to 30.09.2020 (in Euro, incl. dividends).*



***Past performance is not a reliable indicator of future performance.** Source: Refinitive, as of October 2020.

Table 1: Performance of the European indices over the different calendar years of the period under review. *

| INDEX | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 ytd** |
|----------|-------|-------|------|------|------|------|------|------|-------|------|------------|
| DAX 30 | 16,1 | -14,7 | 29,1 | 25,5 | 2,7 | 9,6 | 6,9 | 12,5 | -18,3 | 25,5 | -3,7 |
| FTSE 100 | 16,8 | 0,3 | 13,3 | 15,7 | 8,0 | 3,9 | 2,8 | 7,7 | -9,7 | 24,3 | -25,5 |
| MIB 40 | -9,8 | -22,0 | 12,2 | 20,5 | 3,0 | 15,8 | -6,5 | 17,3 | -13,2 | 33,8 | -17,4 |
| IBEX 35 | -12,9 | -7,7 | 2,8 | 27,8 | 8,6 | -3,5 | 2,6 | 11,3 | -11,5 | 16,6 | -28,0 |
| CAC 40 | 0,6 | -13,4 | 20,4 | 22,2 | 2,7 | 11,9 | 8,9 | 12,7 | -8,0 | 30,5 | -17,9 |
| SMI 20 | 20,0 | -1,8 | 19,8 | 22,0 | 15,1 | 11,8 | -2,0 | 8,0 | -3,5 | 34,9 | 0,1 |

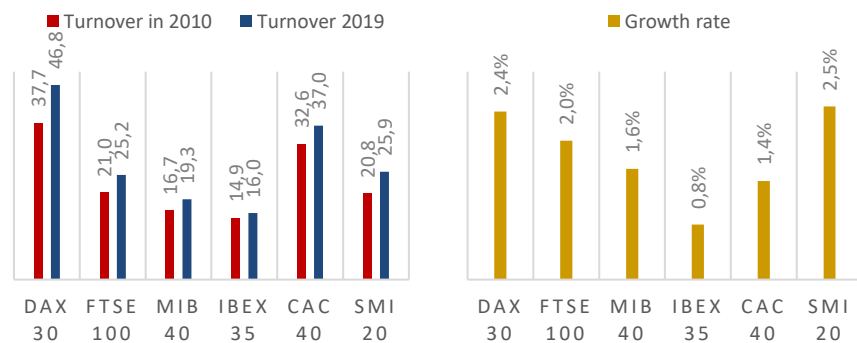
Past performance is not a reliable indicator of future performance. *The performance of 2020 ytd covers the period 01.01.2020-30.09.2020. Source: Refinitive, as of October 2020.

The differences in performance clearly correlate with the fundamental development of the companies included in the respective index. With regard to the sales revenues generated, the comparatively high returns of the DAX are accompanied by above-average growth rates of German companies (**Figure 2**). The DAX groups were able to increase their aggregate sales revenues by 2.4% p.a. in the period under review, while the sales increases of French and Spanish companies, for example, averaged only 1.4% and 0.8% p.a. respectively. Only the Swiss companies in the SMI have been able to increase their sales revenues in recent years by 2.5% p.a., which is marginally higher than the DAX companies.



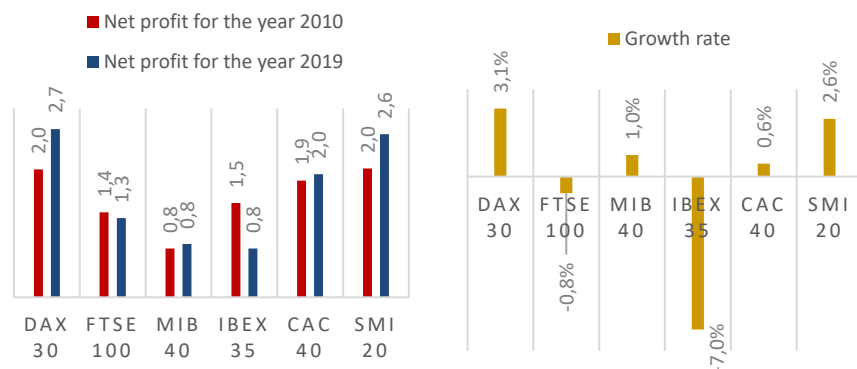
However, growth alone is not rewarded by the stock market if profitability fails to materialise. Looking at the development of average consolidated net income, German companies show a gratifyingly robust growth rate of 3.1% p.a., putting DAX companies at the top of the league. The profit growth of Italian and French companies, on the other hand, is rather anaemic, with growth rates of 1.0 % and 0.6 % respectively (**Figure 3**). Spanish and British companies even saw their profits fall slightly, and in the case of the IBEX 35 they even halved between 2010 and 2019. Swiss companies alone, with an average growth rate of 2.6 %, were able to report similarly strong profit increases as the DAX groups.

Figure 2: Turnover in billion euros in 2010 and 2019 and annual growth rate in percent (average values).



Source: Flossbach von Storch Research Institute, Refinitive, as of October 2020.

Figure 3: Net income in billion euros in 2010 and 2019 and annual growth rate in percent (average values).



Source: Flossbach von Storch Research Institute, Refinitive, as of October 2020.

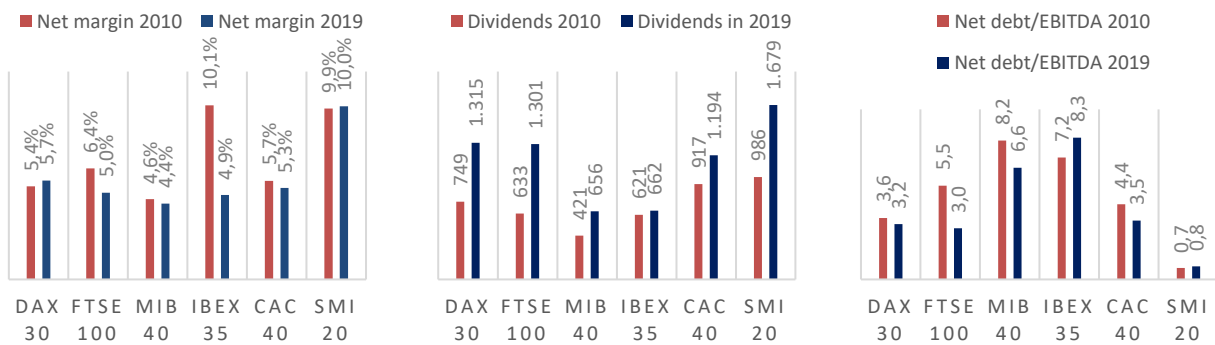


The comparatively robust profit growth of DAX companies is also reflected in a relatively constant net margin (**Figure 4, left**). Although German companies are well behind Swiss companies in terms of profitability, the companies in these two indices are the only ones that were able to slightly increase their profitability on average during the period under review. Thus, the annual surpluses have increased more than the turnover during the period considered.

Dividends paid by DAX companies almost doubled (**Figure 4, centre**). While the average DAX company distributed 749 million euros to its shareholders in 2010, this figure rose to 1.315 billion euros in 2019. This represents an annual increase of 6.5%. Only the British companies increased their distributions even more, with an average growth rate of 8.6 % p.a. In contrast, the profit shares of Spanish companies from the IBEX 35 rose by just 0.7 % p.a.

Figure 4 (right) shows that DAX companies were able to slightly reduce their debt reduction period, which is the ratio of net debt to operating profitability, on average between 2010 and 2019. If the DAX companies were to use their operationally earned funds solely to repay debt, they would be debt-free within a good three years. Comparable figures are shown for the British and French companies. Italian and Spanish groups, on the other hand, would take much longer to get rid of their debts. By contrast, Swiss companies would need less than one financial year to repay their debts.

Figure 4: Net margin, dividends in million euros and debt repayment period in 2010 and 2019 (average values in each case). *



***Past performance is not a reliable indicator of future performance.**

Source: Flossbach von Storch Research Institute, Refinitive, as of October 2020.

The evaluations show that stock market development and fundamental development are closely linked. The three-way split in value development identified at the beginning of this article is no accident, but rather reflects the aggregated development at company level quite precisely. It is questionable, however, why the underlying economic performance of the indices under consideration diverges so strongly. Apart from national peculiarities in the



regulatory and tax environment, it is probably primarily the different sector structure of the respective indices that explains the differences in economic development.

Table 2 shows the shares of different industrial sectors weighted by market capitalisation for the indices considered. The figures illustrate that the DAX is by no means subject to a particularly high cluster risk compared to the other indices. As **Figure 5** shows, the sectoral concentration of the DAX is actually relatively low compared to the other indices. Thus, the three sectors with the highest weight in the DAX have a combined weight of 53.8%. For the other indices, this figure is in some cases significantly higher. In the Swiss SMI, for example, the aggregate share of the three most important sectors in terms of market capitalisation is over 80%. This is due to the fact that the index contains only 20 companies. However, the fact that sector diversification is not a linear function of index size is shown by the UK FTSE 100, where the aggregate share of the three largest sectors is higher than that of the DAX, even though the UK index includes 100 stocks.

As noted above, the differences in sectoral shares between the various indices are a key factor explaining the differences in performance. The DAX, for example, was able to benefit from its comparatively high proportion of cyclical consumer stocks, as this sector - measured against the performance of the respective MSCI Europe sector index - recorded high growth in value. By contrast, sectors that recorded comparatively weak value contributions are underrepresented or not represented at all in the German leading index. These include, for example, the energy and finance sectors. These sectors in particular have a high weight in the Italian and Spanish leading indices, which in turn is an explanation for the weak performance of these indices. The Swiss SMI in turn benefits from the heavy weighting of the healthcare sector, which, along with the technology and cyclical consumption sectors, also showed above-average growth in value over the observation period. In the period under review, 41.1 % of the SMI's market capitalisation was attributable to the healthcare sector alone.



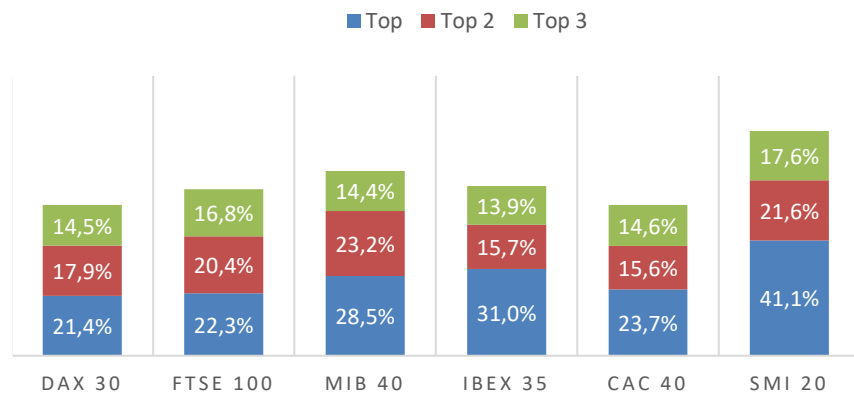
Table 2: Percentage shares of different industrial sectors (average) and annualised performance of the respective MSCI Europe sector indices (in euro) over the period considered.

| | Basic Materials | Consumer Cyclical | Consumer Non-Cyclicals | Energy | Financials | Health-care | Industrials | Technology | Telecom. Services | Utilities |
|--|-----------------|-------------------|------------------------|--------|------------|-------------|-------------|------------|-------------------|-----------|
| DAX 30 | 17,9 | 21,4 | 1,7 | 0,0 | 14,5 | 13,4 | 11,1 | 10,0 | 5,5 | 4,3 |
| FTSE 100 | 12,9 | 6,2 | 16,8 | 22,3 | 20,4 | 7,2 | 5,7 | 0,9 | 4,8 | 2,7 |
| MIB 40 | 0,7 | 13,5 | 1,2 | 23,2 | 28,5 | 2,1 | 10,7 | 2,2 | 3,7 | 14,4 |
| IBEX 35 | 5,6 | 13,9 | 0,0 | 5,9 | 31,0 | 2,3 | 10,7 | 3,6 | 11,3 | 15,7 |
| CAC 40 | 5,0 | 23,7 | 13,6 | 8,9 | 15,6 | 7,6 | 14,6 | 3,5 | 3,0 | 4,4 |
| SMI 20 | 4,9 | 6,5 | 21,6 | 0,0 | 17,6 | 41,1 | 6,0 | 0,0 | 2,3 | 0,0 |
| Performance of the MSIC Europe sector index* | 5,7 | 10,8 | 10,1 | -1,7 | 0,8 | 11,7 | 9,5 | 13,2 | 1,9 | 5,7 |

***Past performance is not a reliable indicator of future performance.**

Source: Refinitiv, Flossbach von Storch Research Institute, as of October 2020.

Figure 5: Percentage shares of the three highest weighted industrial sectors by market capitalisation in a European comparison.



Source: Refinitiv, Flossbach von Storch Research Institute, as of October 2020.

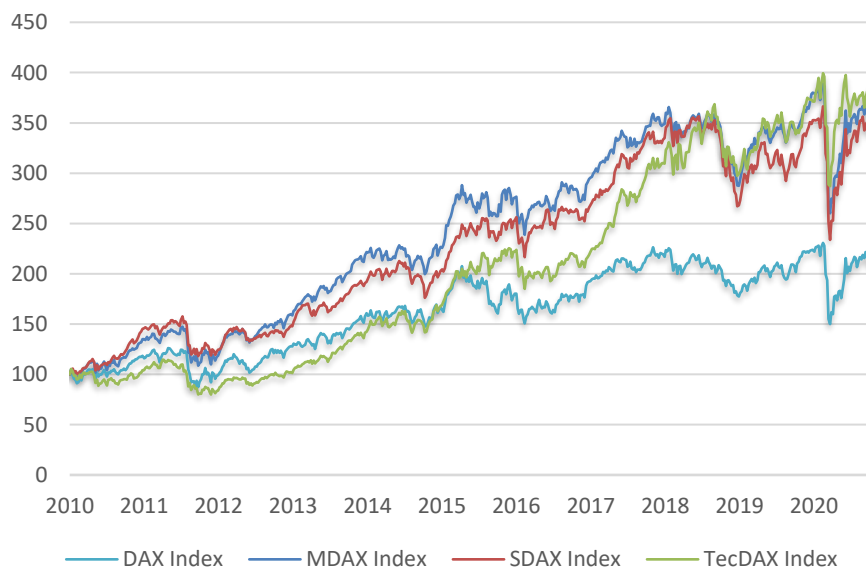
Interim conclusion: During the period under review, the DAX was able to hold its own against many of its European counterparts in the performance check, which is in line with the aggregated fundamental development of the respective index companies. An above-average sector concentration cannot be identified.



2. The DAX in a domestic comparison

As **Figure 6** shows, the apparently above-average performance of the DAX 30 is clearly put into perspective in a domestic comparison. While the DAX was in the upper midfield in a European comparison with a gain of 113.0%, it is at the bottom of the league compared with the other selection indices from the DAX family. The MDAX and SDAX, for example, achieved gains of +263.0 % and 252.8 % respectively in the period under review. The technology index TecDAX even recorded an increase in value of 276.6 %. The fluctuation range of returns on the German indices is also enormous (**Table 3**). While the SDAX, for example, shows a return of 45.8 % in 2010, the TecDAX is comparatively weak at 4.0 %. In contrast, the TecDAX shows relative strength in the calendar years 2013 to 2018 with the exception of 2016.

Figure 6: Performance of the DAX selection indices in the period 01.01.2010 to 30.09.2020 (incl. dividends)*



***Past performance is not a reliable indicator of future performance.** Source: Refinitive, as of October 2020.

Table 3: Performance of the DAX selection indices over the different calendar years of the period considered. *

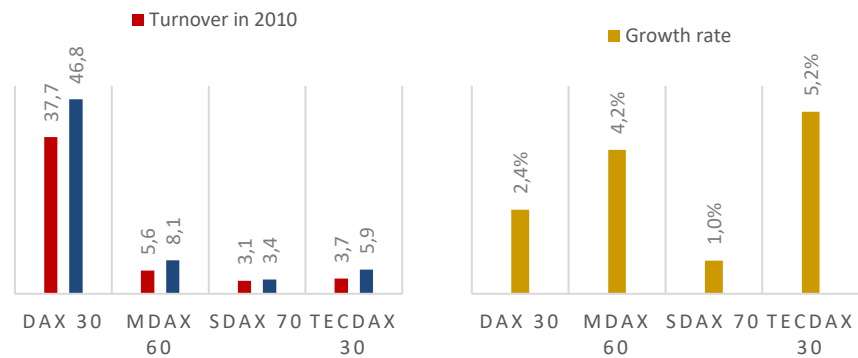
| Index | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 ytd** |
|-----------|------|-------|------|------|------|------|------|------|-------|------|------------|
| DAX 30 | 16,1 | -14,7 | 29,1 | 25,5 | 2,7 | 9,6 | 6,9 | 12,5 | -18,3 | 25,5 | -3,7 |
| MDAX 50 | 34,9 | -12,1 | 33,9 | 39,1 | 2,2 | 22,7 | 6,8 | 18,1 | -17,6 | 31,2 | -4,6 |
| SDAX 70 | 45,8 | -14,5 | 18,7 | 29,3 | 5,9 | 26,6 | 4,6 | 24,9 | -20,0 | 31,6 | -0,2 |
| TecDAX 35 | 4,0 | -19,5 | 20,9 | 40,9 | 17,5 | 33,5 | -1,0 | 39,6 | -3,1 | 23,0 | 1,8 |

***Past performance is not a reliable indicator of future performance. **The performance of 2020 ytd covers the period 01.01.2020-30.09.2020.** Source: Refinitive, as of October 2020.



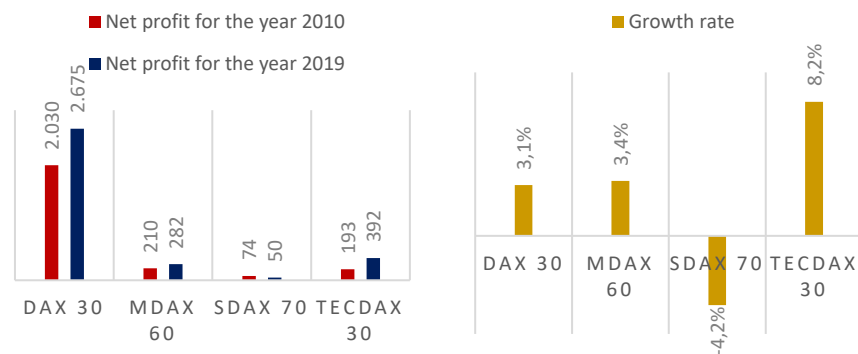
A comparison within Germany also shows a strong correlation between capital market development and fundamental development of the index members. If one repeats previous fundamental analyses for the DAX selection indices, the second-tier companies, with the exception of the SDAX companies, show a significantly higher growth dynamic. Thus, sales revenues of the MDAX and TecDAX companies increased by 4.2% and 5.2% respectively per year. Consolidated profits grew by as much as 3.4% and 8.2% respectively on an annualized basis. The SDAX companies alone are not convincing either in terms of sales growth or profit growth. This is probably due to the fact that the SDAX includes quite young companies, some of which do not yet have an established business model.

Figure 7: Turnover in billion euros in 2010 and 2019 and annual growth rate in percent (average values).



Source: Refinitiv, Flossbach von Storch Research Institute, as of October 2020.

Figure 8: Net income in billion euros in 2010 and 2019 and annual growth rate in percent (average values).



Source: Refinitiv, Flossbach von Storch Research Institute, as of October 2020.

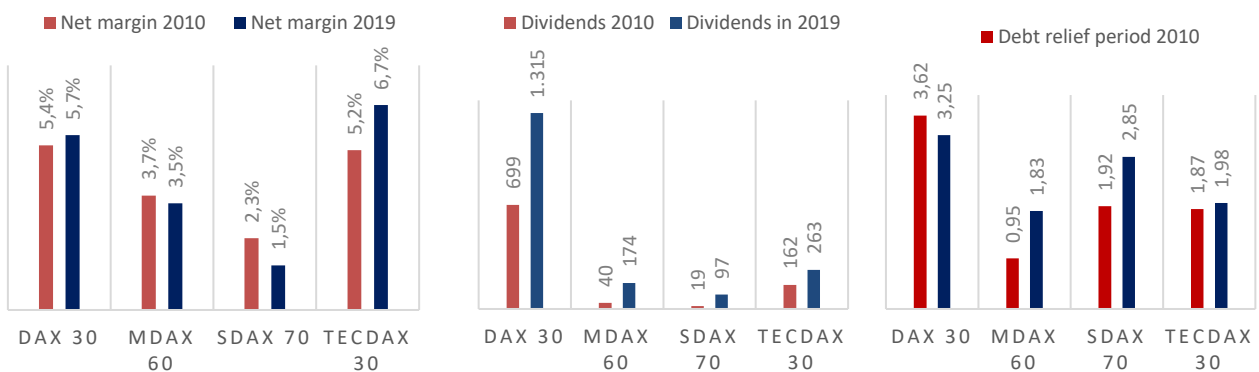


It is surprising that the profitability of the companies in the MDAX and SDAX is not only below that of the DAX, which can be explained by the different sector mix, but also declined (**Figure 9, left**). The technology companies, on the other hand, were able to increase their margins significantly to 6.7%.

As expected, the average dividend paid by second- and third-tier companies is much smaller than that paid by large DAX-listed companies (**Figure 9, centre**). On the other hand, the smaller companies are far ahead of the DAX companies in terms of the growth rate of the dividends. For example, the SDAX companies quintupled their dividend payments between 2010 and 2019, while the MDAX companies quadrupled them. The fact that the TecDAX companies increased their dividends less strongly can be explained by the enormous influence of Deutsche Telekom on the reported average. In the period under review, the Group reduced its payments from €4.0 billion in 2010 to €3.6 billion in 2019. If the Bonn companies are not included in the analysis, the average dividend for the other TecDAX companies is four times higher.

Most recently, the debt repayment period of smaller companies is on average shorter than that of large corporations (**Figure 9, right**). Although the debt repayment period has tended to increase disproportionately in recent years for small caps, it is still less than two years in the case of the MDAX and TecDAX.

Figure 9: Net margin, dividends in million euros and debt repayment period in 2010 and 2019 (average values in each case). *



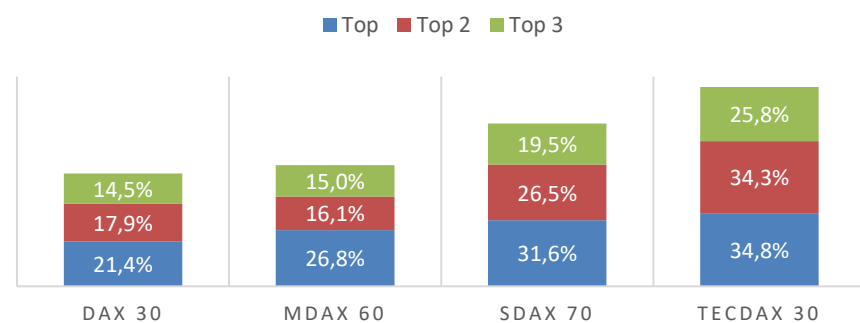
***Past performance is not a reliable indicator of future performance.**

Source: Refinitiv, Flossbach von Storch Research Institute, as of October 2020.



Figure 10 shows that the DAX, despite its comparatively small number of index members, has a low sector concentration even in a domestic comparison. Thus, the three industrial sectors with the highest weighting in the SDAX account for a share of approx. 75 % despite the 70 companies included in the index. The fact that the TecDAX is a theme index is demonstrated by the very high proportion of individual industries, particularly the technology and telecommunications sector.

Figure 10: Percentage shares of the three most important industrial sectors in terms of market capitalisation in a domestic comparison.



Source: Refinitiv, Flossbach von Storch Research Institute, as of October 2020.

Conclusion

Deutsche Börse's latest reform proposals to revise the DAX methodology are aimed at making the DAX fit for the future and thus restoring investor confidence. For example, the index is to be expanded to include ten companies from the MDAX and the rules and regulations are to be supplemented with requirements relating to profitability and corporate governance.

However, as the present analysis shows, the fundamental development of the current DAX groups is far better and also less volatile than often claimed. The expectation that an addition of a few MDAX companies will bring a breath of fresh air to the leading index may only be convincing at first glance. The economic dynamism of the MDAX companies has been significantly higher than that of the large DAX companies over the past decade. However, the impact analyses carried out by Deutsche Börse show that the actual changes should be manageable. The market capitalisation of the DAX, for example, would increase by just eight percent as a result of the planned expansion by ten additional companies.³ This does not even correspond to the

³ Cf. Deutsche Börse (2020), Market Consultation on Methodological Changes to DAX Selection Indices, available at: https://go.qontigo.com/rs/240-ASI-005/images/Supporting_Material_Market_Consultation_DAX_Indices_Oct2020_DE.pdf, last call: 20 October 2020.



index weighting of one of the three largest DAX companies in terms of market capitalisation, SAP, Siemens or Linde.

The extended requirements with regard to good corporate governance can de facto only be understood as clarifications, as stricter quality requirements. For example, it is a matter of course that a large listed group that is part of the German benchmark index submits audited annual financial statements in a timely manner and has a responsible audit committee.

The requirements regarding profitability are also unlikely to have a significant impact. For example, in the DAX, only one group - the new member Delivery Hero - currently fails to meet the relevant requirements. Contrary to what is often claimed, the DAX can very well convince with solid profit growth, at least in a European comparison. To show that there is still room for improvement, one does not necessarily have to look at US technology companies. German second-tier stocks have also been convincing in recent years. However, they simply lack size. For example, the market capitalisation of the entire TecDAX, including the heavyweights SAP and Deutsche Telekom, does not even correspond to one third of the US software giant Microsoft.



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