

**Study on the financial model
of DAX 30 companies
in the light of
the ecological and social transition**

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BASIC

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1. Introduction

In May 2021, the German federal cabinet adopted its first Sustainable Finance Strategy. This strategy relies on the acknowledgment that “sustainability risks resulting from climate change, the transformation into a carbon-neutral economy, the loss of natural capital, human rights violations and pandemics also harbour financial risks for the real economy and, directly or indirectly, for the financial sector”¹. As stated by the German Finance Minister Olaf Scholz when presenting the strategy: **“Financial markets can steer trillions of euros towards climate action and sustainability [...] This is a win-win situation. We are ensuring the protection of our environment, while the ever-growing need for investment will enable investors to profit from these new developments”**².

These declarations echo the statements made in 2018 by the **Federation of German Industries (Bundesverband der Deutschen Industrie - BDI)** when publishing a study on the climate paths for Germany which concluded that **“an 80 percent reduction in greenhouse gas emissions by 2050 against 1990 is technically and economically feasible** [if the German authorities ensure to release] energy-intensive businesses from the extra burdens imposed by climate policy that have no international counterpart”³.

However, the BDI stance has appeared to evolve in the face of the economic crisis and in the light of the Green Deal and climate-neutral objectives published by the European Commission over the past few months. Putting forward the severity of the current economic slowdown triggered by the Covid-19 pandemic, the BDI now considers that the public sector will have to play a greater role in financing and attracting up to 2.3 trillion investments that are needed in Germany alone by 2050. More concretely, the **BDI considers that “in order to trigger such investments, considerable shifts in national budgets for the public sector are necessary - in favour of necessary infrastructure investments, tax incentives and support measures for private investments in technologies already available”**⁴.

On social grounds too, the large German companies have decidedly turned to public authorities for support since the start of the Covid-19 health crisis. Several large companies listed on the DAX 30 such as Volkswagen, BMW, Daimler, Continental, Adidas and Lufthansa have benefited from State aid for tens of thousands of their workers sent on Kurzarbeit (furlough) schemes⁵.

But as the season of shareholder meetings grew closer, only two companies, Lufthansa and Adidas, decided to reduce their payments to shareholders, while the cumulated intentions of dividends publicized by DAX 30 companies reached an all-time high level of 44 billion euros in total for 2020⁶ (payments to shareholders have finally amounted to 42 billion euros, an increase of more than 3% compared to the previous year). This distribution of dividends - despite recurring to State aid, and in the end to taxpayer money – has started to spring a public debate in Germany. Some political figures even made public sharp comments on listed companies showing “the ugly face of capitalism” and stating that “taxpayers [were] not there to act as comprehensive insurance for the riches of shareholders and board members”⁷.

1 <https://www.bundesfinanzministerium.de/Content/EN/Pressemitteilungen/2021/2021-05-05-sustainable-finance-strategy.html> accessed on July 26th, 2021

2 Ibid.

3 <https://english.bdi.eu/article/news/climate-protection-needs-massive-investment-drive-according-to-new-bdi-study/> accessed on July 26th, 2021

4 <https://english.bdi.eu/article/news/framework-and-financing-of-climate-neutrality-by-2050/> accessed on July 26th, 2021

5 Financial Times, “German companies in the dock over dividend plans”, April 2020 <https://www.ft.com/content/040be2bd-a202-46e7-92d2-2c227c8e0465> accessed on July 26th, 2021

6 Handelsblatt, “Kurzarbeit: Dividende trotz Staatsgeld: Ausschüttungen werden zum Streitfall”, April 2020 <https://www.handelsblatt.com/unternehmen/management/kurzarbeit-dividende-trotz-staatsgeld-ausschuettingen-werden-zum-streitfall/25743176.html?ticket=ST-2087628-dr63FUe03PA3hhRxFFAr-ap4> accessed on July 26th 2021

7 Financial Times, op. cit.

In this context, a legitimate questioning arises on the economic model of large German companies, in particular those listed on the DAX 30 index. Are these companies really moving away from the doctrine that shaped corporate decisions' making for the past decades which was summarized by the Nobel Prize winner Milton Friedman as: "there is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game"⁸.

This question that has emerged in Germany because of the level of dividends' payments in time of strong economic crisis echoes the public debated occurring in several other European countries. **In France, BASIC, together with Oxfam France, has conducted and published in 2018 and 2020 a research on the value distribution and the corporate governance of the companies listed on the CAC 40 index** which has supported a public debate on the influence of shareholders on the business model of these firms, and its repercussions on social and environmental issues.

Based on the data process and analytical framework developed to investigate the CAC40 companies, BASIC has conducted in 2020 and 2021 a study on the DAX 30 companies in order to investigate their value distribution, their corporate governance models and the potential contradictions with the need to address the current major environmental and social issues, invest in the ecological transition and reduce economic inequalities.

⁸ The New York Times, "A Friedman doctrine-- The Social Responsibility Of Business Is to Increase Its Profits", 1970
<https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html>

2. Scope and methodology

2.1. The main actors of companies' value creation (in Germany & abroad): suppliers, employees, shareholders, states, banks

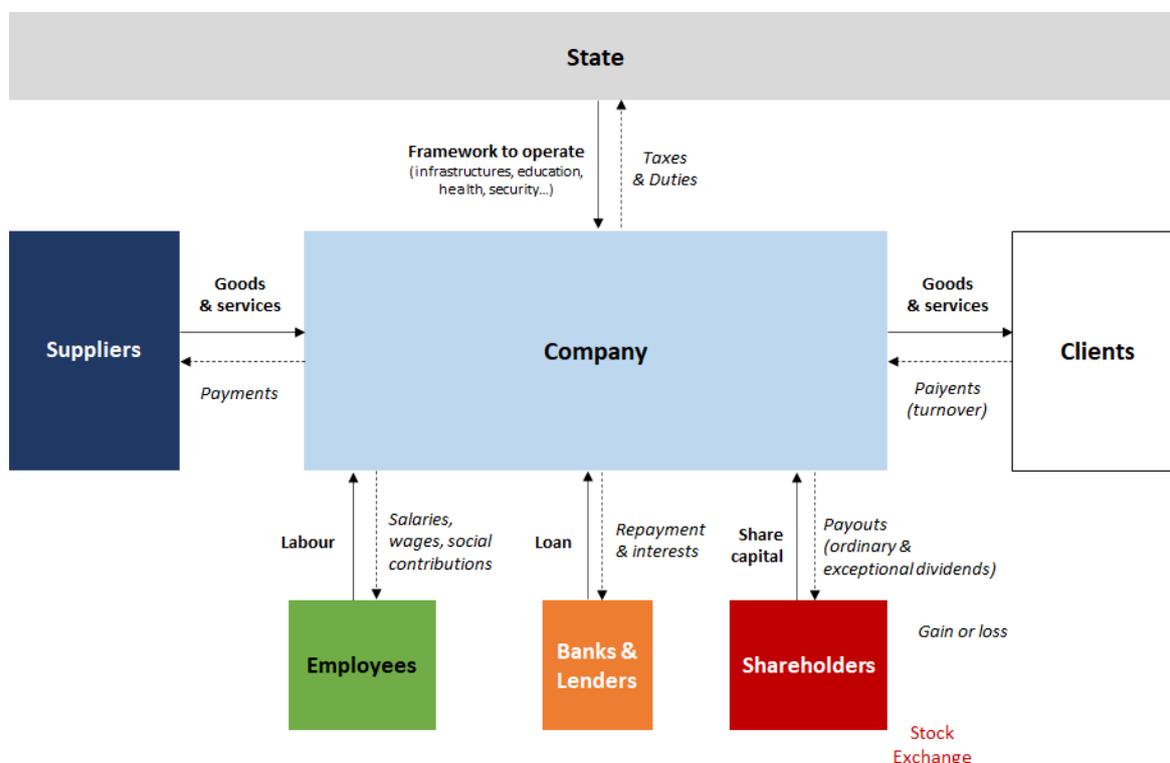


Figure 1 : Summary diagram of the different actors of the value creation of any private company. Source: BASIC

The value creation of any private company relies on the contribution of a number of actors that are essential to its economic functioning.

First of all, **the States where the company is established offer the framework that allows it to operate**, in terms of legal system, infrastructure (individual and collective transport, access to energy...), education system and professional training, health system, security and safety, etc. This is also valid for the suppliers and the customers of the company in the countries where they are situated. Every company contributes financially to the functioning of this framework through the taxes, levies and social contributions which it pays each year. The income tax (which is recorded in the "tax" category of the annual accounts) represents only a portion of this contribution. The remainder is made up of value added tax, property tax, social security contributions, etc., which are included either in personnel expenses or in supply costs (see below). Some companies can also benefit from public subsidies and tax credits from States which are included in the "tax" category of the annual accounts.

Upstream in the chain, **suppliers and subcontractors provide the company with goods and services that it does not produce internally**, and which are required for its activities (raw materials, finished and semi-finished products, communication services, consulting services, etc.). The payments made in return are recorded in the annual accounts of the company under the heading "payments to suppliers", "costs of sale" or "supply costs".

Internally, **the workforce is provided by employees who are remunerated in return** in the form of "wages and salaries", which include fixed and variable remuneration, bonuses, etc. In addition, the company has to pay contributions to the social security and pension systems of each of the countries where it is established, which provide a safety net for workers in social and health matters. In some countries, additional sums are sometimes

paid to incentive and profit-sharing schemes. The cumulation of all these financial elements forms the "personnel expense" category in annual accounts. When a company decides to outsource part of its work force to subcontractors, in particular through temporary employment agencies, the line can be blurred with the previous category. Indeed, the associated expenses are then recorded in payments to suppliers (instead of personnel expenses), and the responsibility for complying with labour standards and other legal obligations is transferred to the subcontractor(s), even if the people involved exclusively work for the contracting company.

Eventually, **the financial resources of any company is provided on the one hand by the banks and lenders, and on the other by the shareholders.** These resources allow the company to have the necessary money to create and develop its activities (to invest in machines and buildings, purchase patents or brands, etc.) but also to ensure its day-to-day operations (cash required to pay supplier invoices and workers' salaries while waiting for cash receipts from customers, etc.).

This funding can take different forms, depending on the actors which provides it:

- **Banks provide loans to the company** which can be short or long-term depending on its needs, the company repaying the borrowed amount as well as the financial interest in several instalments for a period fixed in advance. **Other forms in which money can be lent to the company include "bonds"** which are debt securities that can be held by individuals or institutions (the amount loaned is called the "face value" or "nominal value", and the financial interest a "coupon").
- **The shareholders, for their part, provide all or part of the equity capital to the company** (also called the "share capital" in accounting) for an indefinite period of time. The company can use it as it wishes, and in return the shareholders:
 - may receive annual payments in the form of ordinary dividends, and potentially exceptional dividends and/or share buybacks.
 - have decision-making power over the company's strategy, most of the time in proportion to the share of the equity capital they own, and which takes the form of one or more "shares" (which are title deeds of the company's capital, and a debt of the company towards its shareholders).

Externally to the company, standardized equity exchange markets called "stock exchanges" (such as the one organized by the Deutsche Börse company for the DAX 30) allow any shareholder to resell to other investors the shares it owns of any company listed on such markets, freely and simply, and thus realize capital gains or losses depending on supply and demand on these markets⁹.

Whereas the sale of shares issued for the first time by companies go into their accounts, whether at the time of the initial public offering (IPO) or at times of capital increases (on what is referred to as the "primary market"), the money from the purchase and resale of shares already issued by companies remains in the hands of the shareholders that operate on the stock market and does not enter into the accounts of the company (this is referred to as the "secondary market" which represents more than 95% of trading of DAX 30 securities since 2009).

Finally, the company's value creation materializes through the sales of goods and services to its customers, which in return generate payments that constitute its annual turnover.

Each of the previously described stakeholders is analysed in the present study in order to investigate which part of the value created by DAX 30 companies ultimately accrues to him and how this share evolved over time.

⁹ In any commercial company, whether listed or not on the stock exchange, any shareholder may decide to resell its shares to another individual at a price resulting from negotiations between the two parties, in accordance with the statutes of the company. Such transactions are facilitated by the introduction of the company's shares on a stock market, whose role is 1/ to connect buyers and sellers, and 2/ to standardize the exchanges of financial shares or bonds. By their function, the stock exchanges enable the multiplication of the transactions of companies' shares, which is why financial securities on the stock markets are said to be "liquid".

2.2. Scope and methodology of the study (companies, data sources, indicators)

In terms of business entities, companies can enter or exit the DAX 30 index each year depending on their financial performances. As a result, the composition of the DAX 30 varies each year and is not a stable portfolio of companies over the time period 2009-2020. In order to overcome this difficulty and build a **set of enterprises which are representative of the DAX 30 between 2009 and 2020, we have selected the companies which have belonged to the index for at least 5 years over the period.**

The resulting list of companies is the following:

	Company	Sector	Number of years in DAX 30 (2009-2019)
1	Adidas	Consumer goods & services	12
2	Allianz	Banks, insurance, real estate	12
3	BASF	Energy, raw materials and utilities	12
4	Bayer	Energy, raw materials and utilities	12
5	Beiersdorf	Consumer goods & services	12
6	BMW	Industry and construction	12
7	Daimler	Industry and construction	12
8	Deutsche Bank	Banks, insurance, real estate	12
9	Deutsche Börse	Banks, insurance, real estate	12
10	Deutsche Post	Technology, media and telecoms	12
11	Deutsche Telekom	Technology, media and telecoms	12
12	E.ON	Energy, raw materials and utilities	12
13	Fresenius	Consumer goods & services	12
14	Henkel	Consumer goods & services	12
15	Infineon Technologies	Technology, media and telecoms	12
16	Linde	Energy, raw materials and utilities	12
17	Merck	Consumer goods & services	12
18	Munich Re	Banks, insurance, real estate	12
19	RWE	Energy, raw materials and utilities	12
20	SAP	Technology, media and telecoms	12
21	Siemens	Industry and construction	12
22	Volkswagen Group	Industry and construction	12
23	Deutsche Lufthansa	Industry and construction	12
24	Fresenius Medical Care	Consumer goods & services	11
25	ThyssenKrupp	Industry and construction	11
26	HeidelbergCement	Industry and construction	10
27	Commerzbank	Banks and insurance	10
28	Continental	Industry and construction	8
29	K+S	Energy, raw materials and utilities	8
30	Vonovia	Banks, insurance, real estate	5

Figure 2 : List of companies included in the scope of the study. Source: BASIC

Among these companies, only 24 have been retained for the analysis of the added value: 6 financial, banks and insurance companies were excluded for this part of the study (Allianz, Deutsche Bank, Deutsche Börse, Munich Re, Commerzbank, Vonovia) because of the very specific profile of their business and accounting model (in accordance with the methods used by economists for macroeconomic analyses of added value¹⁰).

In terms of timeframe, we have analysed the financial data published by these companies between 2009 and 2020.

¹⁰ P. Askenazy, G. Cette et A. Sylvain, « Le partage de la valeur ajoutée », Editions La Découverte, 2012

S. Piton, et P. Vatan. « Répartition de la valeur ajoutée entre revenus du travail et du capital : de quoi parle-t-on ? », CEPIL, 2018

P. Artus. « La déformation du partage des revenus dans les pays de l'OCDE est à la fois un problème social et d'équité et un problème d'efficacité économique », 2018

We have chosen 2009 as the starting year for the study and 2020 as the end year. The choice of this start date is due to two reasons. First of all, based on our experience of studying other European indices such as the CAC 40, the economic crisis of 2008 has generated important instabilities and spikes of financial indicators that prevents from analysing it. Hence, we have chosen to start collecting data from 2009 onwards, as it is the first year when financial indicators have re-stabilized after the crisis.

In addition, as the current economic crisis linked to COVID-19 is quite distinct in nature from the one in 2007-08, the comparison between the two are difficult and we have mostly compared the figures in 2020 with the longer-term trends between 2009 and 2019.

In terms of data, the present study relies on two main sources.

- **The first main source of information is the Orbis database** developed by the Moody's agency, which collects, homogenizes and consolidates detailed accounts and balance sheet data for millions of companies throughout Europe. We have extracted all the necessary data for our analysis (see below) for each of the 30 companies included in our research scope and for each year between 2009 and 2020.
- **In addition, we have manually collected a set of data in the annual reports** published each year by each company in order to complement the base of information for the study and to cross-check key indicators collected from the Orbis database: annual income of CEOs, comparison between this income and the average salary in the company, dividends paid to shareholders and their percentage in the net profits, etc.

The complete list of indicators collected from both sources is as follows:

Indicators provided by Orbis (O)	Indicators collected in annual reports (R)
Net sales (O)	Net sales (R)
Personnel Expenses (O)	Personnel Expenses (R)
Wages & Salaries (O)	Wages & Salaries (R)
Number Of Employees (O)	Number Of Employees (R)
Number Of Employees Yr End (O)	CEO remuneration (R)
Total Deprec., Amort. & Depletion (O)	Net Profit (part of the group) (R)
Impairment of Assets Subject to Depletion (O)	Net profit (Whole of the group) (R)
Impairment Of Fixed Assets (including Investment Properties) (O)	Payments to shareholders (R)
Impairment of Intangibles (O)	Ordinary dividends (R)
Impairment of Right of use assets (O)	Ordinary dividend, per share (R)
Financial Expenses (O)	Extraordinary dividend (R)
Earnings before tax (O)	Share buyback (R)
Income taxes (O)	Number of members of the Board of Directors (R)
Tax rate (O)	Number of women members of the Board of Directors (R)
Net Profit after corporate tax (part of the group) (O)	Net sales (R)
Ordinary dividends (O)	
Total Current Assets (O)	
Net Assets (O)	
Total Cash & Short-Term Investment (O)	
Trade Creditors (O)	
Net Accounts Receivable (O)	
Total Debt (O)	
Net Debt (O)	
Total Long-Term Debt (O)	
Total Short-Term Debt (O)	
Enterprise Value (O)	

Figure 3 : List of indicators collected for each company and included in the scope of the study. Source: BASIC

Note: In all the document, the 'Net Profits' should be understood as the 'Net Profits after payment of the corporate tax'.

This information has allowed us to reconstruct a certain number of key indicators which are not accessible in the annual reports of companies. The complete list of calculated indicators and the source of information on which they are based is listed below:

Indicators calculated with data provided by Orbis (O)	Indicators calculated with data from Orbis (O) and from annual reports (R)
Added Value (O)	Supply costs / Turnover (O/R)
Supply Costs (O)	Added value/ Turnover (O/R)
Added Value / Employee (O)	Personnel Expenses / Turnover (O/R)
Personnel Expenses / Added value (O)	Depreciation & Amort. / Turnover (O/R)
Depreciation & Amort. / Added value (O)	Financial expenses / Turnover (O/R)
Financial expenses / Added value (O)	Income taxes / Turnover (O/R)
Income taxes / Added value (O)	Net Profit (PoG) / Turnover (O/R)
Net profit (PoG) after tax / Added value (O)	Net profit + Total Deprec., Amort. & Depletion (R+O)
Trade creditor / Supply costs (O)	Payment to shareholder / Turnover (R/O)
Total Cash & Short-Term Investment / Turnover (O)	Payments to shareholders / Added value (R/O)
Total Cash & Short-Term Investment / Value Added (O)	
Total Cash & Short-Term Investment / Net assets (O)	
Total Cash & Short-term investment / Enterprise Value (O)	
Financial expenses / Total Debt (O)	
Net Debt / Enterprise Value (O)	

Figure 4 : List of indicators calculated for each company and included in the scope of the study. Source: BASIC

Based on these data, aggregated indicators have been calculated:

- **For each sector** (Car industry, Chemicals & raw materials, Health & pharmaceuticals, etc.), yearly weighted average values¹¹ have been calculated for all the above indicators.
- **For the DAX 30 index as a whole**, yearly weighted average values have been calculated for all the indicators listed above as well as multi-years average values over entire periods included in the scope of research (2009-2020...)
- **For the non-financial companies of the DAX 30 index** (24 companies), weighted average values and multi-years average values have been calculated for all the above-listed indicators.

To conduct the analysis, **a database has been developed to store the collected data, both from Orbis and from the annual reports**, and to:

- standardize the indicators (scope, currency conversion, etc.),
- cross-reference the data collected, and provide a link back to the original source of information,
- perform all calculations in a rigorous and coherent way.

The main data can be viewed and downloaded from the portal created for the study at the following web address: www.dax30-data-2021.com

Finally, **contextual data has been collected from reports and academic papers** in order to put the data in context and better inform the analysis: analysis of the shareholders categories of the DAX 30 companies, analysis of the presence of women in the Boards of Management of DAX 30 companies, estimations of sectoral investments required in the coming decade for the transition to a low-carbon economy, estimations of living wages in production countries, etc.

¹¹ To calculate weighted averages, we have considered the companies in our sample as being of equivalent weight. The different indicators are then averaged for the sample using this weighting method. In view of the disparities between the companies (in terms of size, turnover, etc.), this approach enables to prevent the largest of them from biasing the results of the entire sample. It is with this methodology that the research questions relating to the distribution of added value has been investigated.

2.3. Limitations

A first constraint of the study is that the financial information is published annually by companies in PDF format, hence the data had to be collected manually and a thorough process of counter verification has been required to ensure the reliability of the database, and the quality of the subsequent analysis (comparing differences between data in the annual reports and the Orbis database, cross-checking manual entry of data between different people, investigating discontinuities in the data series, etc.).

Another important limitation is linked to the accounting norm used by German companies since 2005, the International Financial Reporting Standards (IFRS). These norms, following a decision by the European Union, are applied to consolidated accounts, but not to individual accounts of subsidiaries of the mother company which are officially the basis for dividend distribution. The main change triggered by the use of these standards has been to **introduce the concept of “fair value”** or expected profits in the calculation of the performance of companies. The recent IFRS 13 defines fair value (of an asset) as “the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date”. Furthermore, the IFRS states that if such a transaction is difficult to appraise, “it can be resorted to an income approach by converting future amounts (cash flows or income and expenses) to a single current (discounted) amount, reflecting current market expectations about future amounts”.

There are a series of implications of the **use of these norms which hamper the capacity to analyse the value distribution of DAX 30 companies.** The main one is that under the IFRS standards, the **added value is no longer calculated in the annual accounts** of companies. We have thus had to reconstruct this indicator based on the data collected in the Orbis database in the following way: Added Value = net profits after tax + income tax + financial expenses + total depreciation, amortization, depletion + personnel expenses. **Similarly, the supply costs had to be calculated** by deducting the estimated added value from the total net sales for each company. Even though this method provides relevant estimates for added value and supply costs, there can be uncertainties due to the way in which the IFRS framework takes into accounts specific financial events (such as divestments, sale or purchase of subsidiaries, etc.). Finally, there are also **indicators that we have not been able to reconstruct such as the cash flow statement** (only a minority of DAX 30 companies publishing this kind of statement in their annual accounts).

Another limitation comes from the lack or even absence of data on social and environmental issues. This is first and foremost the case with regards to **wage inequalities within DAX 30 companies:** only the CEO remuneration and the average personnel expense per employee could be calculated for each company. We were not able to calculate the average salary per employee due to the lack of data on social contributions for a sizeable number of companies. Furthermore, we have not found any published information on the average salary by quintiles or deciles within DAX 30 companies, which hampers significantly the capacity to analyse wage inequalities. With regards to suppliers, we have **only been able to analyse living wage issues for the case of Adidas** as it is the only company publishing the full list of its tier-1 and tier-2 suppliers, an indispensable information to investigate wages in supply chains.

On the environmental side too, the data published by companies remains (too) fragmented. On climate issues, we have been able to collect part of the declarations of greenhouse gas emissions that DAX 30 companies submit each year to the Carbon Disclosure Project (CDP). Unfortunately, there are **discontinuities in the emissions figures** along the years, and the companies do not declare systematically on the 3 scopes (emissions linked to operations, emissions linked to energy consumption and emissions linked to supply chains). In addition, the **perimeter of activities taken into account for the scope 3** (emissions linked to supply chains) **is different from one company to another**, with very few of them – if any – integrating all activities from the production of raw materials. As a result, we have not been able to analyse in detail the past and current emissions of DAX 30 companies, and we have **focused instead on the required investments for the transition towards a low-carbon economy.** With regards to **biodiversity, the other major environmental issue that we are confronted with, there is simply no data available at all.**

3. The creation and distribution of value within DAX 30 companies

3.1. Evolution from 2009 to 2020 of the turnover of DAX 30 companies, and related breakdown (costs of supply, personnel expenses...)

The total value created by the DAX 30 companies included in our scope of research can be calculated by summing up all their net sales. It amounted to **1 331 billion euros in 2020**, in **decrease by 9%** compared to the previous year due to the economic downturn triggered by the Covid-19 pandemic, but **in increase by 46%** compared to **2009**, the start date of our investigation.

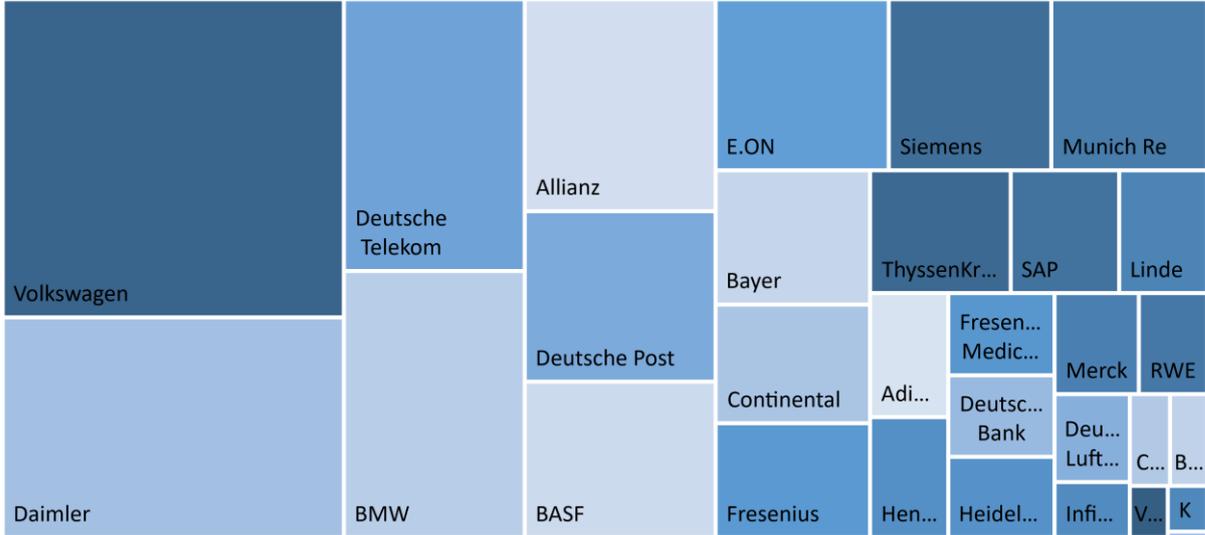


Figure 5 : Aggregated sales of the DAX 30 companies included in our scope of research. Source: BASIC

Behind this global figure, there are strong differences. The Volkswagen company alone represents more than 16% of the cumulative value created by the 30 companies analysed. Taken together, the 3 car makers (Volkswagen, Daimler and BMW) represent almost 36% of the total turnover of the DAX 30. Adding Allianz and Deutsche Telekom to this total, the 5 companies with the highest turnover make up 50% of the aggregated turnover of the index. At the other end of the spectrum, the smallest turnover is the one of the Deutsche Börse which only represent 0.04% of the cumulative value created by the DAX 30 companies, and the 5 companies with the lowest turnover make up only 1.7% of the aggregated turnover of the index.

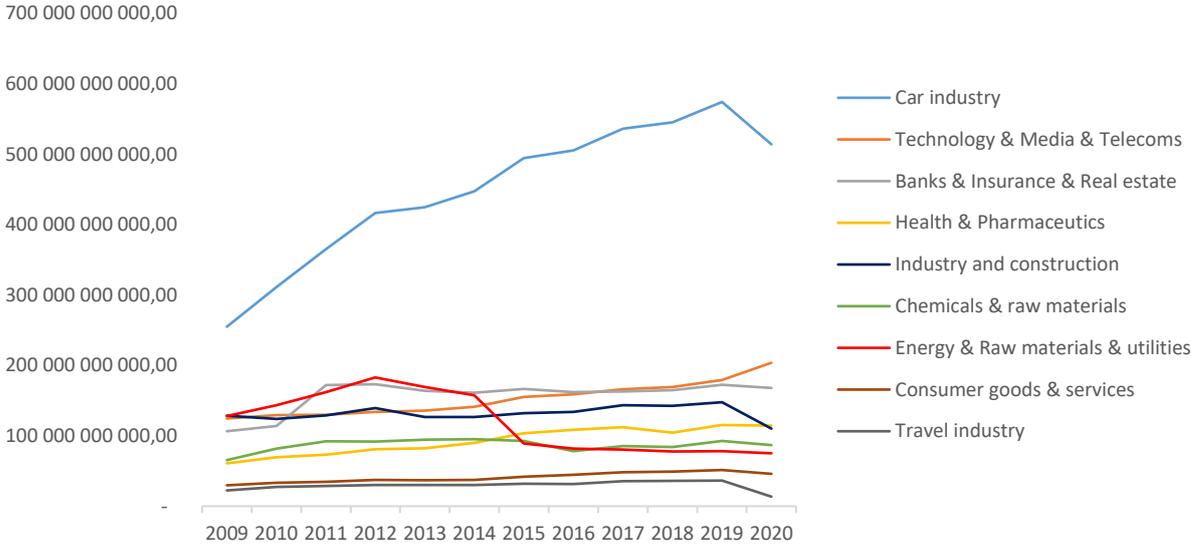


Figure 6 : Aggregated sales of the DAX 30 companies by sector between 2009 and 2020. Source: BASIC

In terms of sectors, **the car industry is by far making the largest share of the cumulated value created by the DAX 30, and is the sector that has grown most with a doubling of its total turnover** between 2009 and 2020. At the other end of the spectrum, the consumer goods and the travel industry are representing the lowest share.

In dynamic terms, the **Health and Pharmaceuticals industry has been the second fastest growing** sector after car industry, with an increase of 88% of its aggregated sales between 2009 and 2020. In contrast, the **Energy, Raw material, Utilities has undergone a strong decline** of - 41% of its aggregated sales over the period, and has downgraded from the 2nd biggest sector to the 7th sector of the DAX 30 in terms of value creation.

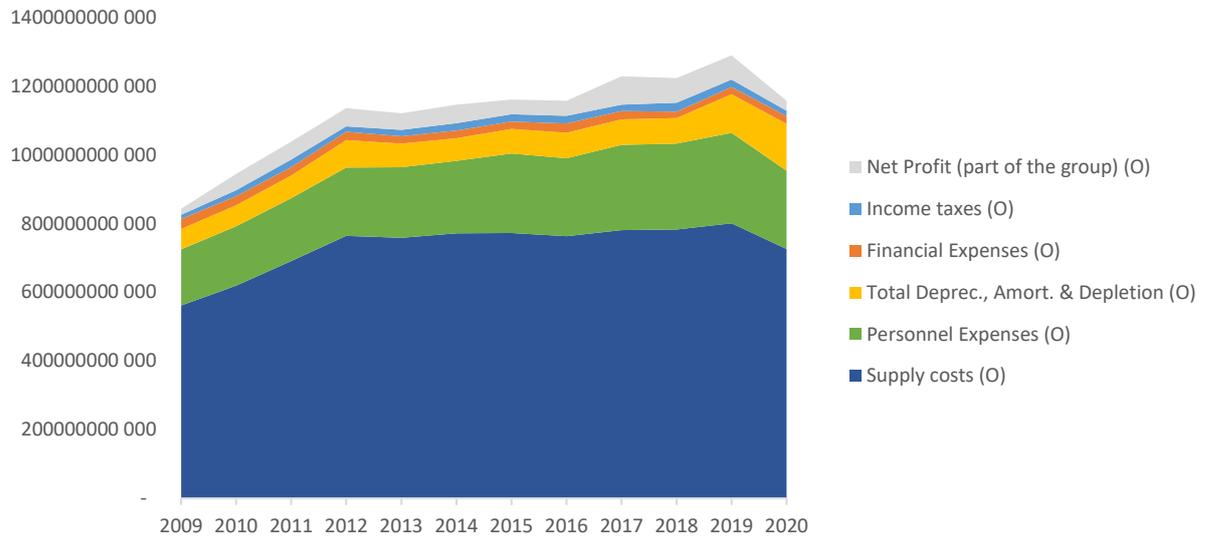


Figure 7 : Evolution of the components of the value creation of the DAX 30 between 2009 and 2020. Source: BASIC

Looking more closely at the evolution between 2009 and 2020 of the components of the value creation of the non-financial DAX 30 companies included in our scope of research, two distinct periods can be identified.

From 2009 to 2019, the cumulated turnover of these companies has increased by more than 52%. All the components of the value creation have followed the same trend, except the financial expenses that have decreased by more than 30% over the period. Among the components on the rise, the fastest growing ones were the **net profits (+311%)** and the depreciation, amortization, depletion (+91%).

In 2020, the cumulated turnover of the non-financial DAX 30 companies has decreased by 11% compared to the previous year, due to the economic downturn. Looking in more details, two companies have undergone significant changes of perimeter over the past year: Siemens has finalized the spin-off of its subsidiary Siemens Energy and Thyssen group has sold its elevator activity. When removing those two companies from the analysis, the **decrease of the cumulated sales is reduced to -6%.**

Most components of the value creation have followed the same downward trend as the cumulated turnover, the fastest decreasing one being the net profits (-60%). On the opposite, **two components are on the rise between 2019 and 2020: depreciation, amortization, depletion (+21%) and financial expenses (+13%),** reflecting the impact of the crisis on companies' accounts: impairments induced by the economic slowdown, loans contracted to cover unexpected expenses, etc.

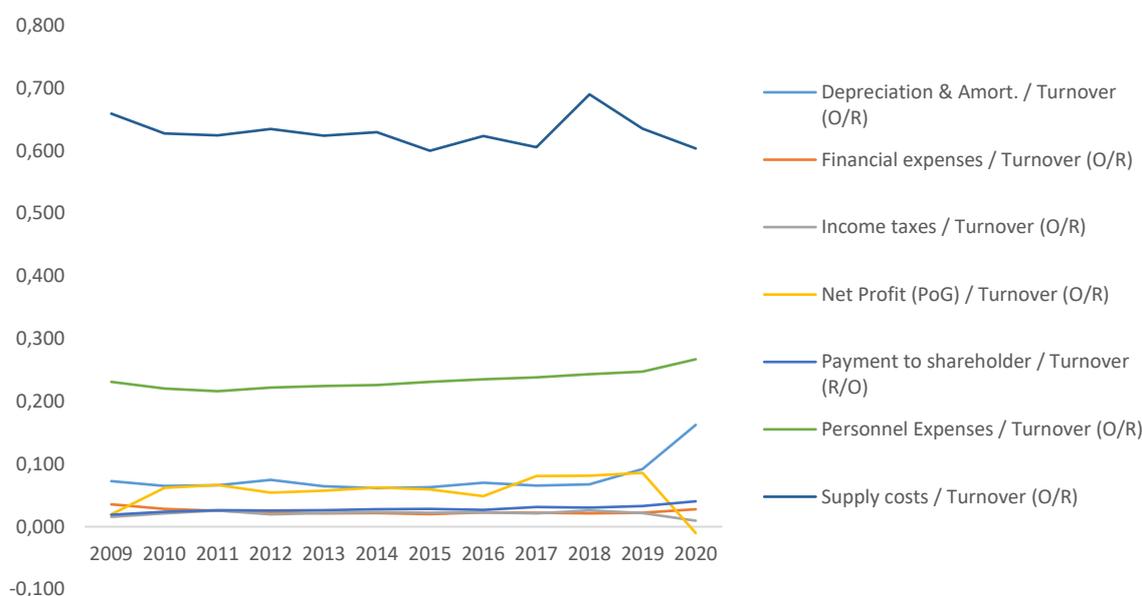


Figure 8 : Evolution of the weighted average of the share of value components of DAX 30 non-financial companies between 2009 and 2020. Source: BASIC

In order to better analyse the distribution of the value created by non-financial DAX 30 companies and its evolution since 2009, we have calculated a weighted average¹² of the share of each of their value's components in their turnover.

The above-illustrated figures show a **long-term decline of the share of value accruing to suppliers, from 66% in 2009 down to 60% in 2020**. The one-off spike in 2018 can be explained by the situation of only two companies, E.ON and RWE which have had very strong loss that year because of the reshuffle of their activities, which in turn impacts our calculations of their added value which is based on their IFRS accounting system¹³.

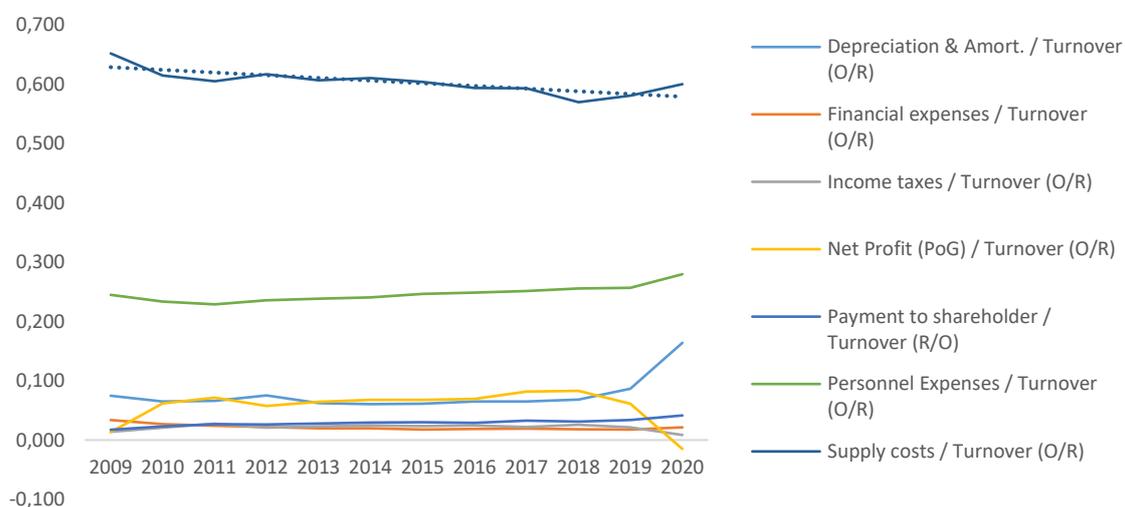


Figure 9 : Evolution of the weighted average of the share of value components of DAX 30 non-financial companies after removing E.ON and RWE between 2009 and 2020. Source: BASIC

As illustrated above, the **downward trend of the share of supply costs** in the turnover is much clearer after removing the 2 energy companies, **with a fall from 65% in 2009 to 60% in 2020**. In comparison, all the weighted

¹² see chapter 4 on the methodology for further details

¹³ see chapter 4 on the methodology for further details

average share of the other components in the total sales appear to have remained quite stable between 2009 and 2019, except for the share of net profits which seems mirroring the evolution of the supply cost curve with opposite trends.

In 2020, two components of value creation have seen their share shifting strongly (while the others remained comparatively more stable), most probably as a consequence of the economic downturn:

- Depreciation, amortization, depletion have jumped by almost 8 points: they amounted to 8.7% of the added value of the analysed companies in 2019 and 16.4% in 2020. This increase is linked to the impairments that the companies have recorded in 2020 as a result of the economic slowdown (see further details in the next chapter).
- Reversely, net profits have fallen by the same order of magnitude (7.5 points) between 2019 and 2020.

In relations to supply costs, an indicator that is worth investigating is the trade credits. It is presented and analysed in the next section.

3.2. Focus on suppliers: analysis of DAX 30 companies' trade credits from 2009 to 2020

Trade credits correspond agreement in which a customer purchases goods without paying cash up front, and paying the supplier at a later scheduled date. Usually, suppliers will give buyers 30, 60, or 90 days to pay, with the transaction recorded through an invoice.

Trade credit can be thought of as a type of 0% financing, increasing a company's assets while deferring the payment of supplied goods and services to sometime in the future, and requiring no interest to be paid in relation to the repayment period.

One of the main ways to analyse trade credits is to calculate the ratio between their level and the total amount of supply costs. This ratio can be converted in an average number of weeks or months between the delivery of the goods or services purchased by a given company, and the time delay after which the buying company concretely pays the related invoice.

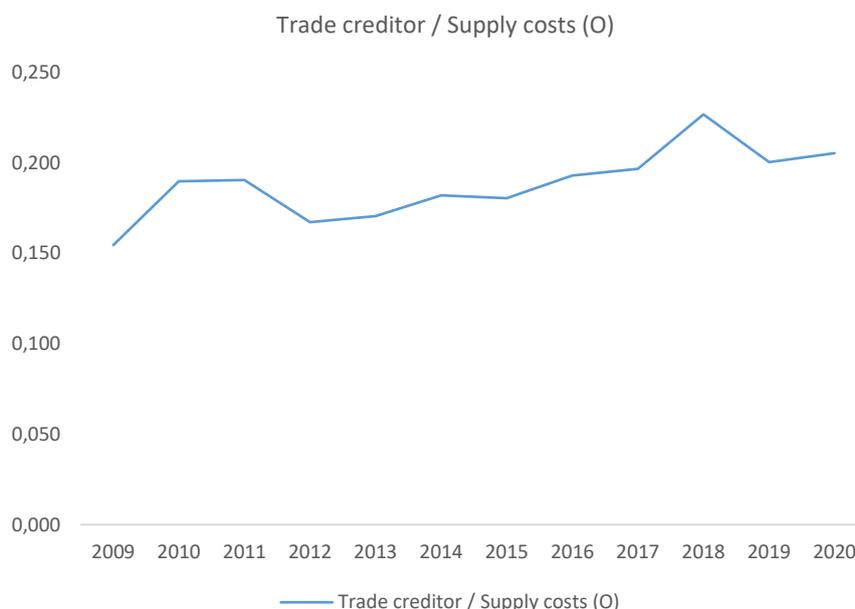
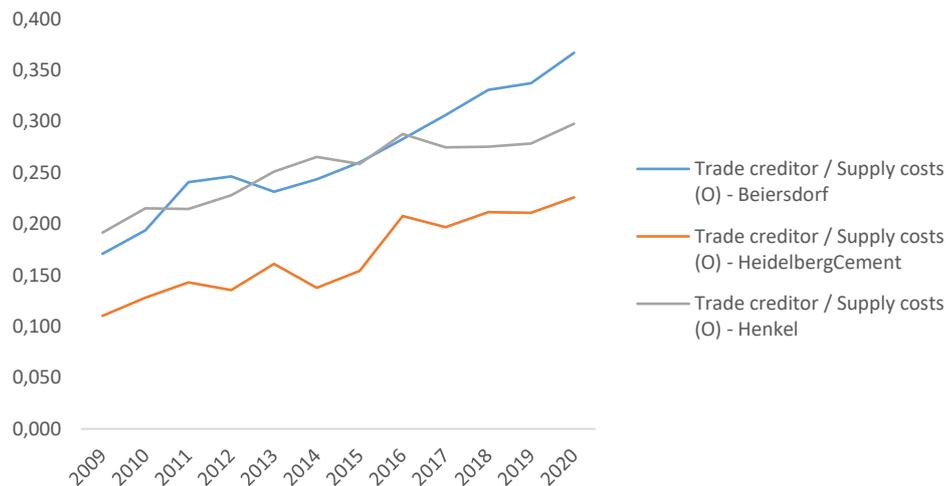


Figure 10 : Evolution of the ratio between trade credits and supply costs of non-financial companies of the DAX 30 between 2009 and 2020. Source: BASIC

Looking at the results for the non-financial companies of the DAX 30¹⁴, we observe a **significant rise of the ratio between trade credits and total supply costs, from 15% in 2009 up to almost 21% in 2020**. Converting this ratio in time delay, it translates into a jump from 8 weeks of payment delays of suppliers in 2009 to 11 weeks in 2020. This evolution corresponds to a **degrading of the situation of the suppliers of DAX 30 companies** over the period, and possibly a weakening of their bargaining position.

Indeed, as described earlier, the **3 additional weeks of payment delays observed in 2020 represent a type of “interest-free financing” of the DAX 30 companies**, all the more important than the **cumulated amount of trade credits** have increased by 56% since 2009, **from close to 77 billion euros in 2009 up to 120 billion euros in 2020**. In order to give an order of magnitude, these trade credits amount to roughly 20% of the net debt of the non-financial companies of the DAX 30 in 2020.



Looking in more details at individual companies, two of them stand out for the level and the increase of their ratio between trade credits and supply costs:

- Heidelberg cement, which ratio has more than doubled from 11% in 2009 up to almost 23% in 2020
- Henkel, which ratio has increased from 19% in 2009 to 30% in 2020
- Beiersdorf, which shows the highest level and the strongest jump, from 17% in 2009 to 37% in 2020

It is difficult to go much deeper in the analysis of the issues linked to suppliers given the heterogeneity of the expenses included in the supply costs: payments to suppliers of raw materials, semi-finished and finished goods, but also to temporary employment agencies, marketing and consulting firms, etc.

However, the **social and environmental issues linked to suppliers and chains of subcontractors** for companies in general, and multinationals such as the ones listed on the DAX 30 in particular, are **far from negligible as recalled in recent reports**¹⁵.

The German law now requires companies to take them into account. In June 2021, the he Committee for Labour and Social Affairs approved the federal government's proposal of “Supply Chain Due Diligence Act”. **This law will oblige from 2023 companies with 3,000 or more employees to comply with human rights and environmental due diligence obligations in their supply chains.** This includes establishing effective risk management and conducting risk analyses systematically for their own business and direct suppliers, and on

¹⁴ banks, insurance and financial companies have been removed from the sample because their specific business model does not enable to analyse meaningfully the trade credits indicator

¹⁵ <https://www.auswaertiges-amt.de/blob/2405080/23e76da338f1a1c06b1306c8f5f74615/201013-nap-monitoring-abschlussbericht-data.pdf> and <https://op.europa.eu/en/publication-detail/-/publication/8ba0a8fd-4c83-11ea-b8b7-01aa75ed71a1/language-en> accessed on July 27th 2021

an ad hoc basis for indirect suppliers, in order to identify risks to people and the environment and to prevent, end or mitigate violations¹⁶.

To reduce the social and environmental impacts of companies' supply chains, a sine qua non condition - even if it is not sufficient - is to make payments to suppliers that are sufficient to allow them:

- to pay living wages to all workers and living incomes to all independent producers,
- to develop or maintain production methods that preserve the environment.

In order to be able to investigate the economic procurement and outsourcing practices of the DAX 30 companies included in our scope of research, as well as their social and environmental impacts, **there should be more transparency on the payments made by companies to their suppliers.**

More specifically, there is a need to differentiate the costs of purchases of raw materials and (semi)-processed products of other services, the number, names and activities of suppliers and their typology by country (like what is reported annually by major brands in the textile sector such as H&M, Nike or Adidas...), in particular in countries falling under the analysis of the Supply Chain Due Diligence Act. It would also be necessary to have access to the lists of suppliers affected by the application of this new law.

Regarding the other components of value creation (labour, amortization and depreciation, financial expenses, taxes, profits and payments to shareholders), they are analysed in more depth in the following chapter that focuses on the added value. The issue of living wages in supply chains is explored in section 8.

HIGHLIGHTS

The total value created by the DAX 30 companies has increased by 46% between 2009 and 2020, despite the economic downturn triggered by the Covid-19 pandemic.

The car industry is by far making the largest share of the cumulated value created by the DAX 30 and is the sector that has grown most, with a doubling of its total turnover between 2009 and 2020. The Health and Pharmaceuticals industry has been the second fastest growing sector after car industry, and the Energy, Raw material, Utilities has undergone a strong decline.

This growth of the DAX 30 companies turnover has been accompanied by a long-term decline of the share of value accruing to suppliers, from 65% in 2009 down to 60% in 2020. This has been correlated with a significant rise of the ratio between trade credits and total supply costs, from 15% in 2009 up to almost 21% in 2020, which can be translated into 3 additional weeks of payment delays of suppliers in 2020. This represents a type of “interest-free financing” of the DAX 30 companies, all the more important than the cumulated amount of trade credits have increased by 56% since 2009.

The lack of transparency on the payments made by companies to their suppliers, as well as the related social and environmental impacts prevents from analysing more in-depth the situation of DAX 30's suppliers.

¹⁶ <https://www.bundestag.de/presse/hib/846424-846424> and https://lieferkettengesetz.de/wp-content/uploads/2021/06/Initiative-Lieferkettengesetz_Analysis_What-the-new-supply-chain-act-delivers.pdf accessed on July 27th 2021

4. The creation and distribution of added value within DAX 30 companies

4.1. Evolution from 2009 to 2020 of the added value of DAX 30 (non-financial) companies, and related breakdown between employees, amortization, lenders, shareholders, income tax

The added value is calculated by removing the supply costs from the other components of the value creation. This calculation can only be made meaningfully for non-financial companies because the business model of banks, insurance and financial companies is too specific. We have thus evaluated and analysed the added value of 24 companies included in our scope of research (hence removing from the initial scope Allianz, Commerzbank, Deutsche Bank, Deutsche Börse, Munich Re and Vonovia).

Our first results are as follows:

- **Between 2009 and 2019, the added value of the non-financial DAX 30 companies has increased by 74% which is more than 3 times higher than the rise of German GDP (+21%) and 5 times higher than the rise of the Euro area GDP (+14,6%) over the same period according to World Bank data.**
- **Between 2019 and 2020, the aggregated added value of the same companies has decreased more than their cumulated turnover (-12%), as a result of the economic slowdown. As described in the previous chapter, two companies have had an important change of perimeter over this period: Siemens which has organized a spin-off of its subsidiary Siemens Energy and Thyssen group which has sold its elevator activity. When removing those two companies from the analysis, the decrease of the cumulated added value of non-financial DAX 30 companies is reduced to -9%. This decrease is more pronounced than the fall of the GDP of Germany (-4,9%) and of the European Union (-6,7%) over the same period (according to World Bank data).**

As a result, the added value of the DAX 30 companies (which have worldwide operations and only a minority situated in Germany) appear to be much more dynamic than the GDP of the countries in which they operate.

To go further, it is possible to break down this added value to investigate how it is allocated between the different actors that contribute to its creation (States, employees, bank and lenders, shareholders – see below).

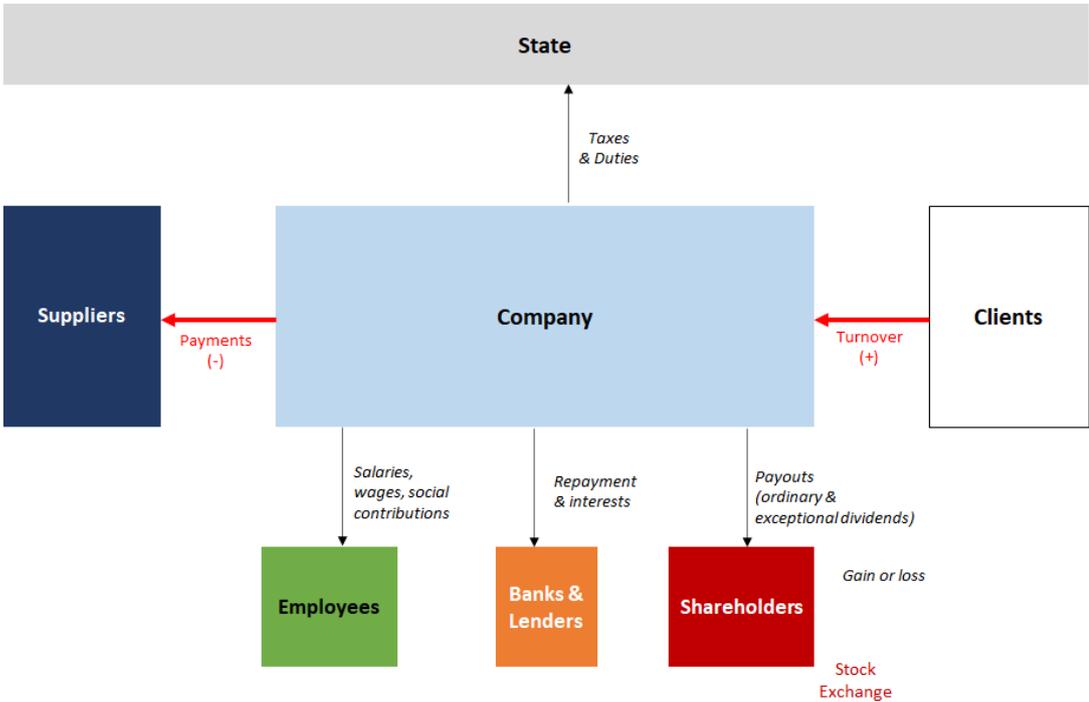


Figure 11 : Summary diagram of the different actors associated with the added value of a private company. Source: BASIC

To analyse the allocation of added value of DAX 30 non-financial companies between its different contributors, we have calculated a weighted average¹⁷ of the share that each of the latter represents in the added value of each individual company.

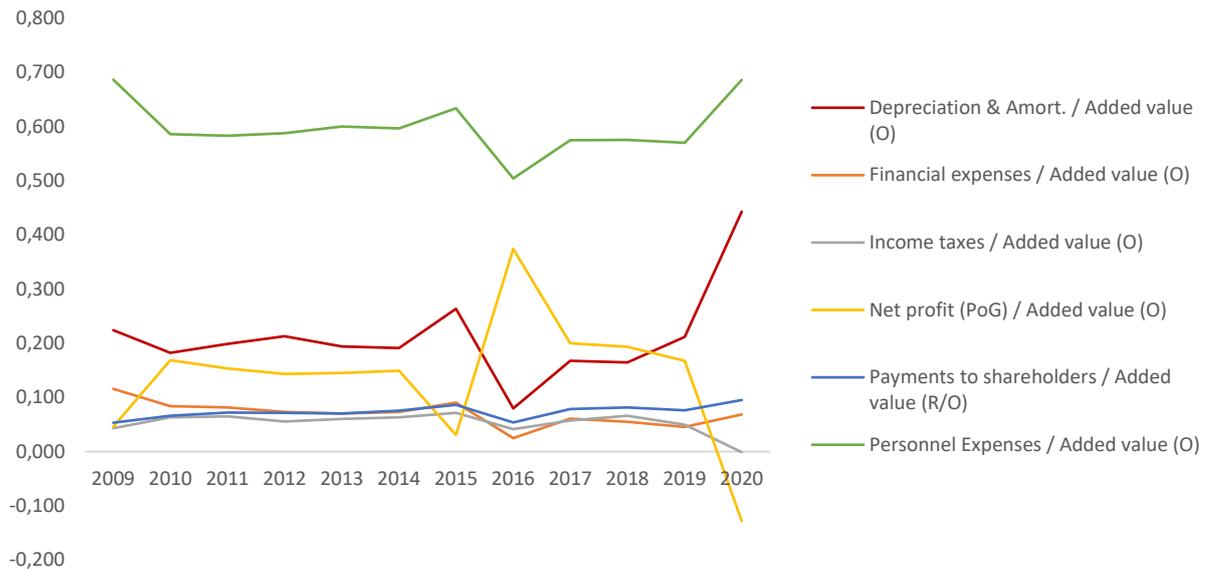


Figure 12 : Evolution of the weighted average of the components' share of the added value of DAX 30 non-financial companies between 2009 and 2020. Source: BASIC

The results obtained (see above) can seem quite erratic at first sight. In facts, **much of the instabilities seen on the above diagram are due to the specific situation of a limited number of DAX 30 companies in certain years:**

- **Deutsche Lufthansa** has suffered last year a near freezing of its activity and net sales, while maintaining the essential part of their employees through furlough schemes, which has translated into a sheer jump in the labour share of its added value **in 2020** compared to the previous year.
- **E.ON and RWE** have undergone a significant reshuffle of their activities in 2015 and 2016, in particular due to their divestment from nuclear energy and the repositioning of E.ON on energy distribution grids while RWE concentrates on conventional and renewable power generation. This has translated into major changes in the sales, personnel and profitability of the two entities as a result of large asset swaps between the two companies **in 2015 and 2016** (split of Innogy, etc.)¹⁸, and consequently high variations in the different components of their added value.
- **K+S** has made an extraordinary impairment of 1.9 billion euros **in 2020** due to the fall of potassium prices and the downturn on international markets, which has resulted in a significant jump of the share of depreciation, amortization, depletion in its added value in 2020.
- **Bayer** has also recorded an extraordinary impairment of 9.6 billion euros in 2020 because of the risks of litigations on glyphosate in the US following the judgement of the US courts on their proposal of settlement¹⁹, and recorded associated impairments of goodwill, which have also significantly impacted the share of depreciation, amortization, depletion in its added value **in 2020**.
- Finally, **Heidelberg Cement** has too recorded an extraordinary impairment of 2.7 billion euros **in 2020** based on a global recalculation of goodwill in their countries of operation triggered by the economic downturn (i.e. a revision of the future expected benefits, actualized in 2020, in each of these countries) which has similarly impacted the share of depreciation, amortization, depletion in its added value.

¹⁷ see chapter 4 on the methodology for further details

¹⁸ <https://www.cleanenergywire.org/news/rwe-and-eon-overhaul-power-sector-german-reactions-innogy-deal> accessed on July 28th 2021

¹⁹ <https://www.reuters.com/business/healthcare-pharmaceuticals/bayer-posts-additional-45-billion-provision-roundup-litigation-2021-07-29/> accessed on July 29th 2021

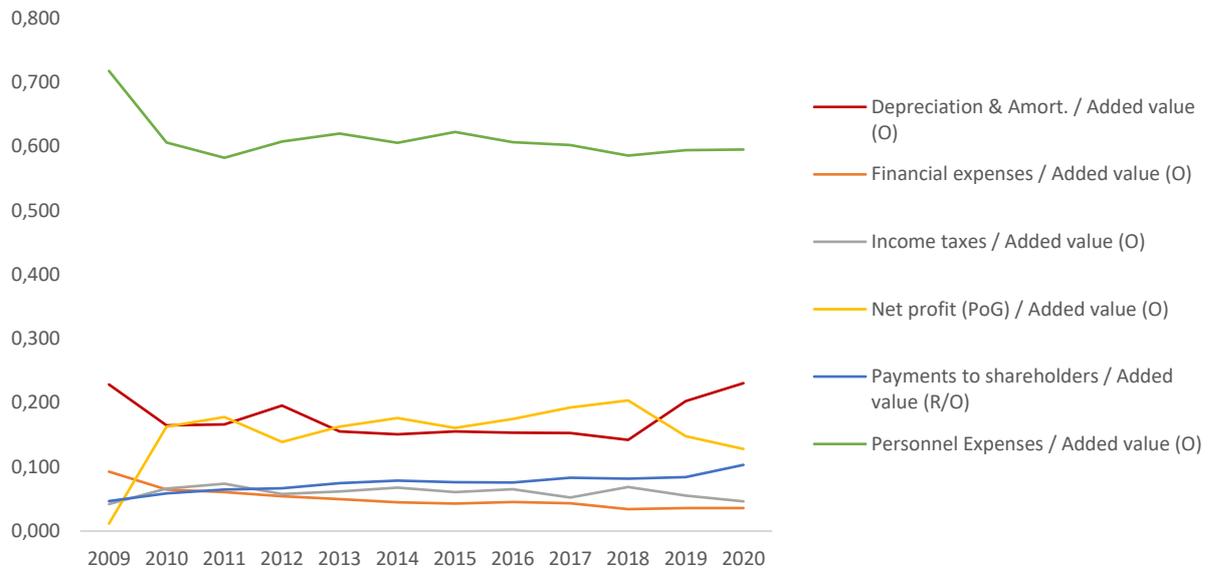


Figure 13 : Evolution of the weighted average of the components' share of the added value of DAX 30 non-financial companies after removing Deutsche Lufthansa, E.ON, RWE, K+S, Bayer, Heidelberg Cement between 2009 and 2020. Source: BASIC

After removing these 5 companies from the sample of non-financial companies, we obtain much more linear evolutions of the weighted average share of the different components of the added value (see above).

The first observation that comes to light is the **mirroring effect between the patterns of evolution of the net profits (yellow line) and depreciation, amortization, depletion (red line)** during the majority of the period 2009-2020, due to the relatively higher stability of the other components (except for the labour share in 2009-2010 which is discussed further in this chapter).

Looking more specifically at the depreciation, amortization and depletion, our calculations seem to show that its **average share in the added value** has fallen significantly between 2009 and 2010, then eroded progressively until 2018, and finally stepped up markedly until 2020. It **reached the same average value (23% of the added value) during the economic downturn of 2020 than at the exit of the last economic crisis in 2009**.

However, a **key difference resides in the level of impairments**: while their cumulated amounts were very limited in 2009, they **explain 80% of this increase** of depreciation, amortization and depletion between 2019 and 2020.

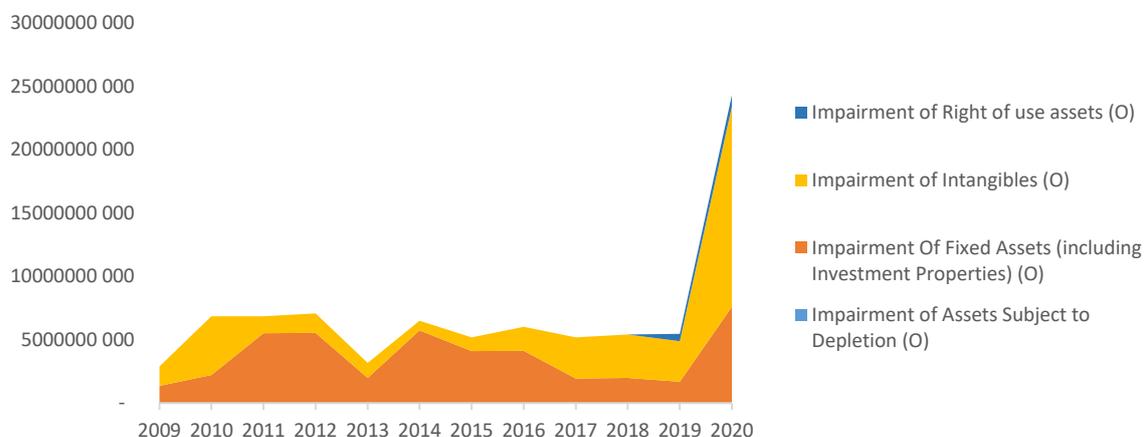


Figure 14 : Evolution of the average share of depreciation, amortization, depletion in the added value of DAX 30 non-financial companies between 2009 and 2020. Source: BASIC

As illustrated in the diagram above, whereas the **cumulated amounts of impairments** have remained within the range of 3 to 6.5 billion euros between 2009 and 2019, they have **peaked to almost 24 billion dollars in 2020**, almost 5 times higher than their average value during the previous 10 years. The **essential part of this increase results from impairments of intangibles**.

As described in the methodology (chapter 4), **this type of impairment is made possible by the IFRS standards** which allow to convert future cash flows or income into a current discounted amount. This process seems to have been used much more during the current economic crisis than during the last one, as illustrated by the cases of K+S, Bayer and Heidelberg Cement that were explained earlier in the section

Another important element of the analysis is the labour share in the added value (i.e. the share that personnel expenses represent on average in the added value of DAX 30 non-financial companies). As illustrated on Figure 13 on the previous page, **this labour share has fallen significantly between 2009 and 2010, from 71.8% down to 60.6%, then remained quite stable (with a little erosion) up to 2020 when it represented on average 59.5% of the added value**. The decrease of the labour share observed between 2009 and 2010 is not due to a fall in the personnel expenses, but rather to an uptake in sales during the recovery phase that followed the economic crisis of 2008, and which has not translated in equivalent job creations.

A further analysis and contextualisation of the labour share in the added value is proposed in the following section below.

4.2. Focus on the labour share of the added value

In order to analyse in more detail the factors explaining these evolutions, we reviewed the existing academic literature on the evolution of the labour share in the added value, and comparisons with the part accruing to equity holders.

Even if there are quite many academic research published on the issue²⁰, most of them analyse it at a macroeconomic level (that is to say at the cumulated level of all the companies, large or small, established on the European territory or within a Member State). They are therefore not directly usable for our analysis, because the companies we are studying, which have been part of the DAX 30 for at least 5 years since 2009, are not comparable to the rest of the German or European private companies: they are among the largest in Europe, with a global outreach of operations, much beyond the borders of the EU (by way of illustration, the 5 largest companies of the DAX 30 in 2014 achieved 90% of their turnover outside Germany according to PwC²¹).

We have identified a single study that recently investigated the determinants of the labour share of the added value of non-financial companies listed on the stock exchange in several European countries and the EU as a whole. It was conducted in 2018 by researchers from the University of Greenwich²².

Regarding Germany, it investigated all the companies in the DAX, MDAX and SDAX (the 160 largest market capitalizations on the Paris stock exchange). Beyond, the researchers also analysed the companies listed on the equivalent indices in France, the United Kingdom, Sweden and in the average of the 15 largest countries of the European Union.

²⁰ P. Askenazy, G. Cette et A. Sylvain, « Le partage de la valeur ajoutée », Editions La Découverte, 2012

S. Piton, et P. Vatan. « Répartition de la valeur ajoutée entre revenus du travail et du capital : de quoi parle-t-on ? », CEPIL, 2018

P. Artus. « La déformation du partage des revenus dans les pays de l'OCDE est à la fois un problème social et d'équité et un problème d'efficacité économique », 2018

²¹ <https://www.dw.com/en/dax-listed-companies-heavily-rely-on-turnover-abroad/a-17572724> accessed on 29th July 2021

²² Guschanski, Alexander, et Özlem Onaran. The labour share and financialisation: Evidence from publicly listed firms, 2018.

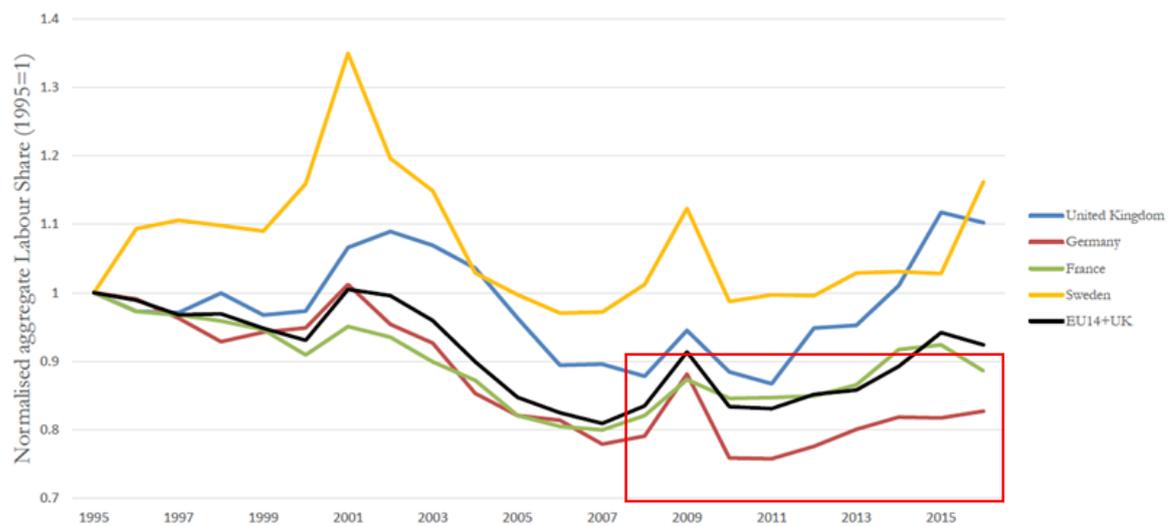


Figure 15 : Average share of value added allocated to work (base 100 = 1995) in companies listed on the stock exchange of the main European countries (France, Germany, United Kingdom and EU 15 average). Source: Guschanski et Onaran (2018)

The first result of the Greenwich study relates to the evolution of the labour share of the added value created by listed companies in the different countries included in the scope of their research (see above diagram). This **labour share spiked in 2009 because of the economic crisis, then fell between 2009 and 2010** (like in the case of DAX 30 analysed in the previous section). It **then globally returned in 2016 to the same level as in 2009** (and even increased much higher in the case of the UK).

However, when taking a longer-term perspective since 1995, the situation is more contrasted. **In the case of Germany, the labour share has fallen by around almost 18% since 1995** despite the recovery between 2010 and 2016 (while in the United Kingdom and Sweden, it has increased compared to 1995).

Based on these findings, the researchers carried out a statistical analysis to investigate the correlation between this evolution and other variables in order to see if this observed drop in the labour share came from:

1. **technological change**, in particular the progress of automation within the studied companies which could lead to the replacement of human labour with machines, and therefore with capital,
2. **the concentration of economic power**, which would enable the studied companies to impose higher prices on their customers, and would mechanically lower the share of labour in their added value,
3. **an increase in the bargaining capacity of employers with regards to trade unions** in the studied companies, which would allow them to put greater pressure on wages internally,
4. **the financialization of their management practices**, which would be characterized by greater power granted to shareholders in the governance of the studied companies, and lead to decisions driven more largely by return on investment for shareholders in the short run.

The result of their research is unequivocal: the first 3 assumptions are not correlated with the evolution of the labour share in the added value of the listed companies in all the countries analysed. It is the last factor, **the financialization of the management and the increased influence of shareholders in corporate governance, which is the only one correlated with the decline in the labour share**, the correlation being particularly robust for Germany.

Although not focusing exclusively on the DAX 30, **this study confirms the growing importance given to shareholders in the distribution of added value** since the end of the 1990s to the detriment of the other components that contribute to its creation, in particular employees, **and enables to objectify that this evolution is linked to the financialization of companies.**

In comparison with these findings on the larger set of listed non-financial companies in Germany, the **situation of the DAX 30 seems even more pronounced.**

As shown by our estimates, the average labour share of the added value within DAX 30 non-financial companies has declined markedly between 2009 and 2010, but then remained stable until 2020, while it came back up in the case of the wider DAX+MDAX+SDAX studied by the researchers from Greenwich University. This difference in evolution illustrates a **stronger pressure on the labour share of the added value in DAX companies than in their counterparts from MDAX and SDAX.**

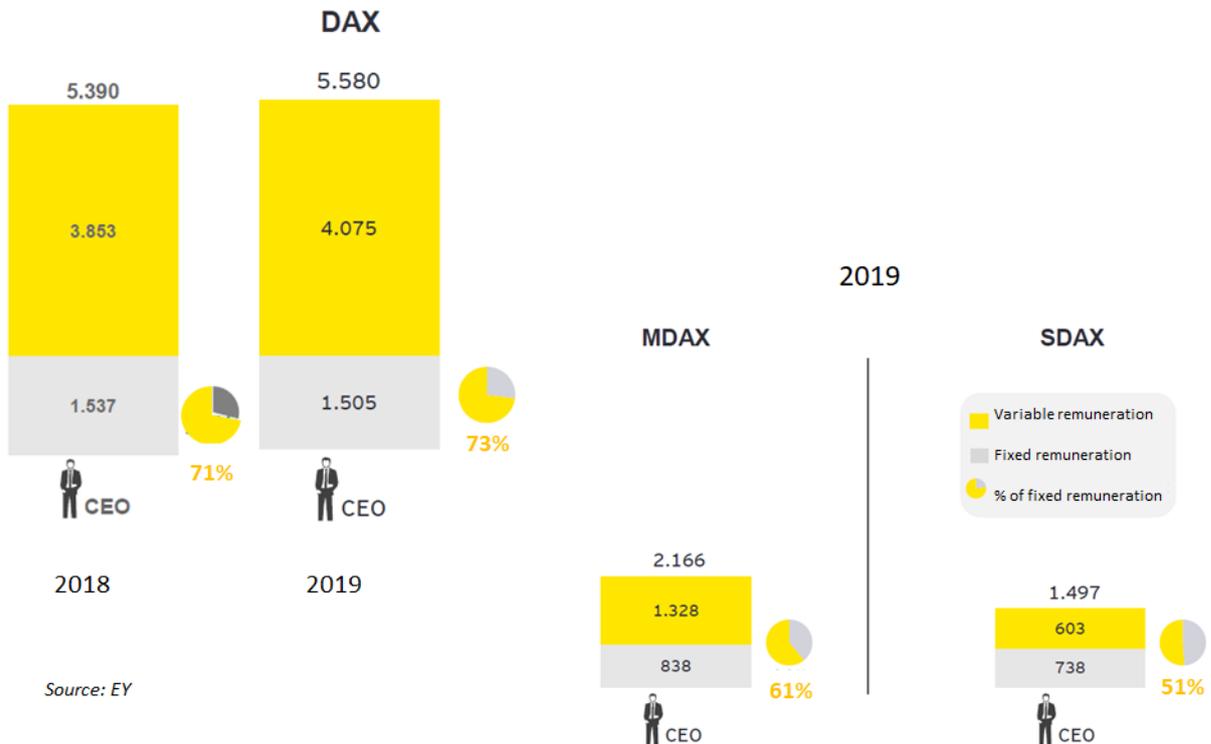


Figure 16 : Average value (in thousand euros) and average share (in %) of fixed and variable remuneration of the CEOs of DAX, MDAX and SDAX. Source: EY (2020)

Based on the finding of Greenwich researchers that this pressure on labour share is linked to the financialization of the management of companies and the influence of shareholders to achieve short-term return on investment, we have **looked more in-depth at the details of the remuneration of DAX 30 CEOs.**

In 2020, EY has conducted a **comparative study of the components of remuneration of CEOs from the DAX, MDAX and SDAX companies**, differentiating between fixed and variable remuneration (the latter consists of the bonuses and the remuneration part which is indexed to the performance of the company's stock market price, but without information on the breakdown between the two in the study)²³.

The figures consolidated by EY show that the **remuneration of DAX 30 CEOs is primarily made up of variable components**, in particular ones indexed on the companies' shares price performance, **amounting to 73%** of their total remuneration. This level is even on the rise, as it only amounted to 71% of CEOs remuneration the previous year according to EY (see diagram above).

The remuneration of CEOs from MDAX and SDAX contrasts with these results as the share of variable components of their CEOs only amounts to 61% for the former and 51% for the latter.

These results seem to reinforce the conclusions of the Greenwich study: the DAX 30 companies stand out from the MDAX and SDAX by the higher pressure on their labour share which is assumed to be linked with the financialization of their management style according to Greenwich, and stand out as the companies where the CEOs have the highest share of remuneration linked to the evolution of the shares' price performance.

To analyse this phenomenon in more detail, we investigated the distribution of profits in the companies in our sample (see the results in the next chapter).

²³ The study is based on a survey conducted among 21 companies of DAX 30, 13 companies of MDAX and 9 companies of SDAX.

HIGHLIGHTS

Between 2009 and 2019, the added value of the non-financial DAX 30 companies has increased by 74% which is more than 3 times higher than the rise of German GDP (+21%) and 5 times higher than the rise of the Euro area GDP (+14,6%).

The labour share of this added value within non-financial companies of the DAX 30 has fallen significantly between 2009 and 2010, from 71.8% down to 60.6%, then remained quite stable (with a little erosion) up to 2020 when it represented on average 59.5% of the added value of these companies.

A study conducted in 2018 by researchers from the University of Greenwich on publicly listed companies in Germany, France, the UK, Sweden and the EU (average of 15 countries) enables to put these results in context. Their research demonstrates a long-term fall of the labour share of the added value in all countries since 1995, a trend that is significantly more pronounced in Germany than in the rest of Europe.

According to the study, neither technological change (automation), the concentration of economic power, nor the bargaining capacity of employers with regards to trade unions could explain this evolution. It is the financialization of the management and the increased influence of shareholders in corporate governance which is the only factor that could be correlated with this decline in the labour share.

This evolution can be correlated with the level of variable components in the remuneration of CEOs, in particular the ones indexed on the companies' shares price performance, which amount to 73% in the case of DAX 30 CEOs (in comparison with 61% for the MDAX and 51% for the SDAX).

5. The creation and distribution of profits within DAX 30 companies

5.1. Evolution from 2009 to 2020 of the net profits of DAX 30 companies, and related breakdown between payments to shareholders and income tax

Each year, the shareholders of a company note the profits or losses generated in the fiscal year during their Ordinary General Meeting which takes place within six months of the closing of the accounts. In the event of a profitable financial year, the General Assembly **decides on its allocation with 3 possible uses:**

- the constitution of reserves (legal, statutory, optional, etc.),
- the distribution of dividends to shareholders (ordinary and / or exceptional),
- the carry forward (retained earnings).

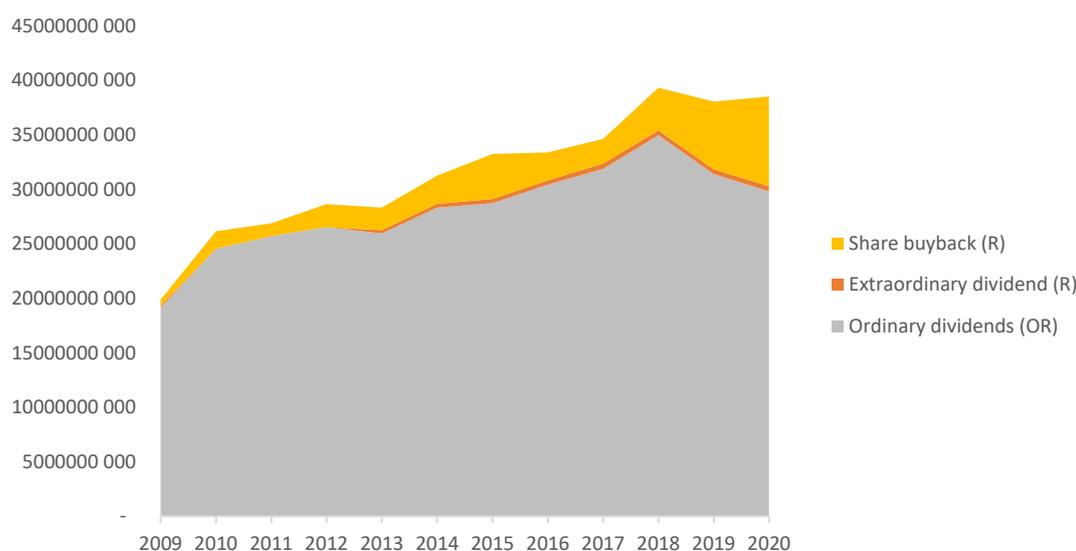


Figure 17 : Evolution of the cumulated payments to shareholders (ordinary dividends, extraordinary dividends and share buyback) of DAX 30 companies between 2009 and 2020. Source: BASIC

The payments to shareholders can take 3 different forms: ordinary dividends, extraordinary dividends and share buyback.

The total amount of these payments has **increased from 20.29 billion euros in 2009 up to 41.97 billion euros in 2020, hence a rise of 107% over the period (see above)**. The only year for which these payments have decreased was 2019, because this is the fiscal year for which a few DAX 30 companies – Deutsche Lufthansa and Adidas - have decided to reduce the dividends to their shareholders.

Looking at the form of payments, our figures show that the cumulated **ordinary dividends account for the essential part and have had a tendency to decline since 2018, while the share buyback have begun to increase significantly since then** (the extraordinary dividend only account for 1% of total payments). This growth of share buyback since 2018 is essentially due to one company, Linde. This change in policy coincides with the merger of this company with the American group Praxair, which practices much higher levels of buyback than in Europe, as most other US listed companies (most often, share buyback have outpaced ordinary dividends on the US stock exchange over the past 20 years)²⁴.

In order to better understand the influence of payments to shareholders, we have analysed how the 30 companies in our sample decided to distribute the profits they generated between 2009 and 2020 in comparison with the evolution of net profits and income taxes.

²⁴ Lubochinsky, Manière, Éclipse ou crépuscule ? Pourquoi les Bourses n'ont plus la cote, 2021

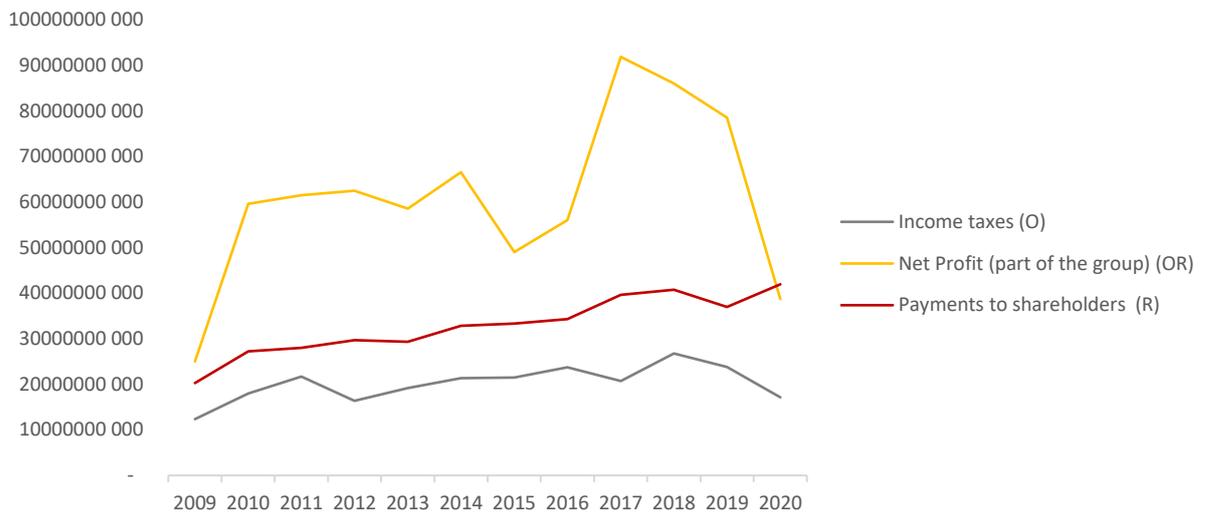


Figure 18 : Evolution of the cumulated net profits, payments to shareholders and income tax of DAX 30 companies between 2009 and 2020. Source: BASIC

First observation, the **cumulated payments to shareholders of the 30 companies included in our scope of research have grown almost continuously between 2009 and 2020**, regardless of fluctuations in the profits generated.

Whatever the year (except for the fiscal year 2020), **the cumulated payments to shareholders were higher than the cumulated net profits but didn't follow the same fluctuations**. In doing so, the DAX 30 companies appear to have moved away from the historic conception of corporate financial management which stated that the shareholders were to be the last actors to get a share of the value created by the company, depending on the level of profits generated (and none in case of losses). On the contrary, the trend illustrated in the diagram above shows that the **DAX 30 companies chose instead to increase continuously the level of payments to shareholders, and to consider that the money left after these payments, and which can be re-invested in the company, is an adjustment variable**.

This is in contrast with the evolution of the cumulated income tax (across all the countries where the DAX 30 companies operate) which follows to a much greater extent the evolution of net profits. As a result, the **gap has been widening over the past decade between increasing payments to shareholders and stagnating if not eroding income tax accruing to States**.

These findings are further confirmed by the analysis of the **differences between the underlying linear growth** of these 3 components: payments to shareholders, income tax and net profits after tax (cf. graph below).

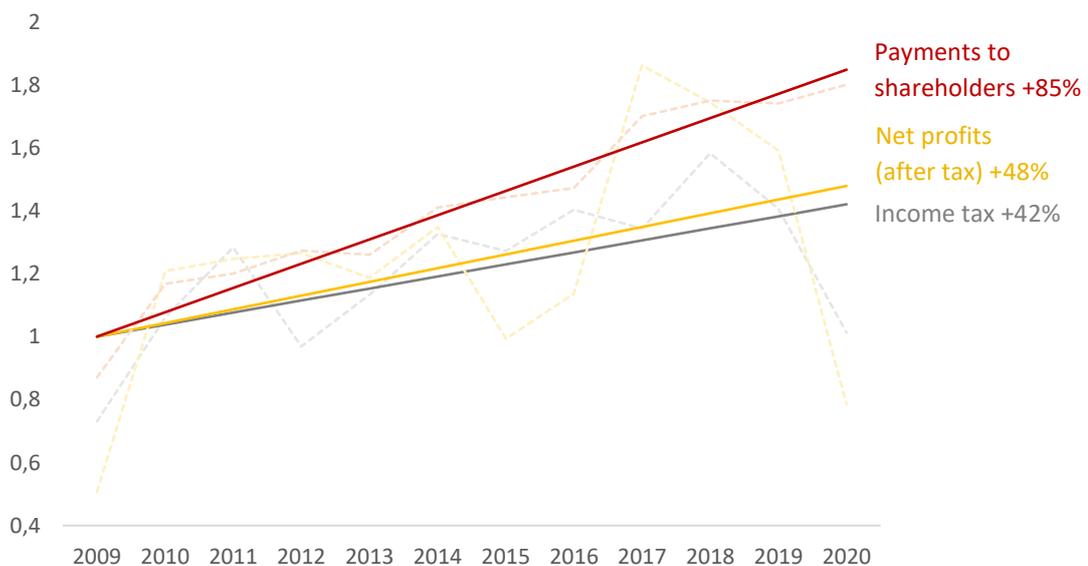


Figure 19 : Linear growth of the cumulated net profits, payments to shareholders and income tax of DAX 30 companies between 2009 and 2020. Source: BASIC

As illustrated in the above diagram:

- while the **payments to shareholders made by DAX 30 companies have jumped by 87%** since 2009,
- the **net profits after tax have increased by only 48%** over the same period, a pace twice as slow,
- and the **income tax** paid by DAX 30 companies have grown **even more slower, by only 42%** since 2009.

This pattern among DAX 30 companies, and the pre-eminence they appear to give to shareholders, is aligned with the **common view advocated by corporate finance that the year-over-year shareholder pay-outs are expected to be (much) less volatile than the profits**. This concept is reflected concretely in most of the annual reports of the DAX 30 companies, which very frequently put forward the **objective of gradual and continuous growth in their dividend per share**.

This financial management of DAX 30 can result in levels of payments to shareholders which may in some years be significantly disconnected from the net profit of companies.

nom_entreprise	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Deutsche Telekom	9,59	2,01	5,41	-0,57	2,38	0,77	0,78	1,04	0,89	1,53	0,74	0,68
Munich Re	0,59	0,99	2,04	0,42	0,45	0,85	0,75	0,89	6,09	1,01	0,85	1,43
ThyssenKrupp	-0,07	0,25	-0,18	0,00	0,00	0,30	0,28	0,29	-0,14	11,63	0,00	0,00
Linde	0,51	0,37	0,36	0,40	0,43	0,54	0,56	0,60	0,91	0,00	1,99	2,81
Siemens	0,61	0,60	0,43	0,95	0,92	0,70	0,76	0,62	0,65	0,78	0,89	1,07
Adidas	0,30	0,29	0,31	0,54	0,40	1,24	0,98	0,62	0,57	0,99	0,42	2,03
Deutsche Börse	0,79	0,93	0,64	0,91	0,81	0,51	0,63	0,34	0,55	1,04	0,53	0,51
Deutsche Post	1,13	0,31	0,75	0,53	0,47	0,54	0,71	0,80	0,57	0,71	0,61	0,58
Bayer	0,85	0,95	0,55	0,64	0,54	0,54	0,50	0,49	0,32	1,54	0,67	-0,19
Allianz	0,46	0,41	0,73	0,40	0,40	0,50	0,51	0,51	0,52	0,51	0,51	0,59
Deutsche Bank	0,09	0,30	0,26	2,94	1,15	0,62	0,00	-0,28	-0,30	0,85	0,00	0,00
SAP	0,34	0,52	0,45	0,38	0,36	0,40	0,45	0,41	0,54	0,44	0,57	0,71
RWE	0,52	0,56	0,68	0,94	-0,22	0,36	-0,03	0,00	0,49	1,28	0,06	0,59
K+S	0,54	0,45	0,47	0,41	0,13	0,46	0,45	0,35	0,38	1,14	0,09	0,00
Fresenius Medical Care	0,30	0,27	0,25	0,26	0,74	0,28	0,26	0,25	0,30	0,20	0,79	0,65
Daimler	0,00	0,45	0,42	0,39	0,36	0,38	0,42	0,41	0,38	0,49	0,42	0,41
BMW	0,97	0,26	0,31	0,32	0,32	0,33	0,33	0,34	0,31	0,32	0,33	0,33
Henkel	0,37	0,28	0,28	0,27	0,33	0,35	0,33	0,34	0,31	0,36	0,39	0,57
Infineon Technologies	0,00	0,17	0,14	0,35	0,61	0,38	0,36	0,33	0,36	0,28	0,39	0,79
Merck	0,66	0,13	0,16	0,19	0,37	0,42	0,47	0,34	0,26	0,18	0,45	0,33
Beiersdorf	0,43	0,50	0,64	0,36	0,30	0,30	0,24	0,22	0,24	0,22	0,22	0,28
BASF	1,14	0,44	0,37	0,49	0,51	0,50	0,67	0,68	0,47	0,62	0,36	-2,86
E.ON	0,34	0,49	-0,87	0,95	0,53	-0,31	-0,14	-0,05	0,17	0,29	0,77	1,20
Vonovia	0,00	0,00	0,00	0,00	0,33	0,53	0,47	0,23	0,27	0,33	0,74	0,30
HeidelbergCement	0,53	0,14	0,19	0,29	0,15	0,29	0,31	0,45	0,41	0,36	0,11	-0,20
Fresenius	0,25	0,22	0,22	0,21	0,22	0,22	0,22	0,22	0,23	0,22	0,25	0,29
Volkswagen	0,67	0,15	0,09	0,08	0,21	0,21	-0,04	0,20	0,17	0,20	0,22	0,29
Continental	0,00	0,00	0,24	0,24	0,26	0,27	0,27	0,30	0,30	0,33	-0,49	0,00
Commerzbank	0,00	0,00	0,00	0,00	0,00	0,00	0,24	0,00	0,00	0,29	0,00	0,00
Deutsche Lufthansa	0,00	0,24	-8,77	0,00	0,67	0,07	0,14	0,13	0,16	0,18	0,00	0,00

Figure 20 : Evolution of the pay-out ratio of DAX 30 companies between 2009 and 2020. Source: BASIC

The above diagram shows the pay-out ratio (i.e. the total payments to shareholders divided by the total net profits) for each company in our sample and each year between 2009 and 2020.

The cases highlighted in orange correspond to situations where the payments to shareholders have been higher than the net profits generated for the same fiscal year (25 instances), and the cases highlighted in red, to situations where the company has distributed dividends to shareholders whereas it generated a loss for the same fiscal year (20 instances).

Some companies stand out of this analysis:

- **E.ON and RWE** which have endured difficult economic times (nuclear divestment, reshuffle of operations, etc.) over the past decade have maintained their payments to shareholders, resulting in **multiple years when they decided to pay dividends while they more making significant losses.**
- **Deutsche Bank and ThyssenKrupp** have apparently had similar situations since 2009.
- **Deutsche Telekom** appears to be a different case, having **most often made payments to its shareholders that were higher than its net profits** between 2009 and 2020, and even made once payments whereas it generated a loss²⁵.
- **Munich Re** seems to follow a similar trend, albeit to a somehow lesser extent.
- Finally, several companies have been characterized by one episode of making payments to shareholder in a year when loss was generated: **Bayer, Heidelberg Cement, Volkswagen, Continental and Deutsche Lufthansa.**

Evolution and Linear regression, since 2009, of total Turnover, Added Value, & Payments to shareholders, for DAX 30 companies without Banks & Insurance

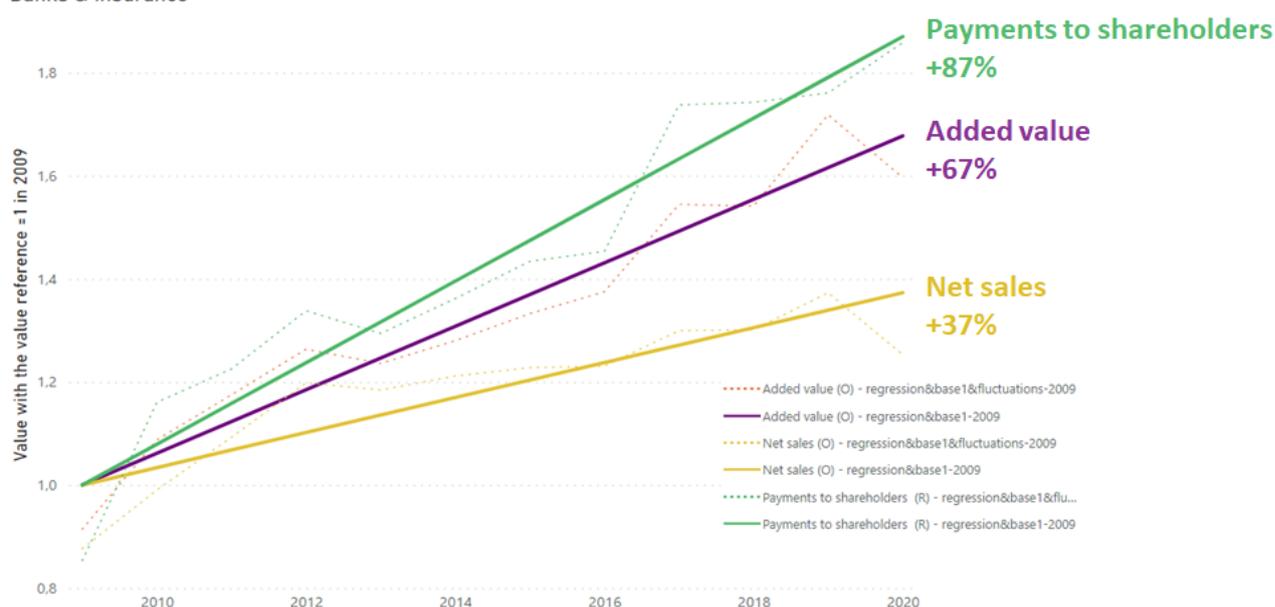


Figure 21 : Linear growth of the turnover, added value and payments to shareholders of the DAX 30 non-financial companies between 2009 and 2020. Source: BASIC

This financial management of listed companies has **shaped a business model that maximizes the payments to shareholders which outpace the capacity of the DAX 30 companies to generate sales and create added value.** Indeed, as illustrated in the above diagram:

- the non-financial companies of the DAX 30 have managed to **grow their sales by 37%** between 2009 and 2020,
- their level of performance has enabled this companies to **increase their added value by 67%** over the same period,
- and the **payments to shareholders made by these companies have jumped by 87%** since 2009

There is a pending question on the profile of the shareholders of the DAX 30 who benefit from this evolution. This issue is further investigated in the following section.

²⁵ Over the period, the company has given shareholders the choice to take the dividend payment in shares instead of cash and up to 49% of shareholders have taken up that option. Even though payment in shares doesn't generate a cash expense for the company, it nonetheless reflects a decision to create value for the shareholders in comparison to what the company is doing for its other stakeholders.

5.2. Contextualization

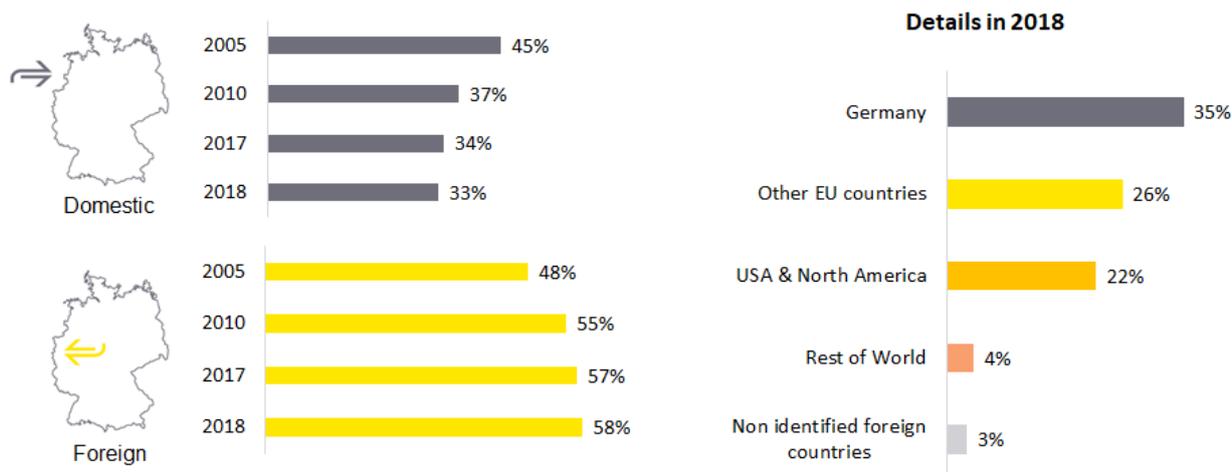


Figure 22 : Nationality of the shareholders of DAX 30 companies between 2005 and 2018. Source: EY

The consulting firm EY conducts annual reviews on the profile of the shareholders of the DAX 30 companies. Its latest release (see above diagram) shows some significant characteristics and evolutions²⁶:

- **German shareholders represent a majority of the shareholders of the DAX 30, but their share has been fast decreasing** over the past 15 years, declining from 45% in 2005 to only 33% in 2018
- **The main foreign investors on the DAX 30 are Europeans**, but their share has been eroding over the past 10 years (from 27% in 2010 down to 26% in 2018).
- They are followed by **North American investors which are increasingly present and make up 22% of the shareholders of the DAX 30** (compared to 20% in 2010).

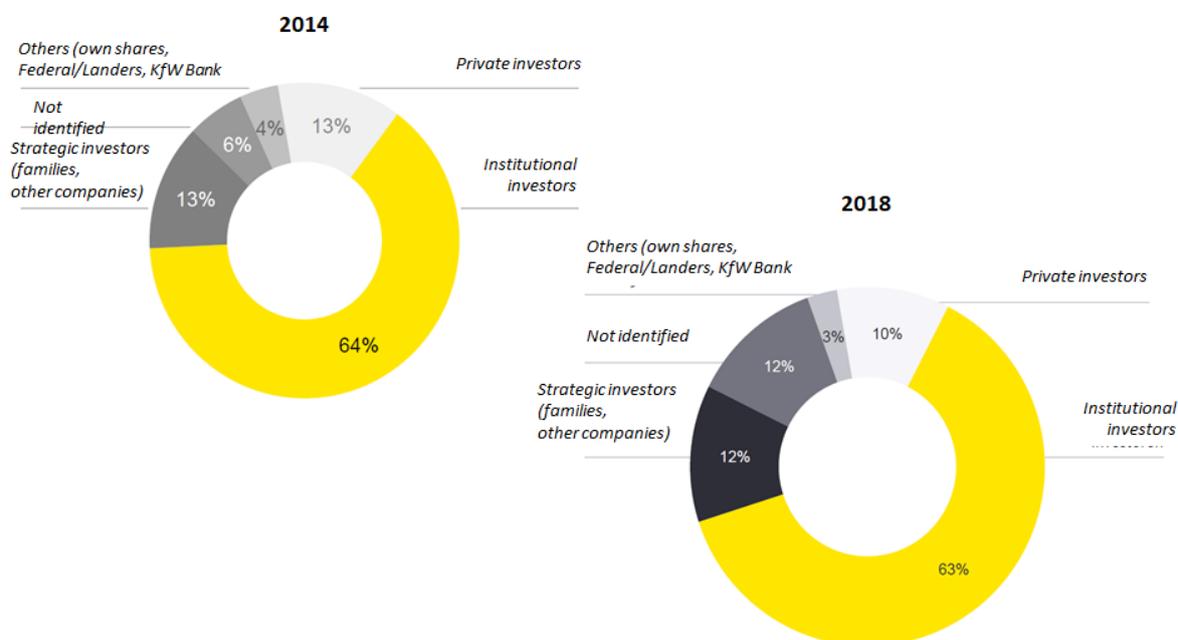


Figure 23 : Shareholders of DAX 30 companies by category between 2014 and 2018. Source: EY

²⁶ In the EY study, the evolution of the nationality of shareholders of the DAX 30 since 2005 is based on a survey of 23 companies: BMW, HeidelbergCement, Henkel, Vonovia and Wirecard, have been excluded as there are no corresponding values for 2005; Beiersdorf has been excluded as there was no information on foreign shareholders, as for Infineon. Besides, Covestro values have been included in Bayer. For the details on 2018, the survey comprises 26 companies: Beiersdorf, Infineon, Volkswagen and Vonovia have been excluded as no corresponding information.

The surveys conducted by EY on the shareholders of the DAX 30 also enable to analyse the categories of actors they belong to, and the evolution over time (see above diagram). They show that:

- the majority of shareholders are institutional investors who own almost two thirds of the shares of DAX 30 companies,
- the individual private investors are only owning a small minority of the DAX 30 shareholding, and their share is in significant decline, from 13% in 2014 down to 10% in 2018t
- the federal and lander governments own less than 3% of the shareholding of the DAX 30,
- 12% of the shareholders who own small minority shares - below the publicization threshold – are not known.

In order to investigate the shareholders of the DAX 30 in more details, we have collected in the Orbis database the information on direct and indirect participation in the capital of the companies included in our scope of research for the year 2020.

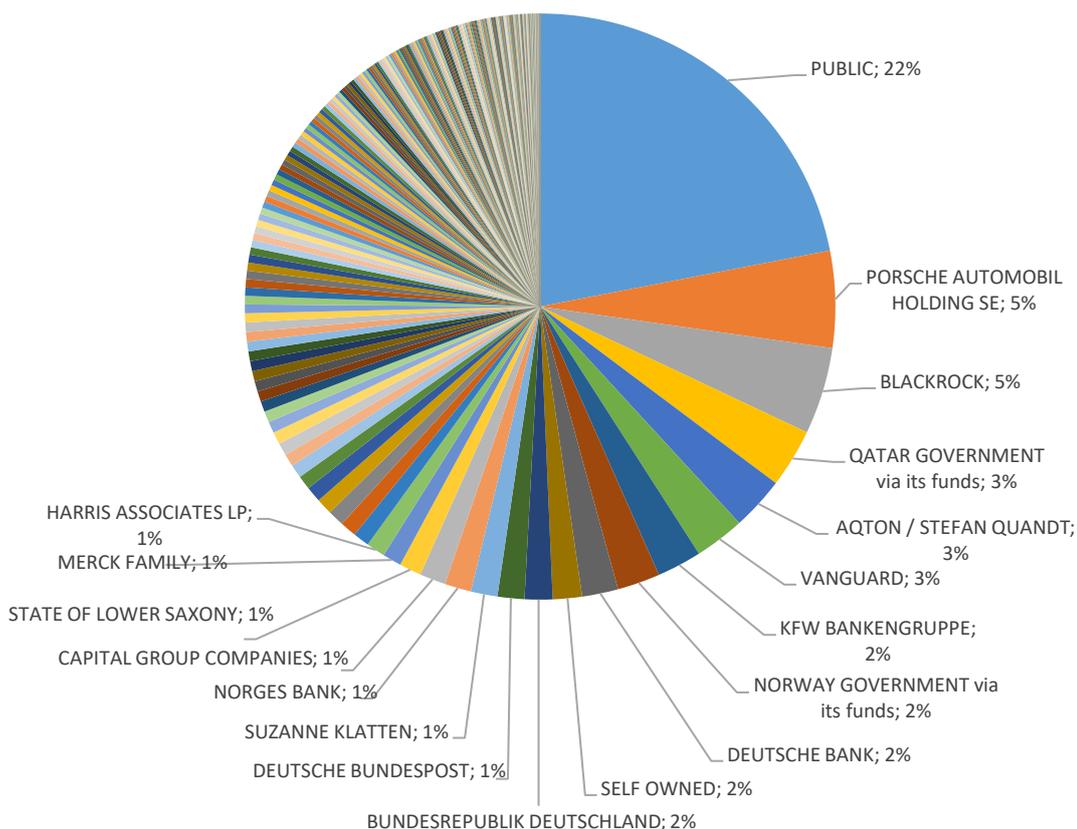


Figure 24 : Main shareholders of DAX 30 companies in 2020. Source: BASIC, based on Orbis data

The Orbis data show that:

- The “Public” category is the largest one, amounting to 22% of the DAX 30. It corresponds to “floating” shareholders who are unidentified in the Orbis database (i.e. individuals or institutions that have bought and sold shares during the course of the year). This category is unstable by nature when compared to the other identified shareholders who maintain their participations for several years.
- The 3 main international institutional funds own around 9% of the DAX 30 companies analysed: BlackRock has the largest share (5%), followed by Vanguard (3%) and Capital Group Companies (1%). BlackRock owns stakes in the 30 companies we have analysed (from 7.6% in Linde down to 0.14% in Volkswagen) so as Vanguard (from 8.22% in Linde down to 0.21% in Volkswagen).
- The Porsche company is the largest identified shareholder because of its stake in Volkswagen.
- In terms of individuals, Stefan Quandt and his sister Suzanne Klatten together own roughly 4% of the DAX 30 companies thanks to their significant stakes in BMW (representing 46% of its shareholding when combined). According to Forbes, Stefan Quandt is supposed to be the 3rd richest man in

Germany (after the owners of Lidl/Schwarz Group and Aldi Süd), and Suzanne Klatter is the richest woman in Germany. The next largest share owned by a private family belongs to the Merck family who owns 70% of the company of the same name.

- The German government owns 2% of the DAX 30 shareholdings (through a 14.5% stake in Deutsche Telekom and a 15.6% stake in Commerzbank) and the State of Lower Saxony owns 1% (through a 11.8% stake in Volkswagen). In addition, the KfW owns 2% of DAX 30 shareholdings (through a 20.5% stake in the Deutsche Post and 17.4% in Deutsche Telekom).
- Finally, at least 6% of the DAX 30 shareholdings is owned by foreign governments through their funds: 3% by Qatar (through its 17.4% stake in Volkswagen), 2% by Norway (which owns stakes in the 30 companies analysed) and 1% by Kuwait (through its 6.8% stake in Daimler and 2.9% in Infineon)

This picture corroborates the influence of institutional investors on the DAX 30 described in the previous section, and contradicts a common held view that average individuals and households would be the prime owners of DAX 30 shares.

HIGHLIGHTS

The total amount of payments to shareholders of DAX 30 companies has increased from 20.29 billion euros in 2009 up to 41.97 billion euros in 2020, hence a rise of 107% over the period. These cumulated payments to shareholders of the DAX 30 companies have grown almost continuously between 2009 and 2020, regardless of fluctuations in the profits generated.

As a result, there has been a widening gap over the past decade between increasing payments to shareholders and stagnating if not eroding income tax accruing to States.

This financial management has resulted in levels of payments to shareholders which have been disconnected from the net profit of companies in several cases: in 25 instances the payments to shareholders have been higher than the net profits generated for the same fiscal year and in 20 instances a company has distributed dividends to shareholders whereas it generated a loss for the same fiscal year.

The DAX 30 non-financial companies' business model maximizes the payments to shareholders which outpace their capacity to generate sales and create added value:

- while their sales have grown by 37% between 2009 and 2020,
- their level of performance has enabled them to increase their added value by 67% over the same period,
- and the payments to shareholders made by these companies have jumped by 87% since 2009.

The related benefits accrue to a limited number of shareholders who are increasingly institutional investors from North America, in addition to a limited number of wealthy households and families.

6. The capacity of DAX 30 companies to address social challenges

6.1. Income inequalities

The **Global Inequalities Report** published by Thomas Piketty and its colleagues in 2018 has demonstrated that income inequality has increased in almost all regions of the world in recent decades, and that the 1% of people with the highest incomes globally have benefited twice as much from economic growth as the poorest 50% of people²⁷.

On the issue of wages, **a study published by the IMF in 2019** on the determinants of the labour share in the added value of the different countries of the European Union, has shown that behind an apparent stability lies an increase in inequalities between workers in Europe since the early 2000s²⁸.

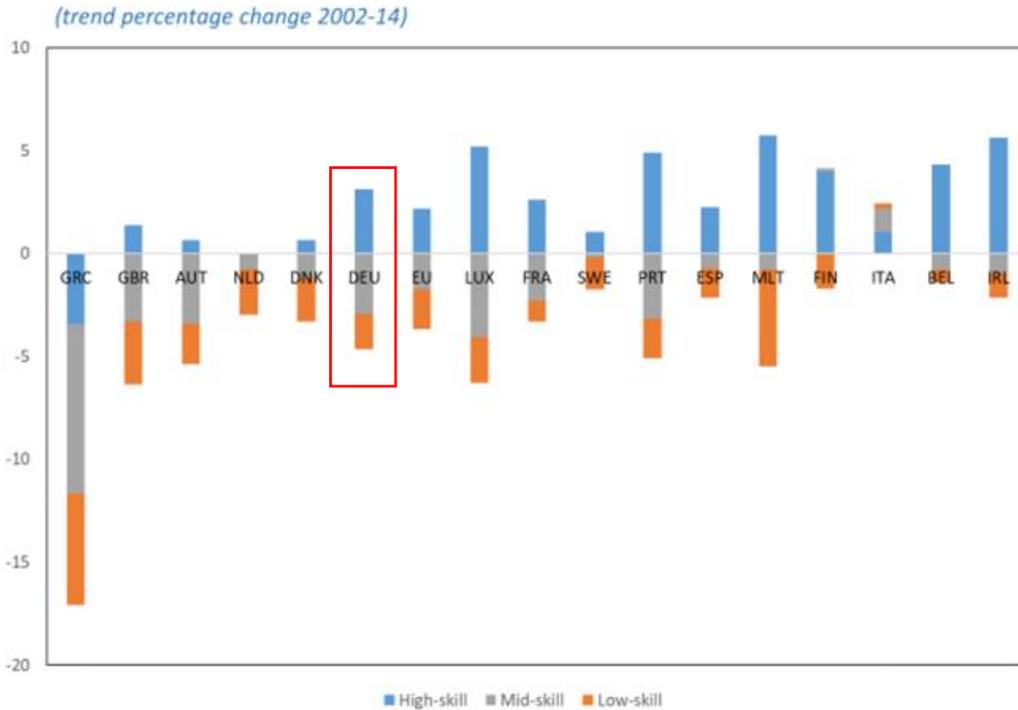


Figure 25 : Evolution of the labour share in the national added value per country of the European Union (percentage of evolution between 2002 and 2014). Source : FMI

In all European countries except Italy, and in Germany in particular (see above diagram), **the workers who are little or moderately skilled have seen their "labour share" drop** in the national added value between 2002 and 2014. This decline has been **compensated by the significant rise of the labour share of the most qualified workers** (due to both the increase of their number and of their level of remuneration).

Unfortunately, it is **not possible to investigate this question for the DAX 30 companies because they do not publish information** on personnel expenditure by category of employee, and even less on wage gaps.

In the absence of these data, **we calculated the evolution of the weighted average remuneration of the CEO** for each company included in our scope of research **and compared it to evolution of the weighted average personnel expenses** per employee (the average salary was not computable because of the lack of data on social contributions for a significant portion of companies, and too difficult to model because of the large number of countries in which they operate).

²⁷ Piketty, T. et al., Global Inequalities Report, World Inequality Lab, 2018.

²⁸ FMI, « The Structural Determinants of the Labor Share in Europe ». IMF Working Papers 19, n° 67, 2019

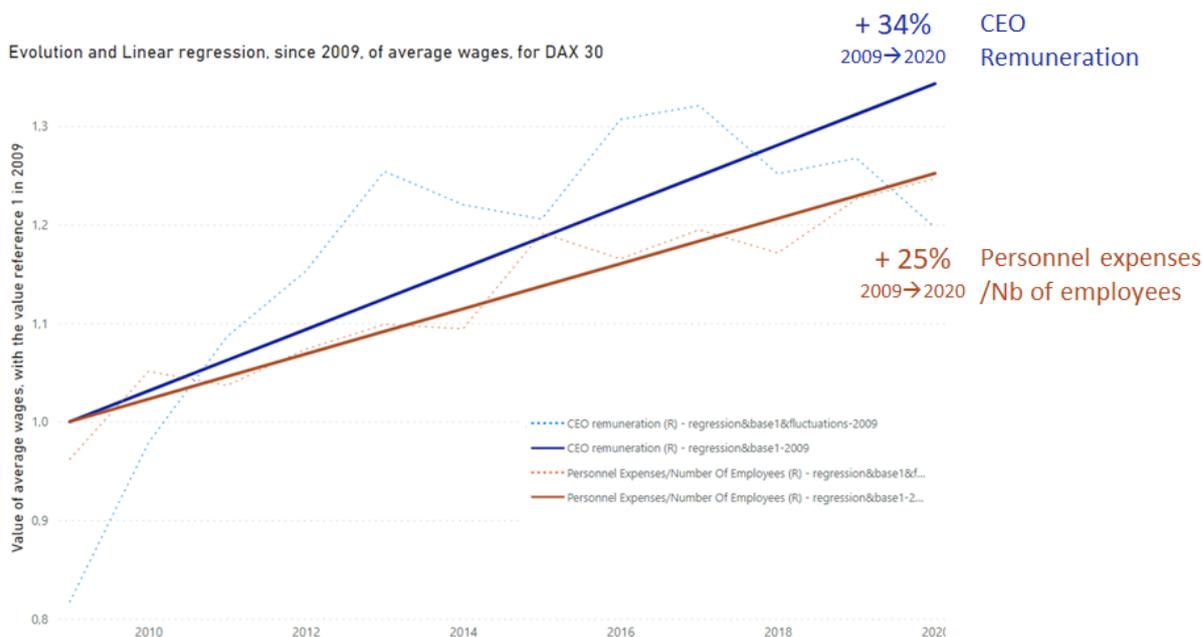


Figure 26 : Evolution 2009-2020 of the remuneration of the CEOs and average personnel expenses among DAX 30 companies included in our scope of research. Source: BASIC

Our estimates show a significant divergence between the evolution of the **average remuneration of CEOs of DAX 30 companies, which increased by more than 34% between 2009 and 2020, while the average personnel expenses per employee in their company only increased by 25% over the same period** (not corrected for inflation).

If the year 2020 is excluded from the calculation (because of the one-off decline in CEO variable remuneration that is likely to rise again given the growth of the DAX 30 index since the end of 2020 as shown in the previous section), **the average remuneration of CEOs has increased almost twice more rapidly (+40%) than personnel expenses per employee (+23%).**

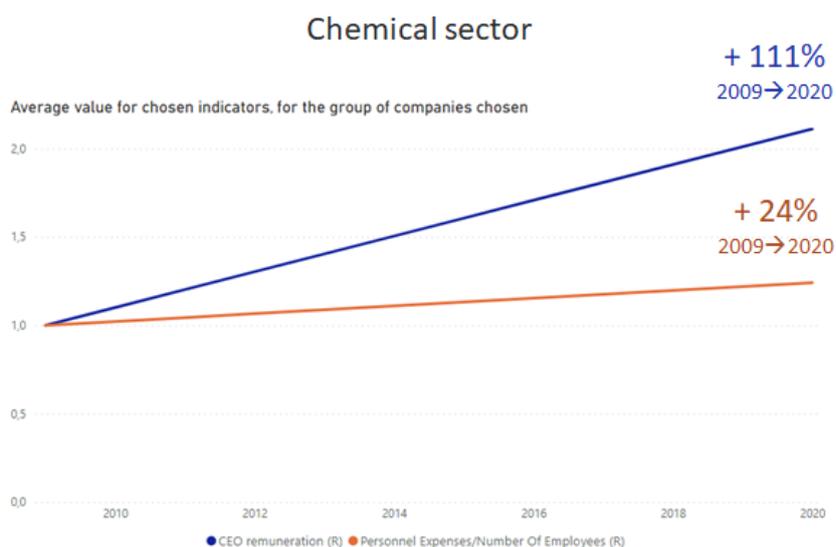


Figure 27 : Evolution 2009-2020 of the remuneration of the CEOs and average personnel expenses among chemical & raw material companies of the DAX 30. Source: BASIC

Looking in more detail at the results sector by sector, **the chemicals and raw material companies (BASF, K+S and Linde) stand out as the ones in which the divergence has been the strongest:** while the average expenses per employee have increased by 24% between 2009 and 2020 (in line with the rest of the DAX 30), the average remuneration of the CEOs of these companies has jumped by 111% over the period.

Energy sector

+ 14%
2009→2020

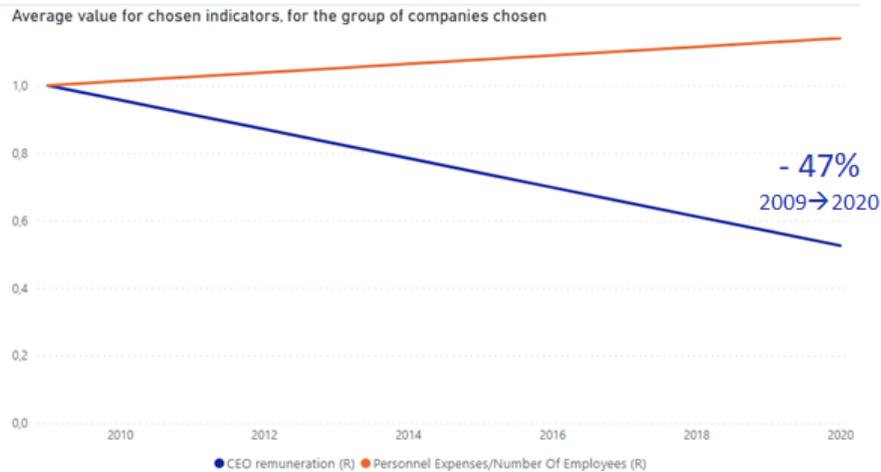


Figure 28 : Evolution 2009-2020 of the remuneration of the CEOs and average personnel expenses among energy companies of the DAX 30. Source: BASIC

On the contrary, the energy companies (E.ON and RWE) stand out as the only ones for which the average remuneration of CEOs has declined (by 47%) while the average personnel expenses per employee grew 14%.

nom_entreprise	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Volkswagen	139,40	190,53	332,25	262,39	266,14	273,51	186,48	121,33	157,35	165,40	109,56	130,32
Linde	131,69	131,71	127,96	125,85	127,50	88,38	66,74	65,87	62,75	229,45	309,57	245,90
Adidas	121,06	117,16	169,74	65,95	63,92	169,20	85,22	239,67	220,80	187,61	121,69	143,22
HeidelbergCement	125,03	89,91	84,38	86,39	91,02	138,01	146,23	163,99	162,39	133,71	162,41	100,39
Deutsche Post	85,74	75,00	78,14	85,22	79,90	134,37	126,68	128,15	129,84	124,78	151,55	131,45
Daimler	77,74	136,34	132,75	124,59	121,11	119,38	131,46	102,57	112,45	92,47	46,96	79,39
Siemens	119,37	140,86	153,66	128,13	135,73	90,91	83,92	87,42	85,43	86,00	87,73	77,76
SAP	91,81	80,83	111,32	143,32	171,13	97,04	68,59	118,34	157,66	74,41	81,89	69,67
Fresenius	60,62	69,21	84,93	84,99	98,22	97,82	115,77	124,11	109,23	114,50	111,59	111,55
Henkel	61,17	80,54	90,79	111,58	123,54	129,01	106,37	110,50	98,05	93,00	77,44	63,61
Continental	36,72	65,83	75,93	71,80	99,50	120,26	119,56	105,32	171,54	93,52	72,12	78,92
Fresenius Medical Care	90,14	89,70	89,46	103,32	60,30	59,43	101,26	99,30	96,82	109,09	102,18	108,24
Merck	35,21	44,00	57,30	71,78	116,28	147,13	123,88	161,31	77,73	61,90	85,79	76,90
Allianz	75,39	94,65	70,98	85,65	92,67	88,86	87,19	74,11	68,67	83,14	77,16	63,29
RWE	136,79	126,25	117,85	100,75	41,63	41,64	46,02	88,84	28,77	79,13	63,55	35,40
E.ON	78,04	92,50	63,47	85,54	74,12	63,97	62,58	66,92	61,00	78,84	76,42	59,61
BMW	37,82	54,88	77,25	79,38	83,84	84,07	96,06	81,83	88,70	56,68	70,86	44,55
ThyssenKrupp	25,80	67,51	91,26	72,41	91,02	101,97	87,96	74,47	77,35	55,26	64,59	46,05
BASF	48,55	69,47	68,08	65,36	65,26	76,05	63,58	59,90	73,50	109,66	61,17	76,80
Bayer	49,81	95,16	57,83	61,33	57,52	64,31	60,88	78,00	67,02	50,91	55,96	53,33
Deutsche Telekom	49,04	56,31	53,25	60,20	53,17	54,75	60,48	59,85	67,22	68,76	77,04	82,61
Vonovia	10,32	12,47	18,31	22,84	180,43	37,54	54,44	71,34	72,10	82,55	82,23	89,23
Beiersdorf	25,64	21,62	26,10	44,92	42,96	78,25	88,11	90,57	80,93	80,87	55,56	29,14
Deutsche Lufthansa	56,64	61,38	40,30	43,44	31,41	44,98	39,59	52,31	66,12	58,44	59,29	74,51
Deutsche Bank	66,80	41,01	48,83	63,74	59,41	52,01	28,42	32,38	27,12	56,66	40,91	61,05
Munich Re	56,09	34,12	25,05	31,66	57,57	59,12	54,48	48,64	58,66	41,93	42,18	44,76
Infineon Technologies	29,36	41,53	73,70	59,87	35,35	42,85	51,40	42,81	47,35	47,07	41,07	37,90
Deutsche Börse	21,61	25,78	31,91	30,01	25,63	30,43	32,17	41,43	40,90	32,90	39,26	40,15
K+S	36,23	24,29	40,58	38,23	39,40	32,77	26,73	19,70	21,63	16,27	15,83	30,81
Commerzbank	7,70	8,05	7,62	18,93	18,25	34,70	24,38	31,64	28,25	23,52	29,27	39,26

Figure 29 : Evolution 2009-2020 of the remuneration of the ratio between the remuneration of the CEO and the average personnel expenses per employee for each DAX 30 company included in our scope of research. Source: BASIC

In order to investigate company by company the wage gap between CEOs and their employees, we have calculated the ratio between the remuneration of the CEO and the average personnel expenses per employee for each DAX 30 company included in our scope of research (see table above).

Our results indicate that:

- **Linde is the company that has, by far, the largest wage gap between the CEO and the rest of its employees, with a ratio that is above 245.**
- There are **6 more companies for which the wage gap is greater than 100**: Adidas, Deutsche Post, Volkswagen, Fresenius, Fresenius Medical Care and Heidelberg Cement (in descending order).
- At the other end of the spectrum, there are **only 2 companies where the wage gap is equal or slightly inferior to 30**: K+S and Beiersdorf.

Besides, the income inequalities not only derive from wages inequities, but also **wealth inequities**. A recent study from the IMF on Germany conducted in 2020 has shed new lights on the link between the latter and the ownership of shareholdings in the country²⁹.

Germany is the world's leading exporter of high value-added manufacturing goods since the 20th century, which has enabled the country to be best placed to reap the benefits from the integration of China and other emerging countries into world trade, as well as from the integration of Eastern European countries into the EU.

This has translated into a strong increase of the surplus of the German current account balance since the beginning of the 2000s.



Sources: World Inequality Database and Haver.

Figure 30 : Evolution 1992-2016 of the current account balance and the top 10% income share in Germany. Source: IMF

The IMF study demonstrates that **this rise has been accompanied with a widening of top income inequality because of the corporate ownership concentration in the country**. As illustrated above, while the current account surplus increased by 9 percentage points of GDP between 1992 and 2016, the share of national income accruing to the top 10% highest income individuals rose by 6 percentage points, with the sharpest jump occurring between 2001 and 2008.

²⁹ Mai Chi Dao, Wealth Inequality and Private Savings: The Case of Germany, IMF Working Paper, 2020

Looking at the underlying causes of this phenomenon, the IMF researcher found that the **growing corporate profits associated with globalization and wage restraint accrued mainly to households in the top of the wealth distribution, among which business ownership is concentrated**, therefore widening overall income inequality. Indeed, the rising profits of export-driven companies were either distributed as dividends to shareholders of listed firms (which include DAX 30 companies), who tend to be wealthy households, or increasingly retained in family held firms, which also tend to be owned by wealthy households.

This is amplified in the case of Germany by the fact that **equity ownership is unusual among the population at large³⁰**, and private families control 65% of firms in the country). As a result, **95% of private business capital in Germany is owned by the top 10% wealthiest households**.

As these richest households have much more propensity to increase their savings than to raise their consumption spending, this evolution that took place between 2000 and 2010 thanks to the participation of Germany to the globalization of the world economy is further exacerbating wealth inequalities in the mid to long run.

According to the study, at the other end of the spectrum, **households in the lower segments of the wealth distribution lost out due to a long phase of wage restraint and a lowering of the labour share** in the national added value (cf. section 6.2) which has **in turn enabled the rise in corporate profits**.

More recently, the 2008 German corporate tax reform has not changed the situation. It substantially reduced the tax burden on retained earnings, while slightly increasing the effective tax rate on dividends, especially for unincorporated businesses, which resulted in a shift from dividend distribution to retained earnings for the wealthiest households.

In this context, the **DAX 30 companies appear to contribute to the increasing gap between wealthiest households and the rest of the population**, as shown by the **differences between the underlying linear growth** of 2 key ratios: the average ratio between payments to shareholders and turnover, and the average ratio between personnel expenses and turnover (cf. graph below).

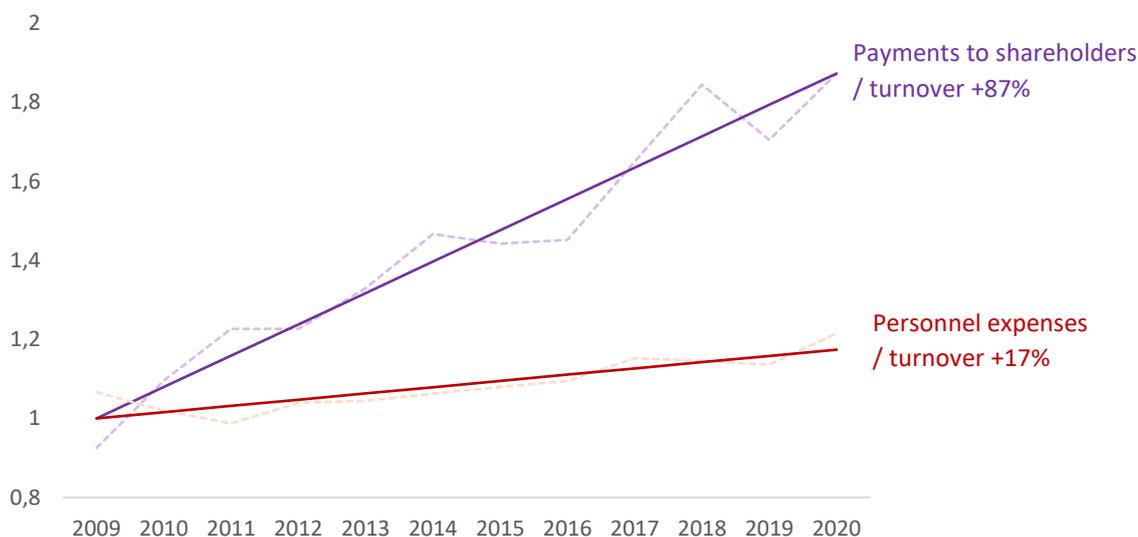


Figure 31 : Linear growth of the ratios payments to shareholders/turnover and Personnel expenses/turnover among DAX 30 companies between 2009 and 2020. Source: BASIC

As illustrated in the above diagram:

- while the **ratio between payments to shareholders and turnover has jumped by 87%** since 2009,
- the **ratio between personnel expenses and turnover has merely increased by 17%** over the same period, a pace 5 times as slow which demonstrates the asymmetry between these two types of actors.

³⁰ Fohlin, C., 2005. "The history of corporate ownership and control in Germany", in A history of corporate governance around the world: Family business groups to professional managers (pp. 223-282). University of Chicago Press

6.2. Gender inequalities

Women are overrepresented in the most precarious and lowest paid jobs globally³¹.

In Germany, over the past 2 decades, women's employment growth in Germany has been primarily based on a steadily rising number of part-time and mini-jobs. **Almost one in two women in Germany is employed part-time**, while this is the case for only around 15% of men, **and women account for almost two thirds of all mini-jobbers**³². Moreover, one fifth of all female employees are in marginal part-time jobs with monthly earnings of up to 400 euros per months³³. Several studies found that almost 50% of women in part-time jobs and even two thirds of the women in mini-jobs would like to increase their working time substantially³⁴. And in terms of wages, the **overall gender pay gap in Germany, which amounts to 23.2% is still one of the highest across Europe**³⁵.

Regarding our sample of DAX 30 companies, no data was available on pay gaps for equal positions, gaps in pay increases and promotions, or the proportion of women among top earners.

The **only available data regarding gender issues are consolidated annually by EY in a study on women in management boards (Vorstand)**.

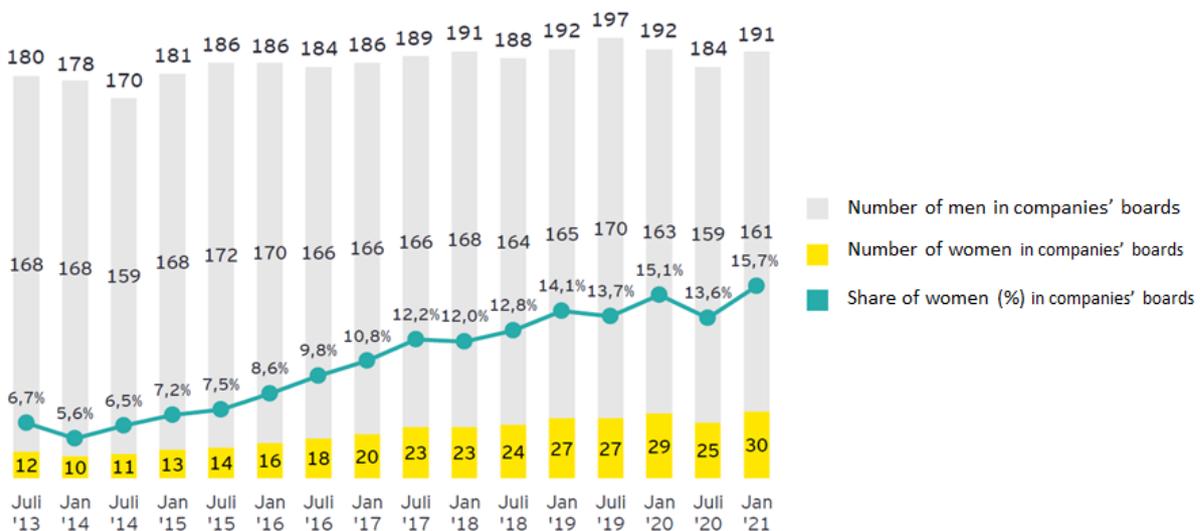


Figure 32 : Evolution 2013-2021 of the number of women in DAX 30 companies' boards (Vorstand). Source: EY

According to the annual survey conducted by EY (see above), the **percentage of women in the management boards of the DAX 30 companies has significantly increased** over the past decade, raising from 5.6% in January 2014 up to 15.7% in January 2021. This trend was supported by the "Law on Equal Participation" was adopted on March 2015, mandating a 30% quota of female representation on non-executive boards of listed firms and subject to codetermination from January 1st 2016.

However, the 15.7% proportion of women in DAX 30 management boards is weak when compared with other countries: it is 28.6% in the USA, 24.5% in the UK and 22.2% in France according to a research conducted by

³¹ https://www.wto.org/english/res_e/booksp_e/gvc_dev_report_2019_e_ch3.pdf accessed on 29th July 2021

³² Weinkopf, Women's employment in Germany, OFCE, 2014

³³ Ibid.

³⁴ Wanger, "Viele Frauen würden gerne länger arbeiten. Ungenutzte Potenziale der Teilzeitarbeit." IAB-Kurzbericht 9. Nürnberg, 2011

³⁵ Weinkopf, Women's employment in Germany, OFCE, 2014

the Swedish-German AllBright foundation³⁶. In addition, this proportion fell sharply to 12% in September 2021, prompting the coalition government to push for a mandatory quota for women in board of listed companies³⁷.

Share of women in companies' management boards (Vorstand)
(source : EY)

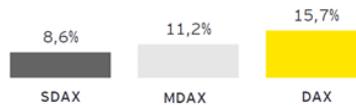


Figure 33 : Share of women in companies' management board within DAX, MDAX and SDAX in 2019. Source: EY

In comparison with MDAX and SDAX, the DAX 30 has nevertheless a much higher proportion of women in the companies' management boards, and a much higher percentage of companies with at least one woman in its management board (see above).

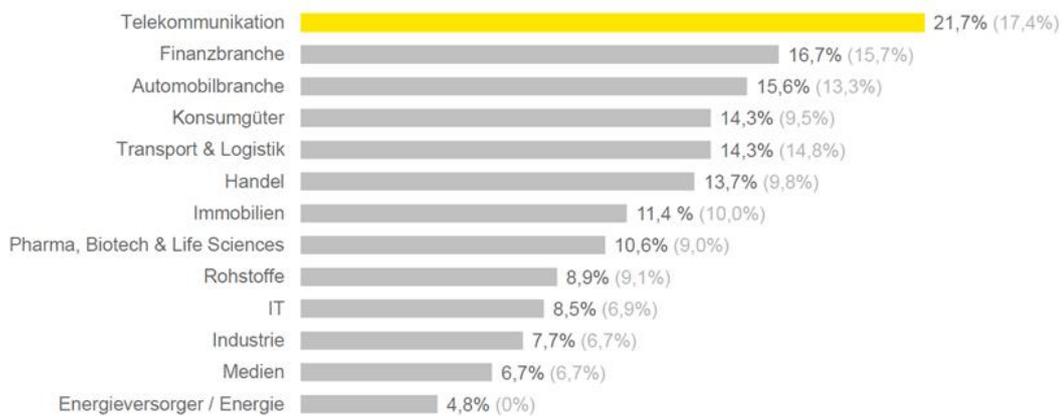


Figure 34 : Percentage of women in management boards of DAX 30 companies by sector in 2019. Source: EY

In terms of disparities between sectors, telecommunications and financial services are the sectors with the highest share of women in management boards (respectively 21.7% and 16.7%), whereas medias and the energy sectors are the ones with the lowest proportion (6.7% and 4.8%).

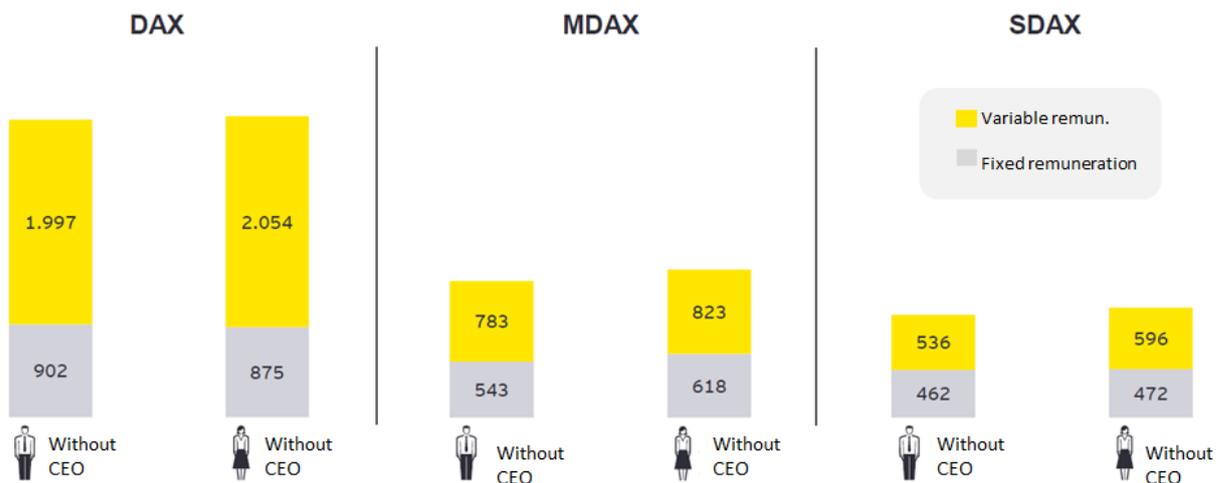


Figure 35 : Comparison in the fixed and variable annual remuneration (in thousand euros) between men and women in management boards of companies within DAX, MDAX and SDAX (except CEOs) in 2019. Source: EY

³⁶ <https://www.theguardian.com/business/2020/nov/22/germany-agrees-historic-mandatory-boardroom-quota-for-women> accessed on August 2nd, 2021

³⁷ <https://www.ctvnews.ca/world/germany-will-require-companies-to-put-women-executives-on-their-boards-1.5200786> accessed on August 2nd, 2021

In terms of remuneration, the EY study shows that the **pay gap between men and women members of the management boards of DAX 30 companies (excluding the CEO) was minimal in 2019**. In contrast, the average women’s pay in the management boards of the MDAX and SDAX was even higher than the men’s pay.

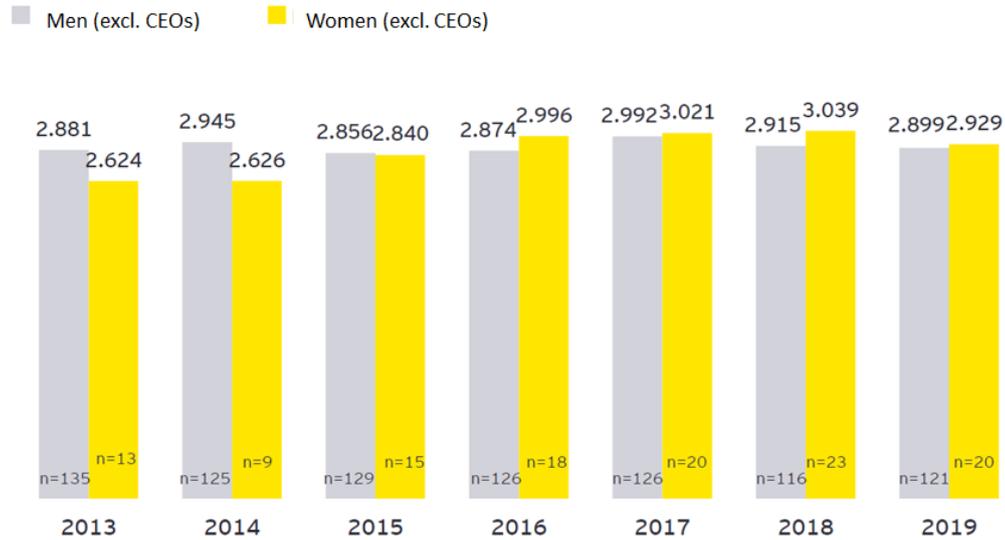


Figure 36 : Comparison of the total direct annual remuneration (in thousand euros) of the members of the Board of Management of DAX 30 companies (except CEOs) between 2013 and 2019. Source: EY

According to the EY study, this low wage gap is the result of a catch-up process, the pay gap between men and women in DAX 30 management boards (excluding CEOs) having been closed between 2013 (when it amounted to 10%) and 2019.

6.3. Living income in supply chains

The issue of income inequalities goes beyond the employees of the companies included in our scope of research. It is indeed the situation of the workers and independent producers in their supply chains that is potentially the most problematic.

As described in chapter 5, recent reports have put to the light the **social issues linked to suppliers and chains of subcontractors** of large companies such as the ones listed on the DAX 30 in particular³⁸.

The German law now requires companies to take them into account. The “**Supply Chain Due Diligence Act**” will oblige from 2023 companies with 3,000 or more employees to comply with human rights and environmental due diligence obligations in their supply chains³⁹. To reduce the social impacts of companies' supply chains, a sine qua non condition is to **make payments to suppliers that are sufficient to allow them to pay living wages** to all workers and living incomes to all independent producers.

We have only been able to analyse living wage issues for the **case of Adidas as it is the only company publishing the full list of its tier-1 and tier-2 suppliers**, as well as the share of its supply per country of manufacturing which are indispensable information to investigate wages in supply chains. Beyond, we haven’t been able to find comprehensive and exhaustive information on human rights disclosed by any of the DAX 30 companies.

³⁸ <https://www.auswaertiges-amt.de/blob/2405080/23e76da338f1a1c06b1306c8f5f74615/201013-nap-monitoring-abschlussbericht-data.pdf> and <https://op.europa.eu/en/publication-detail/-/publication/8ba0a8fd-4c83-11ea-b8b7-01aa75ed71a1/language-en> accessed on July 27th 2021

³⁹ <https://www.bundestag.de/presse/hib/846424-846424> and https://lieferkettengesetz.de/wp-content/uploads/2021/06/Initiative-Lieferkettengesetz_Analysis_What-the-new-supply-chain-act-delivers.pdf accessed on July 27th 2021

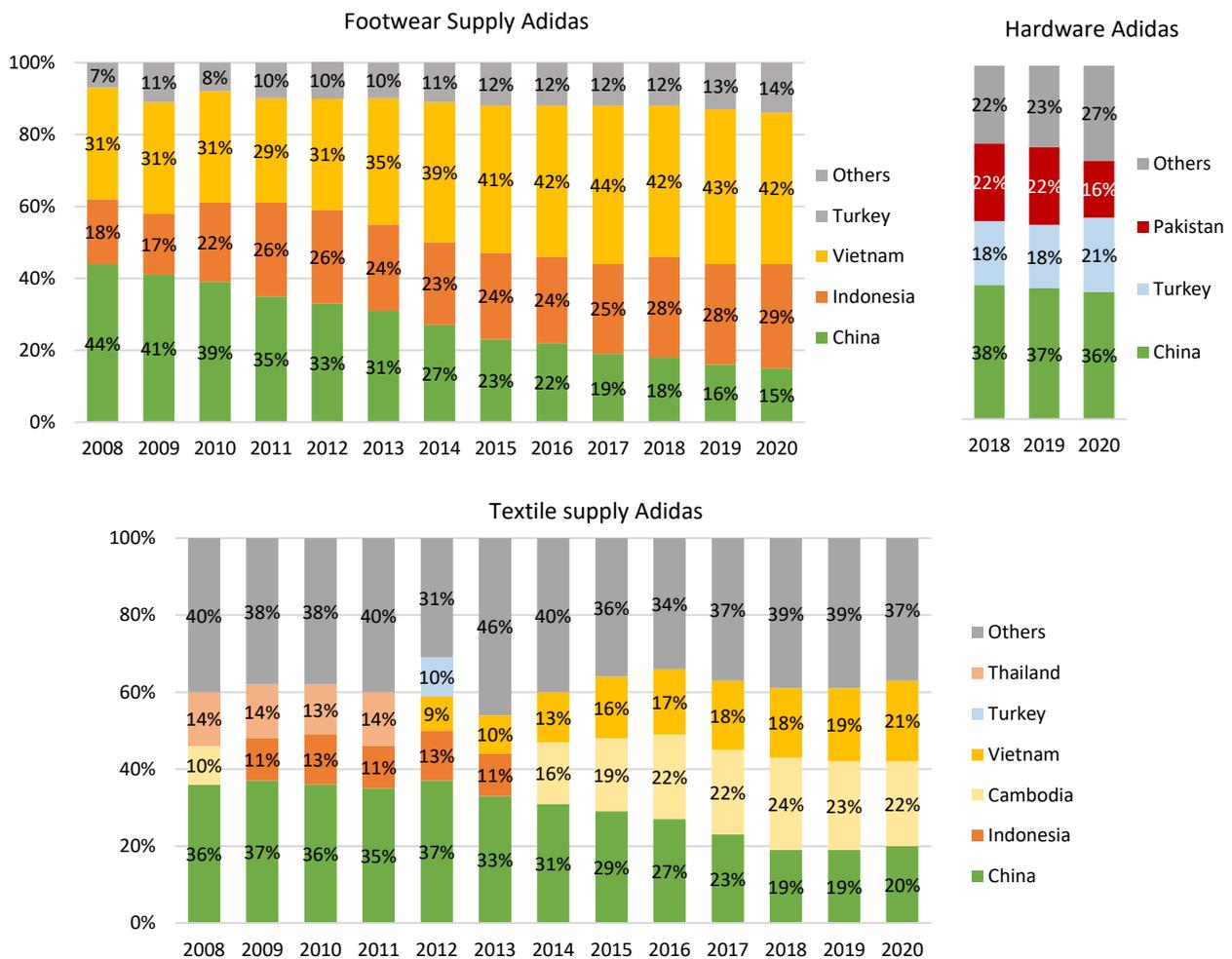


Figure 37 : Evolution of Adidas procurement share by country (in value terms) for footwear, textile and hardware (footballs...) between 2008 and 2020. Source: BASIC based on annual reports of Adidas

This information published annually by Adidas enables to identify a very **clear shift in the countries that supply the company with finished goods ready to sale** (it is worth noting that for the past 20 years, Adidas had no factory left in Europe and was supplying 100% of its goods from outside the EU, mainly Asia. In 2018, Adidas built a fully automated prototype of “speed factory” in Germany that are meant to be disseminated in the following decades if they prove their profitability⁴⁰).

Whereas China used to be the top supplier of Adidas in 2008, both for textile and footwear, is has fallen to the 3rd rank. It now represents only 15% of the value of Adidas footwear supply (Vs. 44% in 2008) and 20% of the value of its textile supply (Vs. 36% in 2008). **In contrast, Vietnam has risen** over the period to the 1st place of footwear supply (accounting for 42% of Adidas procurement) and the 2nd place of textile supply (21% of Adidas procurement). **Other increasingly important countries are Indonesia** for footwear (29% of supply) and **Cambodia** for textiles (23% of supply). In hardware, the same trend is also observable, albeit to a lesser extent (the supply from China has declined from 38% to 36% in the past 3 years).

This shift is above all motivated by an effort to get around rising wages in China, where labour costs are rapidly approaching those of Mediterranean and Easter European countries and are far above wage rates in Indonesia and Vietnam.

⁴⁰ BASIC, Foul Play: sponsors leave workers (still) on the side-lines, 2018

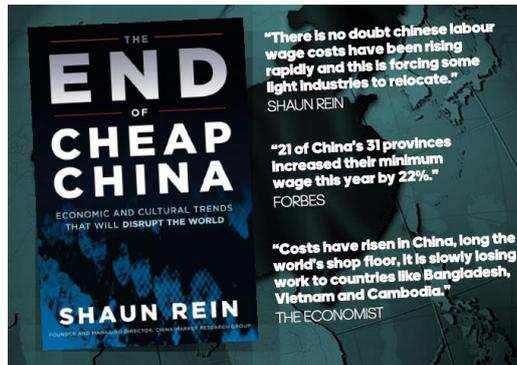


Figure 38. Excerpts from the internal Adidas presentation on sourcing 2015-2020. Source : Adidas

This has been confirmed by a presentation of the international sourcing director at Adidas, John McNamara made in 2015 where he stated that the rising wages in China were behind their current strategy of delocalization towards countries with lower labour costs (see above).⁴¹

The sourcing director also stated at an investor's workshop in 2015 that Adidas would reduce the amount of apparel and footwear it sources from China, while increasing orders to Indonesia, Vietnam, Cambodia and Myanmar. "We see Myanmar as one of the last great sourcing markets for our type of product," he said.⁴²

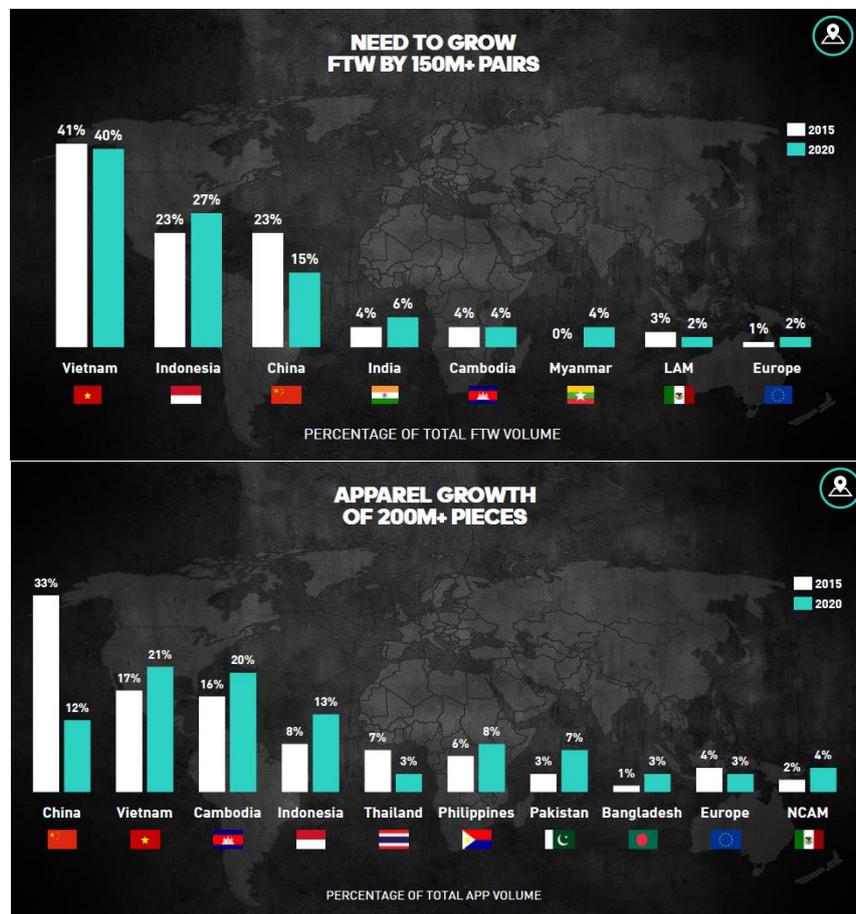


Figure 39. Evolution of Adidas' sourcing countries 2015-2020 for the manufacture of shoes and clothes. Source: internal presentation on Adidas' sourcing strategy (2015)

⁴¹ www.adidas-group.com/media/filer_public/86/a5/86a53df1-c795-4b_consulté_le_04/24/2016

⁴² China Daily, December 2015: http://europe.chinadaily.com.cn/business/2015-12/11/content_22687006.htm consulted 05/12/2016

This offshoring shift is corroborated by internal Adidas memos which describe its 2015-2020 sourcing strategy (see above), which clearly show Adidas pulling out of China and moving to Indonesia and Myanmar for footwear manufacturing as well as Vietnam and Cambodia for apparel.⁴³

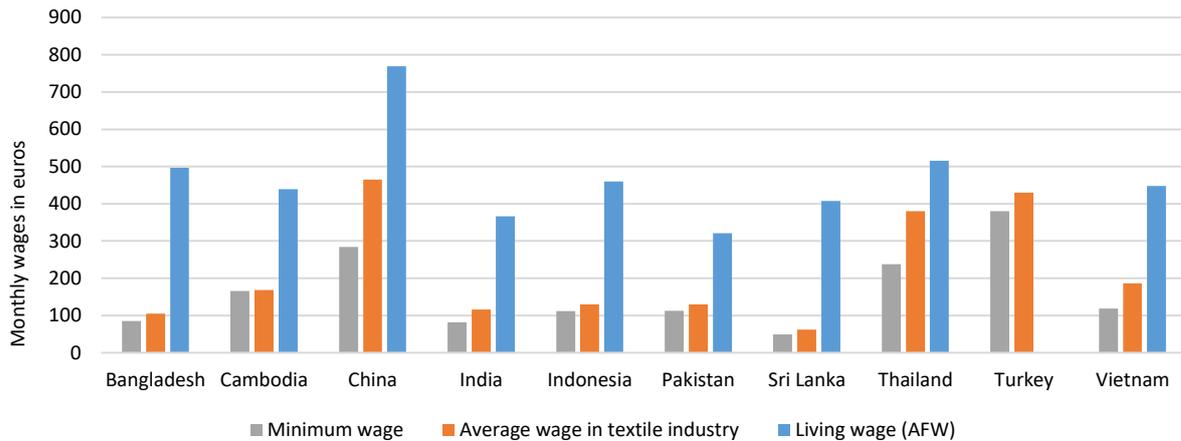


Figure 40. Comparison of minimum, average (qualified textile worker) and living wages between different textile countries. Source: BASIC

In order to analyze the impacts of this shift, the question of workers' wages has been studied in detail in each of the main Asian countries of supply of textiles and footwear. As illustrated in the above diagram, we have collected and consolidated **information for each country** on:

- The **legal minimum wage** in effect in 2020
- **Average wages** in the garment industry.
- The **living wage recommended by the Asia Floor Wage Alliance**⁴⁴.

The Asia Floor Wage Alliance base their calculations on the following assumptions:

- A worker needs to be able to support themselves and two other "consumption units" (1 consumption unit = 1 adult or 2 children)
- An adult requires 3,000 calories a day to be able to carry out physical labour.
- In Asia food costs account for half of a worker's monthly expenditure; and non-food for the other half.

The Asia Floor Wage must be earned for a work week of maximum 48 hours, not including bonuses, allowances or benefits. It is calculated in Purchasing Power Parity \$, which is an imaginary World Bank currency built on the consumption of goods and services which allows standard of living to be compared regardless of the national currency. The Asia Floor Wage is revised periodically by conducting fresh Food basket surveys: its most recent figures have been published in 2020.

First of all, **this data confirms the higher level of wages in China**, not only the legal minimum wage but most importantly the average wage in the garment sector which has outpaced the ones in Turkey and Thailand. In comparison, the **average wages in Vietnam, Cambodia and Indonesia are much lower**. It is worth noting that in the case of Adidas, the company procurement does not automatically moves to the countries with the lowest wages as the manufacturing of their products require a higher level of workers' qualification, hence their main countries of supply probably result from a price-quality arbitration.

Looking at the issue of living wages in comparison, the data we have collected show that **all the main countries supplying Adidas are marked by a significant gap between the average wages of qualified workers and the living wage calculated by the Asia Floor Wage** which would enable them and their families to live a decent life.

⁴³ www.adidas-group.com/media/filer_public/86/a5/86a53df1-c795-4b consulted 04/24/2016

⁴⁴ <https://asia.floorwage.org/> accessed on June 2nd, 2021

On this basis, we have **estimated what the cost of paying fair wages in all its supply chains would represent for Adidas, compared with the net profits and payments to shareholders.**

We have been able to make these calculations based on the modelling of Adidas procurement value in its **main countries of supply** (China, Vietnam, Indonesia, Bangladesh, Cambodia and Pakistan) **which together represent roughly 80% of the value of Adidas annual procurement.**

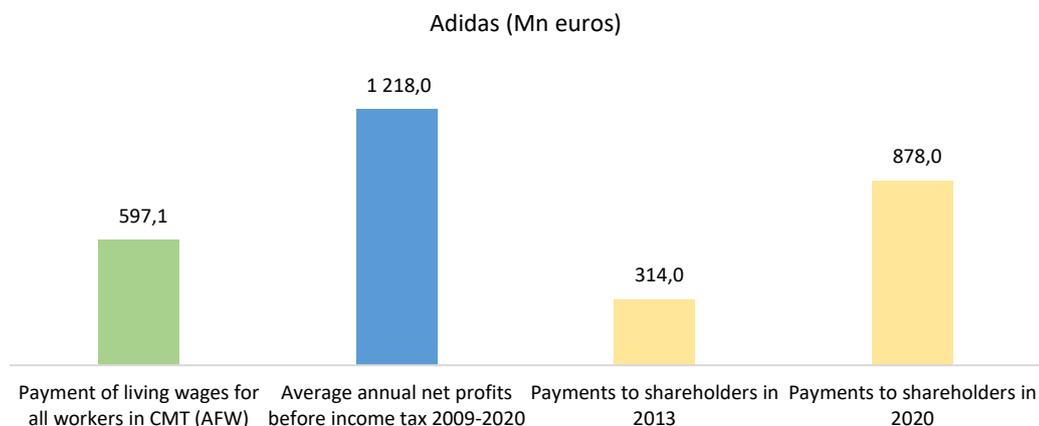


Figure 41. Estimates of the costs to pay living wages in Adidas supply chains, and comparison with the annual net profits and payments to shareholders of Adidas. Source: BASIC

According to our estimates, the annual **additional costs that would be incurred by Adidas in order to cover living wages in its main countries of supply amount to 597 million euros per year.** This has to be compared with the average annual net profits generated by Adidas between 2009 and 2020, which amount to 1,218 million euros per year. This means that **if Adidas was to pay for living wages in its supply chains, it would have the financial resources to do so and it would reduce its net profits by roughly 50%.**

This reduction of net profits would in turn generate a reduction by 50% of its income tax, and most probably also a reduction of its payments to shareholders by 50% (but not automatically as the level of payments to shareholders are a decision of the company regardless of its profits as described earlier in the report). If Adidas had done so in 2020, the level of payments to its shareholders would have amounted to 439 million euros, which is still significantly higher than the payments made in 2013 (314 million euros). In other words, **if Adidas was to cover the payment of living wages in its main supply chains, this would result in the payments to shareholders to come back to their level in 2013 which was already one of the highest performances in the textile sector.**

HIGHLIGHTS

Regarding income inequalities, the average remuneration of CEOs of DAX 30 companies has increased by more than 34% between 2009 and 2020, while the average personnel expenses per employee in their company only increased by 25% over the same period (not corrected for inflation).

Linde is the company that has, by far, the largest wage gap between the CEO and the rest of its employees, with a ratio that is above 245. Six more companies have a wage gap greater than 100: Adidas, Deutsche Post, Volkswagen, Fresenius, Fresenius Medical Care and Heidelberg Cement (in descending order). At the other end of the spectrum, there are only 2 companies where the wage gap is equal or slightly inferior to 30: K+S and Beiersdorf.

According to the annual survey conducted by EY, the percentage of women in the management boards of the DAX 30 companies has increased over the past decade, raising from 5.6% in January 2014 up to 15.7%. This proportion is weak when compared with other countries: it is 28.6% in the USA, 24.5% in the UK and 22.2% in France according to a research conducted by the Swedish-German AllBright foundation. Worsening factor, it fell sharply to 12% in September 2021.

Regarding wages in supply chains, we have only been able to analyse living wage issues for the case of Adidas as it is the only company publishing the full list of its tier-1 and tier-2 suppliers, as well as the share of its supply per country of manufacturing which are indispensable information for the investigation. According to our estimates, the annual additional costs that would be incurred by Adidas in order to cover living wages in its main countries of supply amount to 597 million euros per year. Adidas could cover the payment of these living wages by taking on its profits, which would reduce its payments to shareholders to the level they had in 2013, which was already one of the highest performances in the textile industry.

7. The capacity of DAX 30 companies to address the low carbon transition in the coming decade

7.1. Introduction and contextualization of the issue

In September 2020, on the same day as the UN General Assembly adopted a declaration recognizing the urgent need for Member States to act to protect our planet and build back better, **more than 560 companies with combined revenue of USD \$4 trillion - including several companies listed on the DAX 30 index – have urged governments to adopt policies to limit the current environmental damage in the course of the decade.**

Their public declaration stated that: “Healthy societies, resilient economies and thriving businesses rely on nature. Governments must adopt policies now to reverse nature loss in this decade. Together let's protect, restore and sustainably use our natural resources”. The executive director of this initiative called Business for Nature added that “For us all to live well within the planet’s finite limits, we need to scale and speed up efforts now, not tomorrow. We need to see positive political ambition to address nature loss, climate change and inequality which will drive more even more action by business”⁴⁵.

As described in the methodological section in chapter 4, **the data we have managed to collect on the environmental footprint of DAX 30 companies is much too limited and fragmented to analyse whether their current practices and impacts are in line with these declarations.**

As a result, we have **focused instead on the required investments for the ecological transition, and more particularly the transition towards a low-carbon economy**, because the climate issue is the only one for which we have sufficiently robust data, both regarding the investments required for this decade (2020-2030) and the current level of investments made by DAX 30 companies.

	annual reduction 1990-2019 (actual values)	annual reduction 2020-2030 (Climate Protection Law)
energy sector	-1,6%	-3,8%
Industrial sector	-1,2%	-2,5%
buildings	-1,4%	-4,1%
transportation	0,0%	-3,7%
agriculture	-0,8%	-1,7%
waste management and other	-2,6%	-4,4%

Figure 42. Annual reduction of greenhouse gas emissions 1990-2019 and 2020-2030 defined in the German Climate Protection Law. Source: German Environment Agency, 2021

The German Climate Protection Law (KSG) adopted in 2019 enable to put in perspective the level of efforts that has to be made regarding the transition to a low-carbon economy (see above). The targets that are set in this law to implement the commitments made under the Paris Climate Agreement and to comply with the obligations under EU agreements are very significant for most sectors of the economy, with a required⁴⁶:

- **doubling of the annual reduction** of greenhouse gas emissions for the **energy, waste management, agriculture and industry sectors,**
- **tripling of the annual reduction for buildings,**
- and a **massive shift towards reduction of emissions in the transport sector** (whereas no reduction were recorded since 1990).

⁴⁵ <https://www.wbcsd.org/Overview/News-Insights/General/News/Nature-is-at-a-tipping-point.-Businesses-are-calling-on-governments-to-adopt-policies-to-reverse-nature-loss-in-this-decade> accessed on August 3rd, 2021

⁴⁶ German Environment Agency, Corporate reporting on climate related risks: Key findings of a German survey for decision makers and multipliers, 2021

It should be noted that the targets defined in the German Climate Protection Law do not enable Germany to assume a fair share of responsibility for the global mitigation effort needed to keep warming below 1.5°C given its current and historical CO2 emissions.

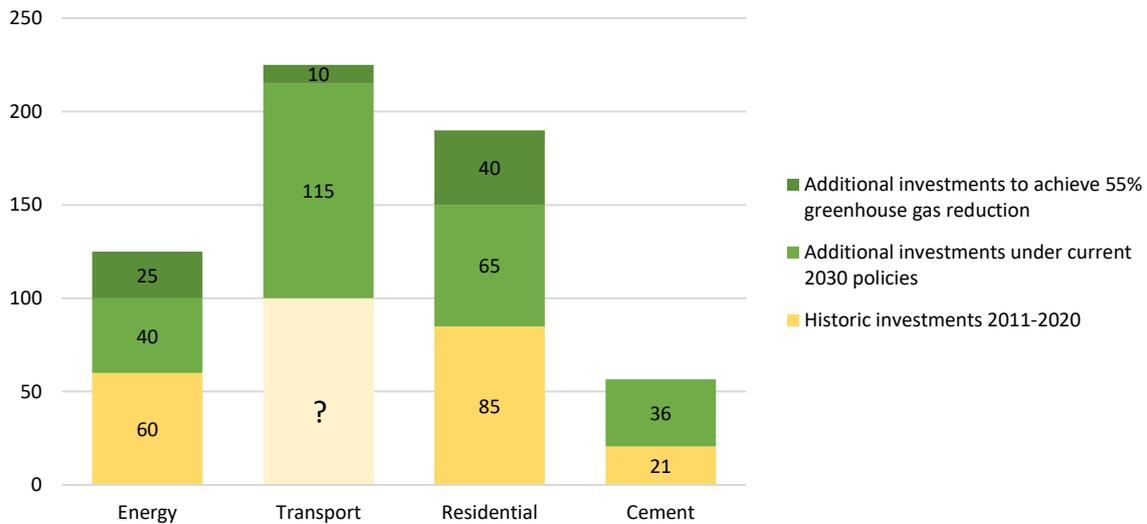


Figure 43. Current sectoral investments and projected investments to address climate change objectives in billion euros/year. Source: BASIC, based on European Commission (2020) and French Agency for Ecological Transition (2021)

The European Commission’s latest impact assessment analysis conducted in 2020 has estimated the additional investments that are required sector by sector in Europe in order to achieve both the new greenhouse gas target by 2030 and carbon neutrality by 2050 - which translates into a 55% reduction of greenhouse gas emissions - and compared it to the current level of investments. The European Commission states that this target of 55% would enable the EU to respect the Paris agreement⁴⁷ although it is most certainly not ambitious enough according to other external sources as it does not do justice to the principle of targets needing to be based on historical responsibility and economic and financial means available - two reasons for which the EU needs to reduce quicker than other economically disadvantaged and historically less responsible countries.

The results of these estimates (see above diagram) show that **all economic sectors in Europe will have to contribute to the transition, but that the scale of the challenge is not the same for all of them**⁴⁸:

- **the energy sector** requires a doubling of the current level of annual investments, with an additional investment of 65 billion euros per year in order to transition to renewable energy,
- **the residential sector** will have to bear almost twice more additional investments, that is to say around 105 billion euros per year, which would translate into a more than doubling of its current level of investments in order to transition towards low-emissions buildings,
- **the transport sector** would have to make even greater additional investments, around 125 billion euros per year in order to transition towards low emissions vehicles (electric, hydrogen...) and to develop the related necessary infrastructure (recharging stations...),
- finally, **the cement sector** has not been analysed by the European Commission but investigated in-depth by the French Environmental Agency⁴⁹; it would have to additionally invest only 36 billion euros per year, but this would correspond to an almost triplication of its current level of investments.

⁴⁷ https://ec.europa.eu/clima/policies/strategies/2030_en

⁴⁸ European Investment Bank, Building a smart and green Europe in the COVID-19 era, Investment Report 2020-2021

⁴⁹ ADEME, Sectoral Transition Plan for the French Cement Industry, 2021



Figure 44. Public and private sources of needed investments per EU member state. Source: European Investment Bank

In addition the European Commission has also investigated the split between the sources of public and private investments by consolidating the data of the **National Energy and Climate Plans (NECPs)** of the different Member States of the European Union⁵⁰. **When combined, these plans correspond to an average of 50/50 investments between public and private financial resources** in order to implement the transition towards a low-carbon economy. These numbers and the 50:50 split are not meant to be ‘scientifically justified’ numbers of what should be done, but only a demonstration of what the different Member States have decided to do in their plans, regardless of what should be done. The public sources of investment are essentially targeted at infrastructure building (energy, transport, etc.) and could be combined with leveraged private investments to achieve the targets in 2030.

In a nutshell, the quantified elements we have used for our analysis are conservative because they are the result of what the European Commission and Member States have come to after a long process of negotiation. These numbers provide at least a minimum of the money needed, knowing that reality is likely to be higher. Based on these elements, we have explored the consequences of these European plans for the DAX 30 companies included in our scope of research. The results are described in the following section.

7.2. Capacity of DAX 30 companies in key sectors to invest in the low carbon transition

We have analysed the capacity of DAX 30 companies to make the additional investments required to meet the 55% goal detailed previously, assuming that the other half of investments will be made by public authorities, as defined by the European Commission and the National Energy and Climate Plans of the EU member states (cf. section 8.1 above).

In order to do so, we have investigated one-by-one the 4 sectors described earlier, in descending order of the required additional investments:

- transports,
- residential buildings,
- energy,
- cement

For each of them, we have first estimated the additional investments that were required annually for the DAX 30 companies which belong to the sector, then compared it to:

- their average annual profits, in order to investigate the consequences of the additional costs incurred on their profitability,
- their cash and short-term stock, in order to investigate whether these financial reserves would enable the companies to meet the investment needs.

⁵⁰European Investment Bank, Building a smart and green Europe in the COVID-19 era, Investment Report 2020-2021

7.2.1. Transport sector

The transport sector is the first one to be considered in terms of required additional investments. The DAX 30 companies we have taken into account for our evaluation are: **BMW, Daimler, Volkswagen and Lufthansa**. We have estimated their combined level of required investments by calculating the share of the EU investments estimated by the European Commission that should belong to these 4 companies.

Share of the GHG emissions of the EU transport sector	Market share of DAX 30 companies in the EU
Road transport: 51.7% ⁵¹	BMW, Daimler, Volkswagen: 39% (based on number of vehicles) ⁵²
Air transport: 13.8% ⁵⁰	Lufthansa: 13.7% (based on number of passengers) ⁵³

Figure 45. data used to estimate the share of the EU investments that should belong to transport companies. Source BASIC To do so, we have calculated the share of the greenhouse gas emissions of the sector related to each company and their respective market share (see above table).

The result of our calculations is that **BMW, Daimler, Volkswagen and Lufthansa, when combined, should bear 22% of the EU additional required investments** estimated by the European Commission. Taking into account that 50% of this investment should come from private entities, this would result in **13.8 billion euros additional investments for the 4 companies**.

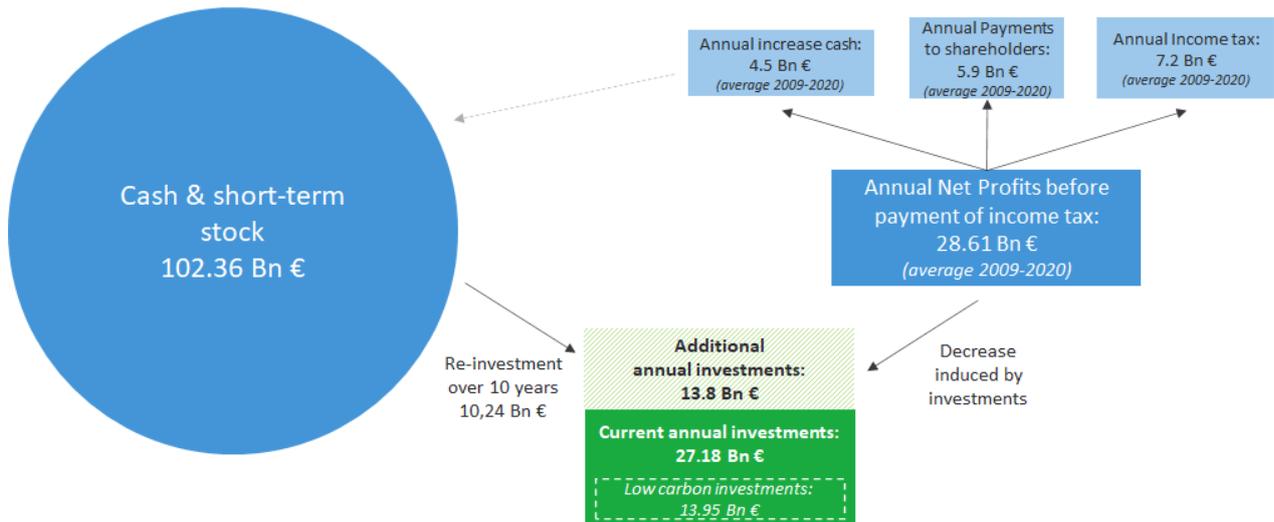


Figure 46. Comparison between additional required investments, average annual net profits before tax and cash and short-term stock of BMW, Daimler, Volkswagen and Lufthansa. Source BASIC

Looking at the profitability model of these 4 companies (BMW, Daimler, Volkswagen and Lufthansa):

- **Their average combined level of net profits before payment of income tax was 28.61 billion euros over the period 2009-2020**, on which 7.2 billion euros were paid on average in income tax, 5.9 billion euros in payments to shareholders and 4.5 billion euros for the increase of companies' increased cash stock (the rest being reinvested in the companies' operations).

⁵¹<https://theicct.org/blog/staff/eu-carbon-budget-apr2021> accessed on August 3rd, 2021

⁵²<https://www.best-selling-cars.com/europe/2020-full-year-europe-best-selling-car-manufacturers-and-brands/> accessed on August 3rd, 2021

⁵³<https://centreforaviation.com/analysis/reports/ryanair-heads-europes-top-20-airline-groups-by-pax-2019-510111> accessed on August 3rd, 2021

- **Their combined total cash and short-term stock amounts to 102.36 billion euros in 2020.** It has been almost doubled since 2009 thanks to the annual increase of 4.5 billion euros generated thanks to the companies' net profits.

In this context, **the estimated additional investments that are required at the level of these 4 companies – 13.8 billion euros per year from 2020 to 2030 – represent an increase by 50% of their current level of annual investments** (knowing that these companies have declared to the Carbon Disclosure Project that they were already committing 13.95 billion euros per year for the carbon transition).

These additional costs would roughly divide by two the average net profits before income tax that these companies generate each year, **and subsequently reduce by the same amount** their annual income tax, payments to shareholders and capacity to increase their cash stock. In other words, **if these companies reverted back to the level of net profits (before tax), income tax and payments to shareholders they had in 2009-2010, they would be able to make the annual additional investments required for the carbon transition.** Besides, **looking at the cash and short-term stock of these companies**, part of this amount of money could also be put at the benefit of the carbon transition. If 10% of the 102.36 billion euros cash and short-term stock that these 4 companies own were re-invested in the carbon transition each year over a period of 10 years, it could generate an annual investment capacity of roughly 10 billion euros which would represent almost 3 quarter of the required investment. **We have applied the exact same logic to the 3 other sectors and related DAX 30 companies.**

7.2.2. Residential building sector

Regarding the residential sector, we have included the company Vonovia which is the only firm of the DAX 30 involved in the sector through its residential building ownership.

According to Vonovia, the total floor area of its residential buildings are 25,991,328 m² ⁵⁴, compared to a total floor area of 25 billion m² in the European Union (of which 75% is residential) ⁵⁵. On the basis of these figures, we estimated that **Vonovia represents roughly 0.1% of the total residential floor area in the EU, and would amount to the same share of the additional annual investments required for the carbon transition** of the sector, i.e. 0.15 billion euros per year.

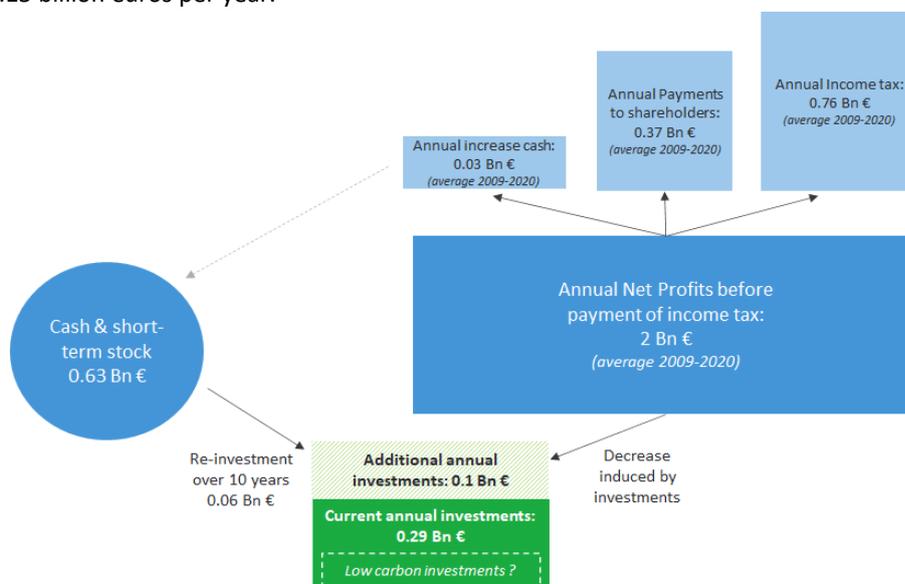


Figure 47. Comparison between additional required investments, average annual net profits before tax and cash and short-term stock of Vonovia. Source BASIC

⁵⁴EPRA, Sustainability recommendations, 2019

⁵⁵[https://www.europarl.europa.eu/RegData/etudes/STUD/2016/587326/IPOL_STU\(2016\)587326_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2016/587326/IPOL_STU(2016)587326_EN.pdf)

Looking at the profitability model of Vonovia:

- **Its average combined level of net profits before payment of income tax was roughly 2 billion euros over the period 2009-2020**, on which 0.76 billion euros were paid on average in income tax, 0.37 billion euros in payments to shareholders and 0.03 billion euros for the increase of its increased cash stock (the rest being reinvested in Vonovia’s operations and other assets).
- **Its combined total cash and short-term stock amounts to 0.63 billion euros in 2020**. It has been almost doubled since 2009 thanks to the annual increase of 0.03 billion euros generated thanks to the companies’ net profits.

In this context, **the estimated additional investments that are required at the level of Vonovia – 0.1 billion euros per year from 2020 to 2030 – represent an increase by 50% of its current level of annual investments** (Vonovia’s current investments in the carbon transition is not published by the company).

These additional costs would have a very low impact on the average net profits before payment of income tax that Vonovia generates each year. It would **subsequently reduce by 5%** its annual income tax, payments to shareholders and capacity to increase its cash stock. In other words, **if Vonovia reverted back to the level of net profits (before tax), income tax and payments to shareholders they had in 2019, it would be able to make the annual additional investments required for the carbon transition.**

Besides, **looking at the cash and short-term stock of Vonovia**, if 10% of the 0.63 billion euros cash and short-term stock that the company owns were re-invested in the carbon transition each year over a period of 10 years, it could generate an annual investment capacity of roughly 0.06 billion euros which represents more than half of the required investment.

Regarding the energy and cement sectors, the situation is much more difficult than in the transport and residential sectors, as illustrated by our estimates.

7.2.3. Energy sector

For the energy sector, we have investigated E.ON and RWE. We have estimated their combined annual share of the CO2 emissions generated by electricity & heat generation in the European Union which amounts to approximately 8%⁵⁶ and assuming that these 2 companies account for 35% of the electricity and heat production in Germany according to the merger procedure of the European Commission conducted in 2019⁵⁷. On the basis of this figure, we estimated that **E.ON and RWE represent roughly 8% of the additional annual investments required for the carbon transition** of the energy sector, i.e. 2.6 billion euros per year.

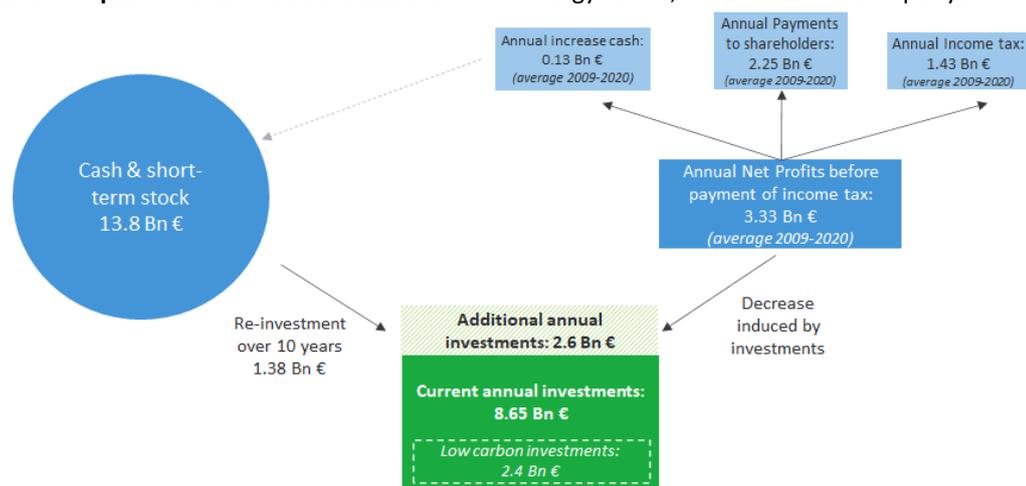


Figure 48. Comparison between additional required investments, average annual net profits before tax and cash and short-term stock of E.ON and RWE. Source BASIC

⁵⁶ <https://www.iea.org/data-and-statistics/data-browser?country=EU28&fuel=CO2%20emissions&indicator=CO2EleBySource> accessed on August 3rd, 2021

⁵⁷ https://ec.europa.eu/competition/mergers/cases/decisions/m8871_2573_3.pdf accessed on August 3rd, 2021

Comparing this estimate with the profitability model of E.ON and RWE:

- **Their average combined level of net profits before payment of income tax was roughly 3.33 billion euros over the period 2009-2020**, on which 1.43 billion euros were paid on average in income tax, 2.25 billion euros in payments to shareholders and 0.13 billion euros for the increase of companies' increased cash stock (the rest being reinvested in the companies' operations).
- **Their combined total cash and short-term stock amounts to 13.8 billion euros in 2020**. It has been only increased by 10% since 2009 thanks to the annual increase of 0.13 billion euros generated thanks to the companies' net profits.

In this context, **the estimated additional investments that are required at the level of E.ON and RWE – 2.6 billion euros per year from 2020 to 2030 – represent a near doubling of their current level of annual investments dedicated to low carbon transition** (knowing that these companies have declared to the Carbon Disclosure Project that they already commit 2.4 billion euros per year for the carbon transition).

These additional costs would represent almost 80% of the average net profits (before tax) of E.ON and RWE, and would hence have a major impact on their annual income tax, payments to shareholders and capacity to increase their cash stock. **Looking at the cash and short-term stock of these two companies**, if 10% of the 13.8 billion euros cash and short-term stock that they own were re-invested in the carbon transition each year over a period of 10 years, it could generate an **annual investment capacity of 1.38 billion euros which would be 2 times too low to compensate for the missing financial resources required to invest towards a low-carbon energy production**.

A similar result has been obtained regarding the cement industry

7.2.4.Cement sector

In the cement sector, we have investigated Heidelberg Cement which is the only company of the DAX 30 operating in this field.

We have estimated its annual global market share (as cement operations and related CO2 emissions are located worldwide even though the headquarters of the company are situated in Europe) which amounts to approximately 5.8%⁵⁸. On the basis of this figure, we estimated that **Heidelberg Cement should invest roughly 5.8% of the additional annual investments required for the carbon transition of the cement sector, i.e. 1.1 billion euros per year**.

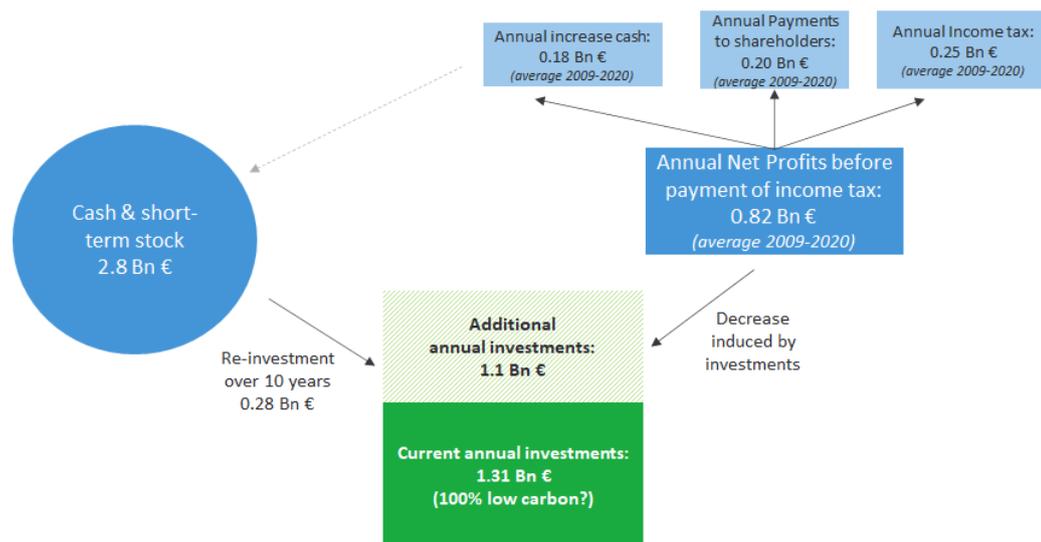


Figure 49. Comparison between additional required investments, average annual net profits before tax and cash and short-term stock of Heidelberg Cement. Source BASIC

⁵⁸ https://www.saccapital.com.sg/file/2021/01/international_cement_group_ltd_20210122.pdf accessed on August 3rd, 2021

Comparing this estimate with the profitability model of Heidelberg Cement:

- **Its average level of net profits before payment of income tax was roughly 0.82 billion euros over the period 2009-2020**, on which 0.25 billion euros were paid on average in income tax, 0.20 billion euros in payments to shareholders and 0.18 billion euros for the increase of the company's increased cash stock (the rest being reinvested in Heidelberg Cement's operations).
- **Its combined total cash and short-term stock amounts to 2.8 billion euros in 2020**. It has been increased by 66% since 2009 thanks to the annual increase of 0.18 billion euros generated thanks to the company's net profits.

In this context, **the estimated additional investments that are required at the level of Heidelberg Cement – 1.1 billion euros per year from 2020 to 2030 – represent a near doubling of its current level of annual investments** (knowing that the company has declared to the Carbon Disclosure Project that it was already committing 100% of this amount for the carbon transition).

These additional costs would be 34% higher than the average net profits before tax of Heidelberg Cement and would hence have a major impact on its annual income tax, payments to shareholders and capacity to increase its cash stock. **Looking at the cash and short-term stock of the company**, if 10% of the 2.8 billion euros cash and short-term stock that it owns were re-invested in the carbon transition each year over a period of 10 years, it could generate an **annual investment capacity of 0.28 billion euros which would be barely enough to compensate for the missing financial resources required to invest towards a low-carbon energy production, and reduce its profitability to zero.**

7.2.1. Transversal view on the DAX 30 as a whole

As shown in the previous sections, **the capacity of DAX 30 companies to implement the annual additional investments required to transition towards a low-carbon economy is quite different from one sector to the other:**

- The DAX 30 companies operating in the transport and residential building sectors would apparently have the sufficient resources given their level of profitability and the cash and short-term stock they could invest (with limited consequences on the business model for the latter).
- The companies belonging to the energy sector apparently do not appear to have the sufficient financial resources, whether in terms of annual net profits (before tax) or cash and short-term stock, and the company of the cement sector would barely have the financial means, but it would annihilate its profitability and cash reserves.

In this context, one could argue that the **resources could be drawn from the DAX 30 companies as a whole and not just the ones belonging to the specific sectors at stake**. Indeed, all companies are in the end consuming products from these sectors and are going to benefit from the carbon transition.

We have estimated the **total annual additional investments required for the carbon transition linked to the companies of the transport, residential, energy and cement sectors at 17.4 billion euros per year.**

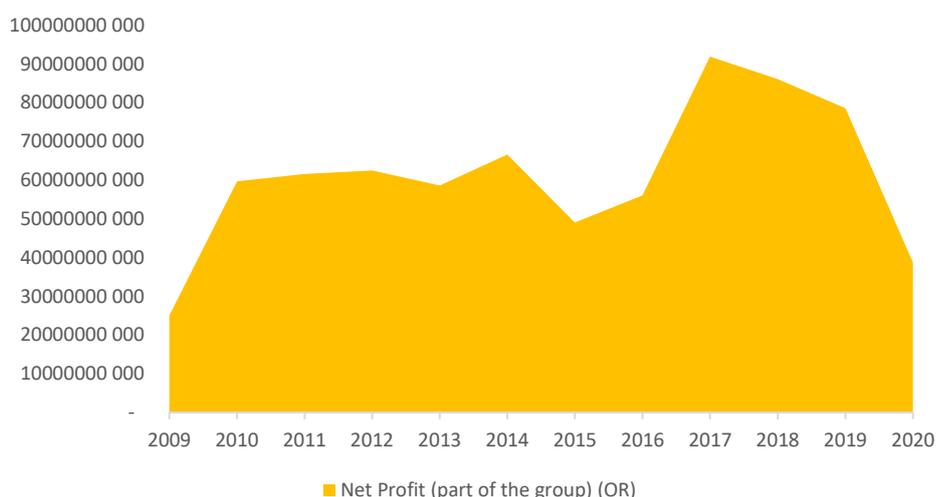


Figure 50. Total net profits of the DAX 30 companies included in our scope of research. Source BASIC

In comparison, the **annual net profits (after tax) of the DAX 30 companies included in our scope of research has amounted on average to 61 billion euros per year** and has not been lower than 40 billion euros since 2010. As a result, if the contribution annual required investments were made by the companies of the whole DAX 30, it would reduce their net profit generation by 28.5%, with subsequent reductions in income tax and payments to shareholders.

Given that the cumulated payments to shareholders have more than doubled since 2009 (from 20.4 billion euros to 42 billion euros), **this reduction in the cumulated net profits of the DAX 30 would mean that the companies would revert back to the level of payments to shareholders they had in 2013 (i.e. 29 billion euros).**

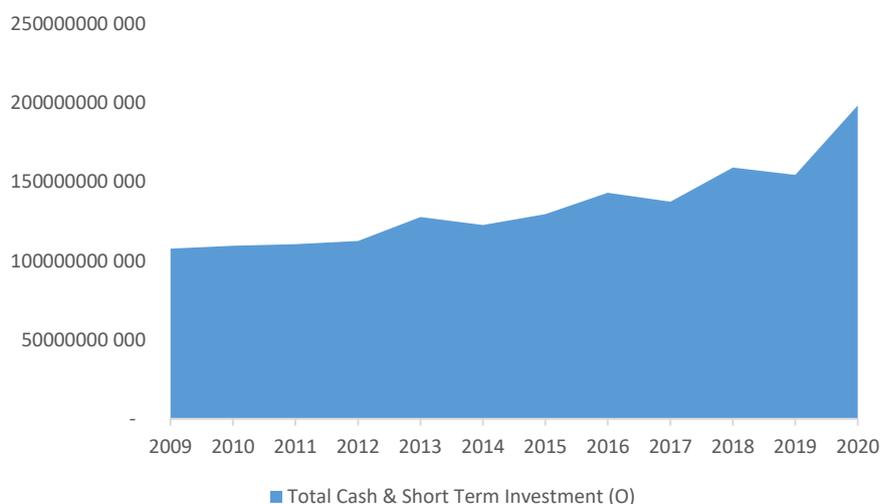


Figure 51. Total cash stock and short-term investments of the DAX 30 companies included in our scope of research. Source BASIC

Looking at the cash stock and short-term investments of the 30 companies included in our scope of research, our data show that their **cumulated amount has significantly expanded over our period of analysis, especially since 2014: it has jumped from 122.58 billion euros in 2014 to 198.38 billion euros in 2020.**

Given that our estimation of the total annual additional investments required for the carbon transition is 17.4 billion euros per year, or 174 billion euros over 10 years, **it is also legitimate to explore the possibility to encourage the re-investment of this cash and short-term stock – at least partially - in the transition towards a low-carbon economy.**

HIGHLIGHTS

We have estimated the total annual additional investments required for the carbon transition linked to the DAX 30 companies of the transport, residential, energy and cement sectors at 17.4 billion euros per year.

In comparison, the annual net profits of the DAX 30 companies have amounted on average to 61 billion euros per year, meaning that these companies could jointly take on their profits to cover the additional investments required to transition towards a low-carbon economy.

This would translate into a reduction of their cumulated payments to shareholders that would be back to the level they had in 2013 (29 billion euros per year).

In addition, the cumulated cash and short-term stock of DAX 30 companies which amount to almost 200 billion euros could also be re-invested in the transition, in line with the Sustainable Finance Strategy adopted by the German federal government, and provided that the adequate mechanisms are put in place.

8. Closing section: comparative analysis of DAX 30 and CAC 40 companies

To conclude our analysis of the DAX 30, the comparison with the analysis that we have performed of the companies listed on the CAC 40 index using the exact same methodology can bring interesting comparisons.

On a transversal basis, all the main conclusions of our analysis of the CAC 40 companies also apply to the DAX 30 companies. Only differences in magnitude can be observed.

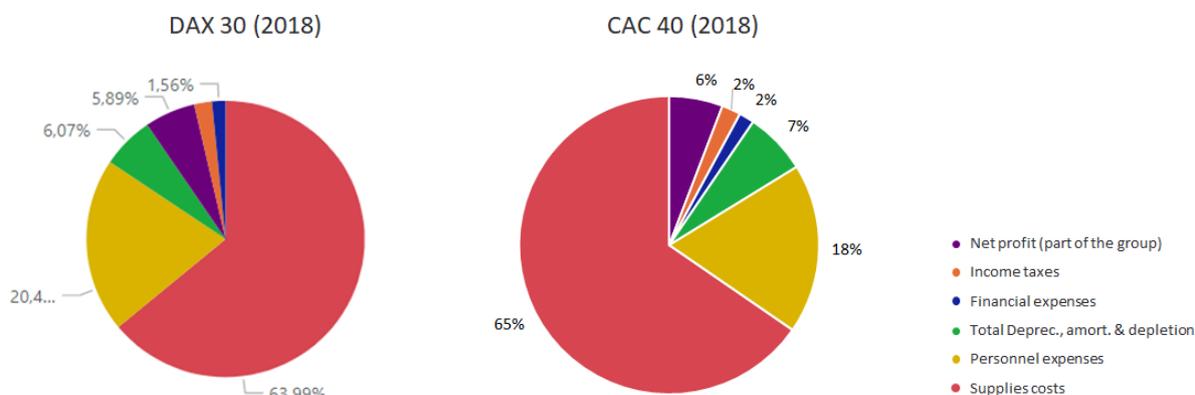


Figure 52. Comparison of the distribution of value among CAC 40 and DAX 30 companies. Source BASIC

First of all, the distribution of the value created by CAC 40 and DAX 30 companies into its different components appears to be pretty similar (supply costs, personnel expenses, depreciation/amortization/depletion, financial expenses, income tax and net profits).

However, the composition of companies and sectors that lay behind is distinct, with a prevalence of:

- banks/insurance, luxury and energy/raw materials companies for the CAC 40,
- car manufacturing, technology and chemicals companies for the DAX 30.

In dynamic terms, the impact of the Covid-19 has been greater on CAC 40 companies which cumulated sales in 2020 have decreased by 13%, compared to only 9% in the case of the DAX 30.

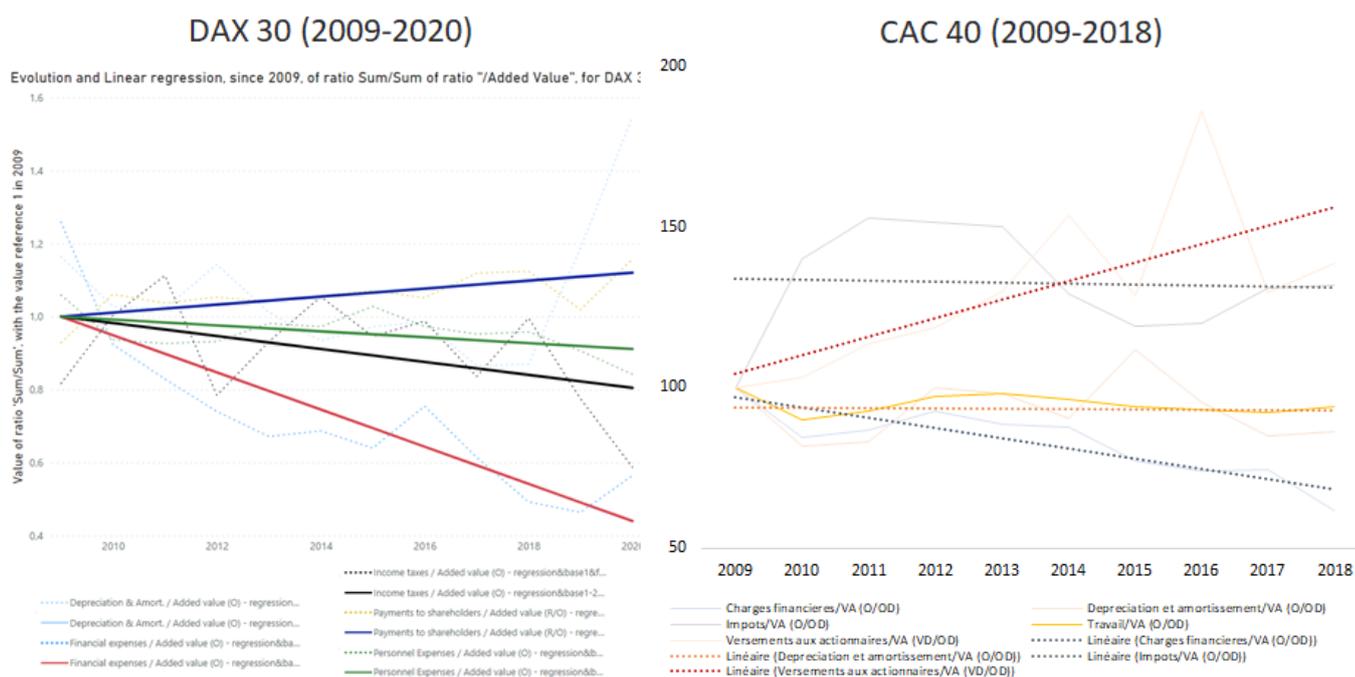


Figure 53. Comparison of the evolution of the share of personnel expenses, depreciation/amortization/depletion, financial expenses, income tax and net profits in the added value of CAC 40 and DAX 30 companies since 2009. Source BASIC

The main analytical elements that can be compared between the two indices is the long-term evolution trend since 2009 of the share of the different components in the added value of the companies, i.e.:

- personnel expenses,
- depreciation/amortization/depletion,
- financial expenses,
- income tax,
- and payments to shareholders

We observed for the two indices the same trends:

- **a decrease of the labour share** in the added value of companies that is **more pronounced for the DAX 30** (-9 points between 2009 and 2018) than for the CAC 40 (- 6 points between 2009 and 2018),
- a decrease of the share of financial expenses (linked to the decline in banks' interest rates) and income tax (due to the public policies of the States to recover economy growth),
- **a significant increase of the share of the added value accruing to shareholders**: from 4.7% in 2009 to 8.2% in 2018 in the case of the DAX 30, from 8% in 2009 to 11% in 2018 in the case of the CAC 40. **Although the level is higher for the CAC 40, the increase has been almost 3 times more rapid in the case of the DAX 30.**

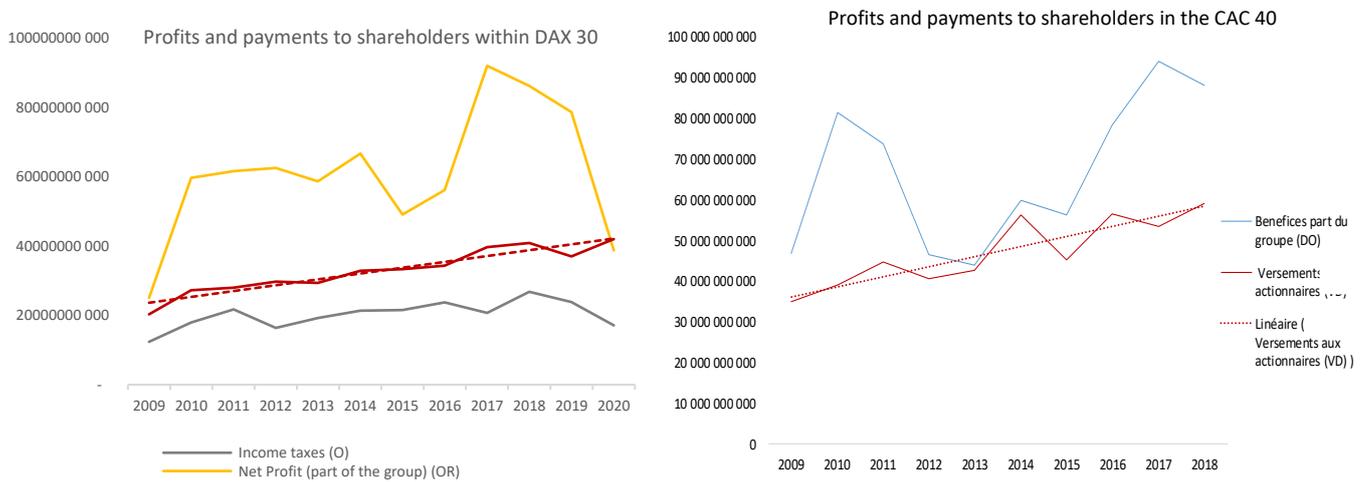


Figure 54. Comparison of the evolution of net profits and payments to shareholders of CAC 40 and DAX 30 companies since 2009. Source BASIC

Regarding the analysis of the distribution of profits to shareholders, the results are also pretty similar. While the net profits generated by companies from both indices have been fluctuating quite significantly since 2009, the payments to shareholders have been growing quite consistently throughout the period, regardless of the profitability during the fiscal year during which the dividends are calculated.

The growth of payments to shareholders has been twice higher for the DAX 30 (+100% between 2009 and 2018) than for the CAC 40 (approximately +50% between 2009 and 2018). This higher level observed in the case of the German index is probably linked to the higher profitability of the companies of the DAX 30 compared to the ones listed on the CAC 40 index.

DAX 30 (2009-2020)

CAC 40 (2009-2018)

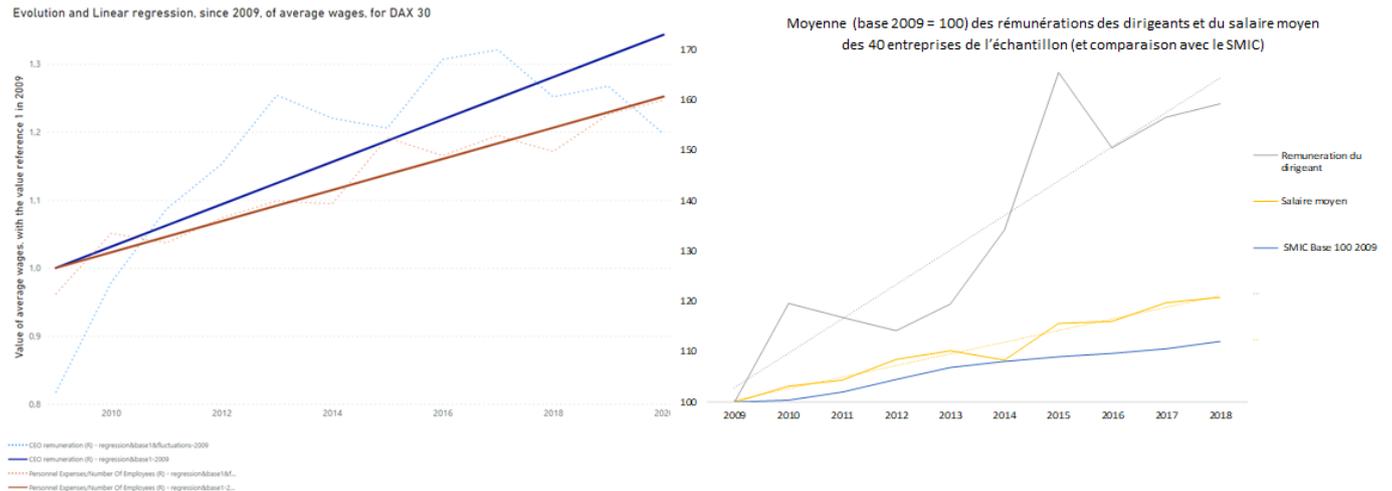


Figure 55. Comparison of the evolution of average remuneration of CEOs and the average personnel expenses per employee among CAC 40 and DAX 30 companies since 2009. Source BASIC

Finally, the comparative analysis of the evolution of the remuneration of CEOs and average personnel expenses per employee is also converging between the two indices.

However, **the widening wage gap between CEOs and average employees is this time much less pronounced for DAX 30 companies than for their counterparts from the CAC 40:**

- while the evolution of the average personnel expenses between 2009 and 2018 is similar for DAX 30 companies (+21%) and CAC 40 companies (+22%),
- the average remuneration of the CEOs has increased by +36% in DAX 30 between 2009 and 2018 and by 59% in the case of the CAC 40 companies.