Consolidated financial statement statistics as a contribution to the extended corporate analysis: approach and initial results

For some time now, Germany's non-financial corporate sector, with its broad array of small and medium-sized enterprises (SMEs), has also seen the emergence of groups of varying forms in which legally independent enterprises constitute an economic unit in a group setting. Groups operating across national borders represent a strong link connecting domestic and foreign procurement and sales markets, production centres and financial systems, which also makes them a distinct transmission channel for international economic developments.

This presents a broader set of empirical challenges at both the macroeconomic and the macroprudential level which go beyond the bounds of the traditional corporate financial statement statistics based on legally independent units operating within a national economy. The Bundesbank's new consolidated financial statement statistics help to address these challenges by delivering quarterly data on the asset and capital structure as well as the profitability of non-financial groups operating in Germany. The time series date back to 2005 and are based on the consolidated financial statements prepared by currently around 260 non-financial corporations listed in the Prime Standard segment of the Frankfurt Stock Exchange.

Consolidated financial statement statistics compute data and ratios derived from both the balance sheets and profit and loss accounts of large German groups, including their globally active subsidiaries. Where it is possible or meaningful to do so, data material is also adjusted for changes in the reporting sample and the basis of consolidation and it is seasonally adjusted, thereby facilitating its interpretation. Unlike the separate financial statements which individual enterprises draw up in line with the German Commercial Code (Handelsgesetzbuch, or HGB), and which are inputs in the corporate financial statement statistics, the consolidated financial statements of listed groups are prepared pursuant to International Financial Reporting Standards (IFRS) and are adjusted for intra-group transactions, capital links and debt relationships.

There are fundamental structural differences between the consolidated financial statement statistics and the extrapolated separate financial statements. In balance sheet terms, both non-current assets and non-current liabilities play a significantly greater role in the consolidated financial statement statistics than they do in separate financial statements. Intangible assets, notably goodwill, is another major item. Balance sheet ratios have a relatively stable profile over time, with the equity capital ratio averaging an impressive 30%.

German groups' revenues and profitability figures show just how deeply they are embedded in the global economy. This also means that their profits are more susceptible to global shocks, as the sharp contraction in earnings during the financial and economic crisis in late 2008 and in 2009 demonstrated. German groups quickly bounced back from this slump to return to strong profitability. Revenues have more or less moved sideways since 2012, with both the impact of the euro-area debt crisis on the real economy and the slower pace of global economic activity overall likely to have been contributing factors.

Groups – a structural feature of the German economy

The group as an economic unit

Since the late 1960s, the Bundesbank has been evaluating the annual financial statements of domestic non-financial corporations in order to analyse their profitability and their asset and capital structure in a macroeconomic context. The Bundesbank's approach is consistent with the framework of general economic statistics in that the reporting sample is essentially confined to legally independent units operating within a given domestic economy. However, a corporate landscape that is characterised by strong national and international links brings questions to the table which increasingly go beyond the bounds of this traditional statistical approach. Indeed, many spheres of economic activity are now dominated by groups in which several legally independent enterprises form a single economic unit in a consolidated setting. Using a group as an organisational form of providing services and effecting corporate governance is a particular hallmark of major multinationals. All these factors raise the bar for statisticians and challenge them to obtain a broader data set on groups as an economic unit.

Computing consolidated financial statements presents a host of methodological challenges. Scant research has been conducted hitherto into the idea of a group as a statistical unit.[1] A group is generally defined as a collection of legally independent enterprises that are economically linked with one another by way of a hierarchical structure, normally via participatory relationships, rights of control and decision-making powers. The diversity of the group structures that can be observed in the market merely hints at the broad range of different purposes that groups can serve; yet this variety also complicates the task of comprehensively categorising the different types of group. One basic feature is common to all groups, however – their single management and control function, which is crucial for group strategy and often involves a joint liability scheme.[2]

Economic globalisation – the driving force behind multinational groups

The existence of such a wide variety of different groups is largely explained by the different strategic objectives they pursue. Groups have often found that it is easier and quicker to tap new lines of business through external mergers and acquisitions than through internal organic growth, not least given the increasingly international competitive environment in which they operate. Their motives have evolved over the decades. While the 1950s and 1960s saw most enterprises focusing primarily on goods exports, they soon began to set up service and distribution enterprises of their own abroad. The next step was to establish their own manufacturing facilities in foreign countries, either for production or cost-related reasons or in an effort to overcome trade barriers. Group strategies nowadays sometimes go even further, with enterprises looking to coordinate the relative benefits offered by different international locations so as to harness synergies in the value added chain. This can go hand in hand with a stronger functional differentiation of the provision of services at the enterprise level, such as using financing subsidiaries as a source of funding, or spinning off research and development operations. These strategic initiatives were fuelled primarily by the liberalisation of global trade, the opening-up and systemic transformation of the economies in Central and Eastern Europe and their integration into the European Union (EU), as well as the swift catching-up process seen in the emerging market economies.

Significance for the domestic economy

The emergence of multinational groups normally has considerable repercussions for the national economies in which they are domiciled. This view is emphatically underlined by the share of major groups within the German economy. The roughly 260 non-financial groups

1 Nonetheless, the consolidated approach has now become a fixture in a number of statistical areas, where it augments the traditional approach. Such areas include data obtained in the field of banking supervision, banks' external position and the survey of stocks in the field of direct investment.
2 Letters of support can also be used to level out differences in creditworthiness within the group.

covered by the Bundesbank's new statistics generate just under 9% of total revenues in Germany with their domestic revenues, and they provide work for just over 7% of domestic employees. Some groups play a crucially important role for entire regions if they concentrate their management and administrative offices and run major manufacturing facilities there. Input-output relations via industrial subcontractors or service providers likewise play an important role in this regard.

Macroeconomic and macroprudential aspects

The increasing international division of labour is driving the creation of multinational groups run under a single management. This might be another reason for the heightened synchronicity exhibited by international cyclical movements. Yet it is also plausible that groups contribute to international diversification which, when viewed in isolation, diminishes their susceptibility to shocks in the event of country-specific disruptions.[3] Macroprudential questions represent another analytical angle from which to compute consolidated financial statement data. It is crucial from a systemic risk viewpoint to have a complete overview of groups' indebtedness, liquidity and profitability. Overall developments in a group's debt situation, say, can only be gauged from the outside and in funding profile terms once that group's financing subsidiaries (which are often based abroad) have been included in the consolidated financial statements.[4] Furthermore, the micro data available on individual groups also supply distributional information – the profitability and leverage figures, say, offer an indication of whether there are particular vulnerabilities to risk of groups in specific sectors.[5]

How the consolidated financial statement statistics are designed

The data used in the new consolidated financial statement statistics are extracted from the consolidated financial statements of roughly 260 non-financial groups, chiefly those listed in the Prime Standard segment of the Frankfurt Stock Exchange, provided they make a noteworthy contribution to value added in Germany in terms of their revenues or employment.[6] The Exchange Rules for the Frankfurt Stock Exchange require enterprises listed in the Prime Standard segment to prepare financial statements at quarterly intervals. Consolidated financial statement statistics based on these data are very up to date and are published at very frequent intervals, besides being comparable internationally. The traditional corporate financial statement statistics based on annual data only produce estimations almost one year after the end of the year under review, whereas the consolidated financial statement statistics deliver results between six and seven months after a given reporting date. Quarterly availability also means that intra-year development patterns can be visualised and analysed.

More up to date and frequent than traditional corporate financial statement statistics

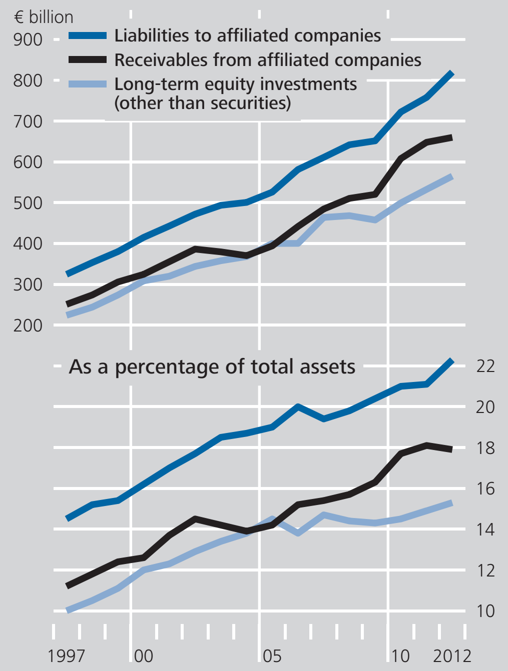
There are a number of ways in which the design of the consolidated financial statement statistics differs from that of the traditional cor-

How the two approaches differ

3 See C Buch and A Lipponer (2007), Volatile multinationals? Evidence from the labour demand of German firms, Deutsche Bundesbank Discussion Paper No 22/2007; as well as H Peters and B Weigert (2013), Beschäftigungsentwicklung innerhalb deutscher multinationaler Unternehmen während der globalen Rezession 2008/2009, Jahrbücher für Nationalökonomie und Statistik 233/4, pp 505-525.
4 The single entity principle enshrined in section 297 (3) sentence 1 of the German Commercial Code, as explained above, states that "… the asset and capital structure as well as the profitability of the enterprises included in the consolidated financial statements shall be presented in the consolidated financial statements as if all these enterprises constituted a single entity." A similar requirement is specified in International Accounting Standard (IAS) 27.4.
5 See also Deutsche Bundesbank, Manufacturing enterprises in Germany and their vulnerability to crises – findings of a risk analysis using annual financial statement data, Monthly Report, March 2014, pp 51-63.
6 Also incorporated are groups which publish quarterly reports on a voluntary basis. A group is said to make a noteworthy contribution to value added if at least 10% of its total revenues or more than €500 million of its revenues are generated in Germany or if at least 10% of its staff or more than 500 members of staff are employed in Germany. This results in German enterprises with operations located exclusively in China ("China-AGs") that are listed on the Frankfurt Stock Exchange being excluded from the reporting sample. See also Deutsche Bundesbank, Quality report on consolidated financial statement statistics, available for download at http://www.bundesbank.de/Redaktion/EN/Standardartikel/Statistics/publications_corporate_financial_statements.html

Intra-group relations in the domestic corporate sector*

Year-end data



* Extrapolated separate financial statements (all enterprises except holding companies). Results up to 2005 chain-linked to figures in subsequent years.

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porate financial statement statistics. Consolidated financial statements are derived by consolidating the separate financial statements prepared by the enterprises belonging to the group. This means that the accounting data disregard the intra-group transactions and financial links which can impede macroeconomic analysis in the traditional corporate financial statement statistics. For instance, the results of the traditional corporate financial statement statistics in 2012 found that debts vis-à-vis affiliated enterprises and partners totalled more than €800 billion, or 22.3% of total assets (compared with 14.5% in 1997), with intra-group loans accounting for the bulk of this figure. The consolidated approach furthermore sheds light on any goodwill that is not reported in the separate financial statements. The application of different accounting standards (HGB for separate financial statements, IFRS[7] for consolidated financial statements) is another reason why the consolidated financial statement statistics differ from their traditional counterpart. The consolidated view also includes groups' global operations because the consolidation of subsidiaries is mandatory under the IFRS, irrespective of where they are domiciled (global reporting principle). By the same token, Germany-based subsidiaries of foreign groups are excluded. Another hallmark of the consolidated financial statement statistics is that the groups included in the reporting sample are all listed on the stock exchange.

Implications of IFRS accounting

Adoption of the IFRS became mandatory for listed groups throughout the European Union as from the 2005 financial year, harmonising financial reporting by groups across Europe. However, there are several areas in which the design of the IFRS differs from that of the HGB accounting legislation,[8] primarily because the two sets of legislation are founded on different legal traditions and pursue different accounting objectives. The HGB is founded on the continental European model which regards creditor protection and the long-term viability of the enterprise as the core objectives of accounting. The IFRS, by contrast, largely reflect the accounting standards used in Anglo-Saxon countries and focus on providing decision-relevant information for investors. They are broader in scope than the HGB legislation because they have more of an explanatory character and need to be able to cover a wider variety of different specialities on account of their global design. The IFRS measurement approach is closely geared to the mark-to-market principle but sometimes offers considerable scope for interpretation. These aspects need to be taken into account before making any connection between consolidated financial statement data

7 The IFRS are international accounting standards for enterprises which are promulgated by the International Accounting Standards Board (IASB). Their aim is to enable enterprises to prepare internationally comparable annual accounts and consolidated financial statements, independently of national legislation and in compliance with certain principles and minimum standards.

8 The German Act to Modernise Accounting Law (Gesetz zur Modernisierung des Bilanzrechts, or BilMoG) in 2009 did, however, harmonise a number of provisions to some degree.

and traditional HGB-based corporate financial statement statistics.

Special features of quarterly reporting

The highly up-to-date time series of consolidated data that are available intra-year come at a cost – the reduced depth of information provided by quarterly accounts. The Exchange Rules of the Frankfurt Stock Exchange require groups listed in Deutsche Börse's Prime Standard segment to publish a half-yearly report and a quarterly report pursuant to the German Securities Trading Act *(Wertpapierhandelsgesetz).*[9] A quarterly report must at least contain condensed versions of the balance sheet, profit and loss account, statement of changes in equity and statement of cash flows as well as selected explanatory notes. On top of this, there are strict deadlines for disclosure, which means that quarterly reports need to be published no later than two months after the end of the reporting period in question and no later than four months for annual accounts.

Adjusting the profit and loss ratios

The main ratios which the new consolidated financial statement statistics extract from the profit and loss account provide information on revenues and operating income before and after depreciation and amortisation. The intra-year time series reveal seasonal patterns. To aid interpretation, the data are adjusted for recurring effects which occur with the same intensity at the same time each year. Furthermore, material changes in the composition of groups, and thus in the basis of consolidation, are eliminated (numerically) from the time series. Additions or disposals of fairly large subsidiaries can potentially have a considerable impact not just on the revenues and earnings generated by a given group but also on the statistical (sub-)aggregates. The same applies to changes in the reporting sample, ie in the set of groups covered by the statistics. A procedure has been developed to segregate the impact of changes in the basis of consolidation and the reporting sample from economically relevant movements (see the box on pages 56 and 57). Unadjusted aggregates which fully reflect the merger and acquisition activity of the enterprises covered by the statistics as well as seasonal patterns are also provided.

Outcome of financial analysis

Comparing stylised structural balance sheets

The new consolidated financial statement statistics allow economists to observe Germany's corporate landscape from a fresh angle. To illustrate this point, this article will first compare stylised structural balance sheets extracted from the consolidated financial statement statistics with the extrapolated separate financial statements used in the traditional corporate financial statement statistics, with the latter observing both aggregate data and data for the major corporations (the bulk of which belong to groups). Disregarding variations in the methodological and geographical definitions, in the size of the reporting sample and, as described earlier in this article, in the accounting standards used (IFRS versus HGB), this comparison is a suitable way of shedding light on the fundamental structural differences between the two statistical approaches.

The most noteworthy difference between the consolidated statistics and the extrapolated separate financial statements is the way they treat intra-group relations. Consolidated balance sheets eliminate intra-group capital links and debt relationships between the individual enterprises (consolidation effects).[10] Hence, the consolidated financial statement statistics provide a balance sheet structure that is fundamentally different in many respects from traditional corporate financial statement statistics that are based on extrapolated data. Viewed from the traditional perspective, equity investments and loans to affiliated enterprises accounted for around a third of total assets in 2012; confining the sample of enterprises to

9 Section 51 (1) of the Exchange Rules for the Frankfurt Stock Exchange in conjunction with section 37y No 2 of the German Securities Trading Act.
10 In addition, the consolidation of income and expenses means that the consolidated profit and loss account is also adjusted for intra-group transactions.

Statistical adjustment for changes in the basis of consolidation and in the reporting sample in the consolidated financial statement statistics

Changes in the basis of consolidation of a group's financial statements which result from the acquisition or disposal of fairly large subsidiaries can have a significant effect not just on the way in which revenue and profitability figures develop at the group level but also on major statistical aggregates. The same applies to changes in the reporting sample, for instance on account of the registration of groups already in existence or the removal of still viable groups from those listed in the Frankfurt Stock Exchange's Prime Standard segment. Such shifts in the statistical reporting sample caused by definition-related changes alone make it difficult to analyse macroeconomic and macroprudential developments. For this reason, in the quarterly consolidated financial statement statistics of non-financial groups listed in Germany, the unadjusted nominal figures made available are supplemented by time series adjusted to take account of any changes in the basis of consolidation and in the reporting sample.[1]

Provided no start-ups are simultaneously listed in the Prime Standard segment, the series adjusted in this manner serve to depict the internal growth of the groups in question. Moreover, the nominal figures also show the mergers and acquisitions activities of the entities under analysis. In terms of the individual statistical unit being recorded, the divergence observed between the adjusted and unadjusted results thus provides a broad picture of the external growth component.

When deciding upon an appropriate statistical methodology for deriving data adjusted to take account of changes in the consolidation basis and in the reporting sample, a raft of secondary conditions need to be considered. Information regarding the quantitative impact of changes in the basis of consolidation can, at most, be obtained from the annexes of the consolidated financial statements for an overlapping year and only for a few variables relating to the profit and loss account. This cannot be used as a basis for constructing reliably collected multi-year adjusted time series. Rather, there are overlaps in the data from year to year for any two given bases of consolidation (the new basis and the previous one) which have to be chain-linked in an appropriate manner to form one statistical time series.

As searching the annexes to find the relevant information about changes in the basis of consolidation is a resource-intensive process, the figures can be adjusted only for the largest groups. Since the vast majority of enterprises included in the reporting sample are DAX and MDAX-listed groups (around 95% of revenue in 2012), the information value of the new statistics is not significantly impeded.

Furthermore, the selected approach for constructing long time series should take account of the calculating restrictions which arise when information is distributed across a one-year timespan. Indeed, it is often the case that no authentic financial statements are available for the final quarter. These are then estimated by deducting the sum of the data for the first three quarters from the annual figures. It follows that this additivity

1 http://www.bundesbank.de/Navigation/EN/Statistics/Enterprises_and_households/Corporate_financial_statements/Tables/table.html

should be kept in mind as a secondary condition when selecting a method.

These two provisions, ie annual overlap and the additivity of quarterly results across a single year correspond to the principles that prompted decision-makers to select the annual overlap method for calculating the real price-change-adjusted data in the national accounts. This approach additionally ensures that the annual rates of change and the quarterly quarter-on-quarter as well as the quarterly year-on-year rates of change are consistent. However, unlike the gross value added stated in the national accounts, the corporate earnings given in the quarterly consolidated financial statement statistics can, as a general rule, also display non-positive results (zero or negative values), hence the practice of linking ratios (ie the chain-linking of index links) employed in the national accounts is in this instance substituted by using differences:

$$
\begin{aligned}
U_{n,i}^{FR} =& \frac{1}{4}\sum_{i=1}^{4} U_{0,i}^{x(0)} \\
&+ \left[\sum_{t=1}^{n-1}\left(\frac{1}{4}\sum_{i=1}^{4} U_{t,i}^{x(t)} - \frac{1}{4}\sum_{i=1}^{4} U_{t-1,i}^{x(t)}\right)\right] \\
&+ \left(U_{n,i}^{x(n)} - \frac{1}{4}\sum_{i=1}^{4} U_{n-1,i}^{x(n)}\right)
\end{aligned}
$$

where

$U_{n,i}^{FR}$ = value of the (revenue) time series of the annual overlap type in additive form for the year $n > 0$ and the quarter i

$U_{t,i}^{x(t)}$ = revenue values on a quarterly basis for a basis of consolidation x kept constant on an annual basis

t = year from 0 to n

i = quarter from 1 to 4

$x(t)$ = constant basis of consolidation for year t.

In terms of calculation, the advantage of this approach is that each aggregate time series is the direct sum of its components (additivity feature). On the downside, as with the data contained in the national accounts, a statistical break can arise between the first quarter of a given year and the final quarter of the preceding year. However, the lower the values of the departing or newly added subsidiary, and the tinier the deviation of its figures for the final quarter of the preceding year from that year's annual average, the smaller this statistical break is. Empirical test calculations show that the annual overlap effect is generally of no significance for the major aggregates.

In addition to providing the time series calculated in this manner, which are also available as seasonally-adjusted data (derived using the Census X-12-ARIMA method) and corresponding quarter-on-quarter rates of change, the published time series also show year-on-year rates adjusted for changes in the basis of consolidation and in the reporting sample calculated using the following formula

$$100 * \left(U_{n,i}^{x(n)} - U_{n-1,i}^{x(n)}\right) / U_{n-1,i}^{x(n)} .$$

In this way, it is possible to eliminate a potential conceptual break between the final quarter of one year and the first quarter of the following year when calculating year-on-year rates.

Balance sheet of listed non-financial groups compared with the extrapolated separate financial statements of all enterprises

End-2012, as a percentage of total assets

Assets	Consolidated financial statements	Extrapolated separate financial statements[1]		Equity and liabilities	Consolidated financial statements	Extrapolated separate financial statements[1]	
		Large corporations	All enterprises			Large corporations	All enterprises
Long-term assets	61.8	49.3	44.8	Equity	29.6	30.8	27.4
Intangible assets	19.9	2.5	2.2				
of which Goodwill	11.6	0.6	0.6	Long-term liabilities	37.6	19.7	20.5
Tangible assets	25.5	19.4	23.8	Long-term financial debt	19.9	11.8	14.2
Financial assets	12.6	27.5	18.9	*of which* to affiliated companies	–	6.7	6.0
of which Equity investments (other than securities)[2]	.	22.8	15.3	Pension obligations	6.2	7.1	5.2
Loans to affiliated companies	–	2.5	1.8	Other	11.5	0.9	1.1
Other	3.8	–	–				
Short-term assets	38.2	50.7	55.2	Short-term liabilities	32.8	49.6	52.1
Inventories	10.1	12.4	16.6				
Trade receivables	9.5	8.5	10.8	Short-term financial debt	9.4	21.7	21.7
Cash	6.6	5.0	6.9	*of which* to affiliated companies[3]	–	19.3	16.2
Other	12.0	24.8	21.0	Trade payables	8.5	10.9	14.1
of which Receivables from affiliated companies[3]	–	20.2	16.1	Other	14.9	17.0	16.2
Total assets	100.0	100.0	100.0	Total equity and liabilities	100.0	100.0	100.0

1 Extrapolated results based on partially estimated revenues using evaluations of the business register of the Federal Statistical Office for manufacturing, mining and quarrying, energy and water supply, disposal, construction, trade, transportation and storage, accommodation and restaurants, information and communication as well as business services; differences in the figures due to rounding. **2** Including shares in affiliated companies. **3** Including trade receivables and payables within the group.
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major corporations increases this share to as much as 45%. On the liabilities side of the balance sheet, debts vis-à-vis affiliated enterprises and partners in the extrapolated accounts still amount to as much as 22% (for enterprises as an aggregate) and 26% (for major corporations). By contrast, in the consolidated financial statement statistics – which eliminate these components – the non-financial aggregates, ie tangible assets including intangible assets, account for a much greater share, amounting to 46% of total assets compared with 22% for the extrapolated corporations.[11]

Group-specific maturity profile

The share of long-term assets and liabilities is a great deal higher among groups than in the separate financial statements. On the liabilities side, this is reflected in a considerably higher share in long-term debt (38% compared with 19½%), which – besides the technical reduction in, above all, short-term receivables and

11 The manner in which the first-time inclusion of equity investments in the consolidated financial statements affects important ratios such as the capital ratio can only be decided on a case-by-case basis. The scale and direction of the balance sheet effect in the consolidated financial statements upon first-time consolidation hinges on various factors. These notably include the funding profile of the consolidated subsidiary, any links that already exist between parent and subsidiary as well as the size of the equity investment.

debt as a result of debt consolidation – is also due to economic factors. It is likely to be relevant in this context that large groups frequently obtain long-term debt capital by issuing securities through their own financing subsidiaries, which are often resident abroad for tax reasons.[12] These funds are then passed on within the group to the parent company or to other subsidiaries on a mostly near-term basis. Consolidated financial statements thus provide a comprehensive overview of a group's financing structures.

Fixed assets with a relatively high weight

In addition to the effects of debt consolidation, the share of inventories was just over 6 percentage points lower for groups than for all individual enterprises. This may be due to the fact that groups have more efficient working capital management. A high inventory ratio is generally deemed to be unfavourable given storage and capital commitment costs. Evidently, groups are more successful at lowering inventories by optimising operational processes. This could also be linked to their size and the associated market power of groups vis-à-vis their suppliers, which enable groups to press for more favourable delivery conditions.

Financial assets relevant only for a few groups

Divergent effects are overlapping with regard to groups' financial assets. On the one hand, this item is diminishing considerably as a result of equity investments other than securities being consolidated. On the other hand, the data provided by individual large groups also include banking subsidiaries, especially those of car manufacturers, which hold a high level of financial assets in the form of receivables from financing and lease contracts with customers and car dealers and of long-term securities. As a result, financial assets continue to represent a notable asset position in the consolidated financial statement. All things considered, the observed increases in long-term assets and in liabilities correspond to one another, safeguarding the principle of matching maturities[13] – at least at the aggregate level.

Intangible assets and goodwill

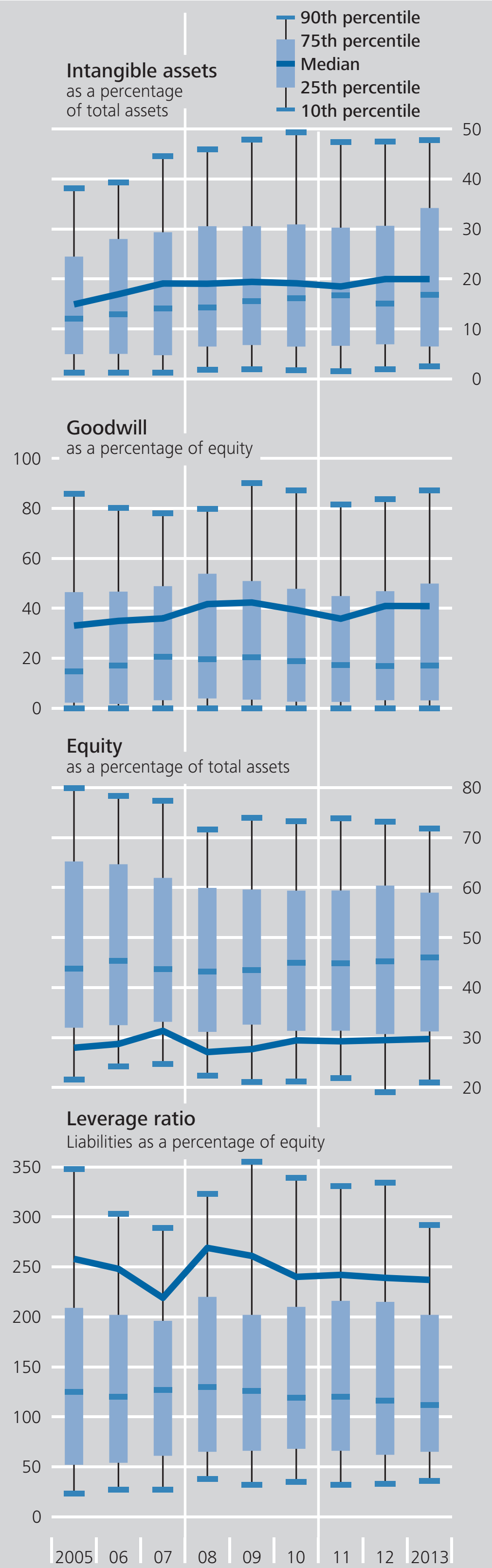
Viewed over time, the balance sheet ratios of the groups concerned have exhibited a relatively stable profile since 2005 – with the exception of long-term assets, where a shift away from tangible assets to intangible assets can be observed. Since the beginning of the observation period, the share of tangible assets has diminished by just over 4 percentage points to around 26% of total assets. By contrast, the weight of intangible assets has risen by 5½ percentage points to 20% at the current end. This was due, above all, to an increase in corporate acquisitions, as a result of which intangible assets that are otherwise not shown in the balance sheet often have to be reported as assets.[14] These include patents and licences, for example. This item additionally comprises development costs, which must be carried as assets in line with international accounting rules. Intangible assets are of particular importance for the services sector, where they account for 34% of total assets. However, the considerable rise in intangibles in recent years is not solely an indicator of the German economy's innovative power. Just under 60% of intangible assets can be attributed to goodwill, which is reported on the asset side in the context of a subsidiary's first-time consolidation.[15] According to German commercial law, goodwill arises whenever the purchase price of an acquired equity investment exceeds the net asset value[16] of the subsidiary company, eg in order to offset positive earnings expectations.

The increase in goodwill, which is approximately equal to the rise in overall intangible assets since 2005, reflects the greater M&A activity and is therefore an indicator of a strategy

12 Additionally, the particularly low transaction costs of issues in some countries are likely to play a role here, too.
13 What is known as the golden balance sheet rule requires fixed assets to be backed by long-term equity.
14 Such items are reported as assets during purchase price allocation according to IFRS 3.
15 It is for this reason that this item plays virtually no role in the traditional financial statement statistics.
16 The term net asset value stems from the realm of company valuation and comprises the sum of money that would be required to establish a company resembling that being valued.

Selected balance sheet item distribution parameters of listed non-financial groups

Year-end data



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for external growth. Unlike in commercial law, goodwill is not subject to scheduled depreciation under the IFRS, but is to be checked annually for impairment loss, which may have to be written off on an ad-hoc basis.[17] It is striking that evidently no significant depreciations occurred for this balance sheet item during the financial and economic crisis. This is remarkable given that the heightened uncertainty about future earnings could also have had an unfavourable effect on the sustainability of goodwill. However, the rather considerable scope for discretion laid down in the IFRS makes it possible, within certain limits, to avoid depreciation on goodwill – an issue that has been criticised by Germany's Financial Reporting Enforcement Panel, among others.[18] Overall, high levels of goodwill – in particular when measured in relation to equity – can result in substantial vulnerabilities for the enterprises in question if external factors put the stability of the value of this item at risk.

Sound capital base

On the liabilities side, the equity capital ratio of groups – at just under 30% – stood at a similarly impressive level as the corresponding ratio of all enterprises in the extrapolation. However, the momentum for groups is more subdued given that the extrapolated results indicate that small and medium-sized enterprises, in particular, have significantly improved their capital adequacy in the past decade.[19] By contrast, the equity ratios of large corporations and of groups have remained virtually unchanged on aggregate since 2005. Yet listed groups already boasted a higher capital base and good capital market accessibility in the past, which in many cases apparently did not make them feel the need to expand their own funds markedly on the strength of their creditworthiness. A look at

17 Pursuant to IAS 36, impairment tests shall be carried out at least once a year, or more frequently if impairment becomes apparent, on the basis of the cash-generating units.
18 See B Thormann, "Everlasting" Goodwill: Ist die bilanzierte Nachhaltigkeit des Firmenwerts glaubwürdig?, Betriebs-Berater, 13/2014, 69, p I.
19 See Capital base of non-financial enterprises in Germany sustainably strengthened, Deutsche Bundesbank, Monthly Report, December 2013, pp 44-46.

the distribution illustrates that this applies to large groups, in particular. Three-quarters of groups exhibit even higher equity ratios than in the weighted average. Not only is the median significantly higher, it even increased by just over 4 percentage points to 46% in the nine-year observation period.

Leverage ratio down slightly

The leverage ratio, ie the ratio of debt to equity capital which reflects developments in the equity capital ratio and is used to assess the financial leverage of the return on equity, has thus far not increased in the current low-interest-rate environment. This applies both to the median and to overall distribution, three-quarters of which lie below the weighted average. This can be regarded as a sign of a persistently cautious risk policy and a good liquidity position. Following the slight increase in the leverage ratio during the severe recession in the fourth quarter of 2008 and the first quarter of 2009, groups began intensifying their recourse to internal financing during the subsequent period of economic recovery.

Revenues of German groups* and global trade

Seasonally adjusted

Sources: IMF and Bundesbank calculations. * Listed non-financial groups. 1 Adjusted for substantial changes in the basis of consolidation and the reporting sample of large groups.

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Results of the earnings analysis

Revenues of German groups closely linked with global economy

The second key aspect of the consolidated financial statement statistics focuses on the provision of quarterly information on the earnings situation of large German groups, which shows that most of these groups are strongly integrated in the global economy. Revenues have grown substantially by an annual average of 5% since 2005; growth has been disproportionately high abroad, where around 70% of total revenues were achieved in 2012 – compared with 62% in 2005. During this period, revenues increased to much the same extent as global trade. This is partly attributable to the strategic orientation of foreign activities, above all in the growth regions. In the observation period from 2005 onwards, German enterprises expanded their foreign investment abroad in emerging market economies – in particular the BRIC countries.[20] The stocks of consolidated German direct investment in the BRIC countries' non-financial sectors have more than tripled since and together now represent one-eighth of total German non-financial direct investment stocks abroad. However, German enterprises are also likely to have consolidated their market position in the traditional foreign markets, such as the United States and the EU, which continue to represent by far the most extensive share in investment abroad.[21]

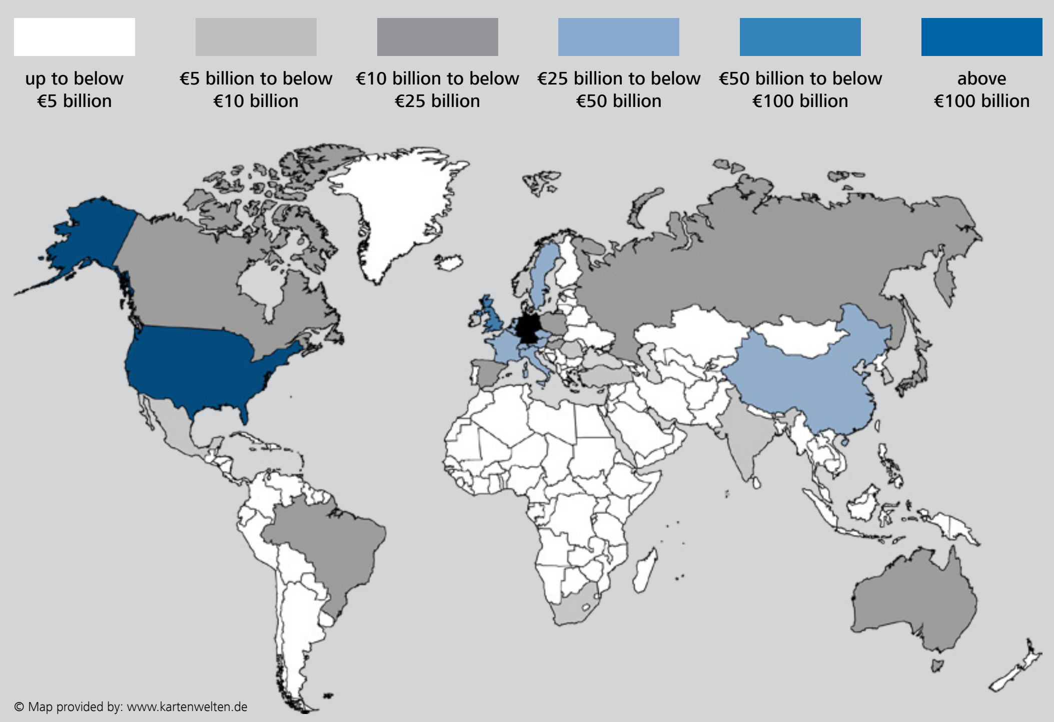
Revenue developments since 2012

Since spring 2012, revenue developments have more or less moved sideways. Following adjustment for seasonal effects as well as changes in the basis of consolidation and the reporting sample, revenues in the fourth quarter of 2013 only slightly surpassed the levels recorded in

20 The acronym BRIC refers to the four emerging market economies Brazil, Russia, India and China.
21 Around 17% of consolidated direct and indirect German foreign equity investments in non-financial corporations can be attributed to the United States, followed, at a considerable distance, by the United Kingdom (just under 8%) and the Netherlands (just over 7%).

Direct investment by German investors in non-financial corporations*

Stocks at end-2012



* Primary and secondary German direct investment abroad (consolidated), excluding participating interests in financial institutions. Direct investment stock statistics.
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the first quarter of 2012 (0.5%). The adjusted annual rate of change for 2013 was even slightly negative for the first time since the crisis year of 2009 (-0.5%); this was the case for groups in both the production sector (-0.5%) and the services sector (-0.3%). While at the beginning of the year many groups lamented, above all, the weak economic activity in a number of western European countries and a low growth momentum in other parts of the global economy, the assessment of economic conditions increasingly improved in the course of the year. However, towards the end of the reporting period, many groups experienced a decline in their business activity according to their management reports as a result of currency effects due to the euro appreciating.

Operating income according to EBIT and EBITDA

Key measures of the earnings situation in consolidated financial statement statistics are EBIT (earnings before interest and taxes) and EBITDA (earnings before interest, taxes, depreciation and amortisation), which are both commonly used internationally when analysing enterprises' earnings. EBIT indicates the operating income (before tax); by not taking into account the financial result (of interest expenses, in particular) and the other comprehensive income, financing effects and transactions that are directly recorded under equity without affecting profit or loss are excluded. Proceeding from EBIT, EBITDA additionally comprises depreciation of tangible and intangible assets, including goodwill, which eliminates a substantial part of non-cash expenses. This measure can therefore also be regarded as an approximation of an earnings-based cash flow figure. Both measures provide a basis for comparison when analysing returns that is independent of capital structure and tax burden. Furthermore, in the consolidated financial statement statistics, EBIT and EBITDA are both derived in a uniform procedure from the profit and loss account; this means that comparability is fundamentally ensured.[22]

High volatility of operating income

EBIT is a great deal more volatile than EBITDA. Special depreciation plays an important role in this context, given that it is able to strongly influence the operating income of individual reporting periods. Whereas scheduled depreciation reflects the usual loss of value of assets subject to wear and tear, special depreciation serves to recognise exceptional value impairment of all assets. This is clearly discernible, above all, in the fourth quarter of 2008, ie at the peak of the financial crisis, when operating income – adjusted for seasonal variations and changes in the basis of consolidation – plummeted by just over 55% compared with the previous quarter. However, EBITDA dropped "merely" by just under 14%. In the above-mentioned quarter, depreciation was €7 billion higher than in the same quarter of the previous year. This meant that non-financial groups, too, experienced large-scale asset losses. In the third quarter of 2012, the operating income of groups declined by a total of 50%, whereas EBITDA fell only by just under 5%. The statistical aggregate was massively affected in this case by extraordinarily high valuation losses for individual large German enterprises.

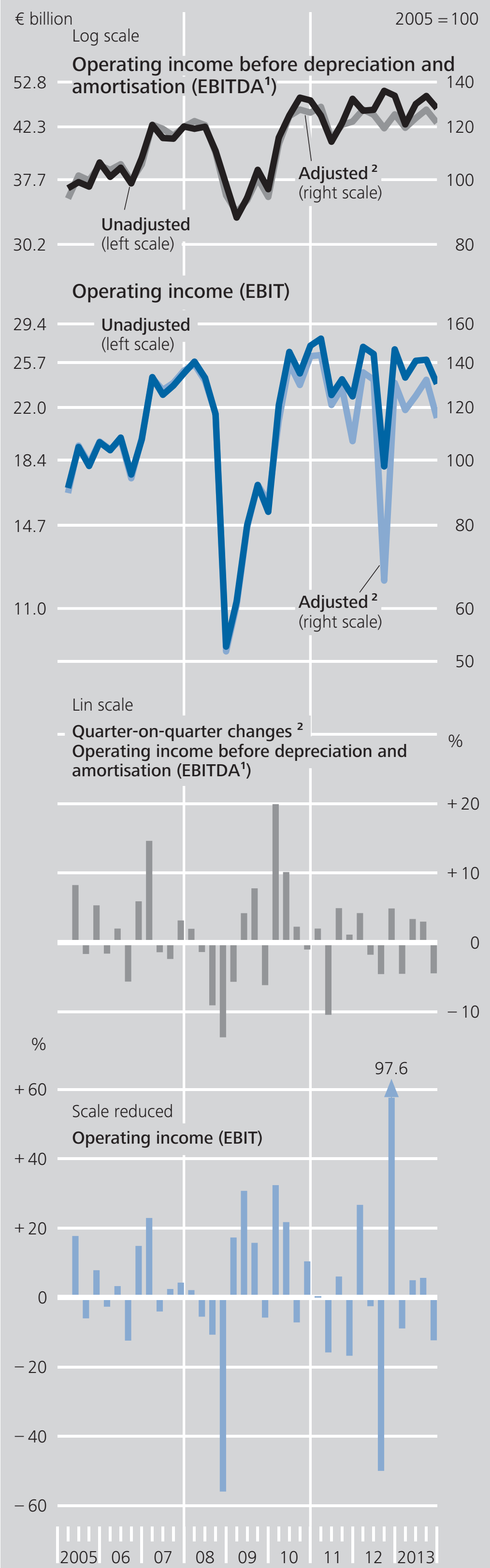
Return on sales as a benchmark for comparison

In the new statistics, EBIT and EBITDA are presented as both absolute and relative (as profitability in relation to revenues) figures. Return on sales is used as a benchmark for operational success here. Changes over time may reflect broad economic developments, but also factors specific to individual enterprises, such as the market position within the respective sector and the quality of corporate governance. Differences in groups' performance become particu-

22 By contrast, the informational value of the "earnings before" figures published by the groups themselves is often relatively low owing to the lack of strict calculation rules. See also T Kriete, T Padberg and T Werner, EBIT – eine "neue" Kennzahl in Jahresabschluss und -analyse, Steuer und Bilanzen 2002, pp 1090-1094; and N Jarolim and C Öppinger, Kennzahlenpublizität europäischer börsennotierter Unternehmen, Zeitschrift für internationale Rechnungslegung, May 2014, pp 205-211.

Earnings of listed non-financial groups

Seasonally adjusted



1 Earnings before interest, taxes, depreciation and amortisation. 2 Adjusted for substantial changes in the basis of consolidation and the reporting sample of large groups.

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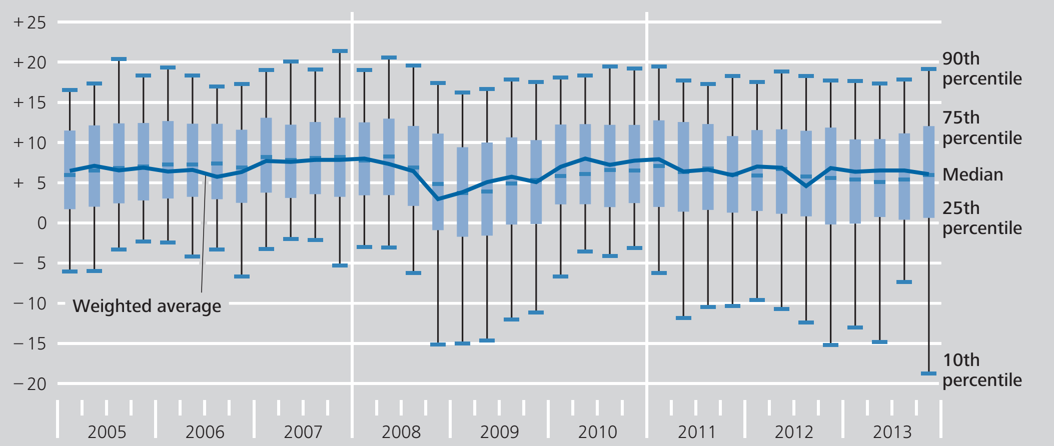
Return on sales distribution parameters of listed non-financial groups

Operating income (EBIT) as a percentage of revenues; seasonally adjusted



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larly apparent when distribution parameters are used to analyse them. Here, too, a slump is clearly discernible in the fourth quarter of 2008. On the whole, the operational return on sales measured in terms of EBIT decreased by just over 3.5 percentage points during this period after seasonal adjustment and the elimination of changes in the basis of consolidation, reaching just under 3% on the preceding quarter. It is also striking that the range of operating incomes broadened substantially. While some enterprises continued to generate two-digit returns, others had fallen into two-digit negative return territory. However, the distribution gap began to narrow again during the economic upturn from 2010 onwards. For 2013 as a whole, the operational return on sales of German groups – against the backdrop of a somewhat wider distribution – stood at an average of 6.4%.

Considerable sectoral differences

In the reporting period, the earnings development of groups in the services sector displayed a relatively stable sideways movement that was hardly affected by the financial crisis. By contrast, the cyclically more vulnerable groups of the production sector suffered more severe setbacks. In addition, the energy policy turnaround in the second quarter of 2011 caused EBIT to deteriorate by 19% for groups in the production sector; excluding energy supply companies, the decline amounted to only 3%. 2013 was a particularly successful year for groups in the services sector, which was also attributable to the absence of special effects from the previous year. Based on EBIT, the return on sales went up by three percentage points after adjustment for changes in the basis of consolidation and the reporting sample; it now stands at 6.9%. However, the return for groups in the production sector decreased slightly by 0.3 percentage point and now stands at 6.3%. This was due, among other things, to the renewed burdens that energy suppliers faced.

Income tax ratios of German groups

The groups' profit and loss accounts also contain tax expenses (current and deferred taxes) reported by the groups. Income tax payments by cross-border groups have been of particular interest for some time now given the criticism of the very low taxes paid by US enterprises abroad[23] and political initiatives combating tax evasion[24] by multinational groups. Figures from

23 See, for example, the website of the British daily newspaper The Guardian: http://www.theguardian.com/business/taxavoidance?page=5
24 Against this backdrop, an initiative was created at the international political level (G20) to combat tax evasion and tax havens with the aim of achieving adequate taxation of multinationals. For this purpose, the OECD in 2013 launched its Action Plan on Base Erosion and Profit Shifting (BEPS), which the G20 supports. See Communiqué, Meeting of Finance Ministers and Central Bank Governors (G20), Sydney, February 2014.

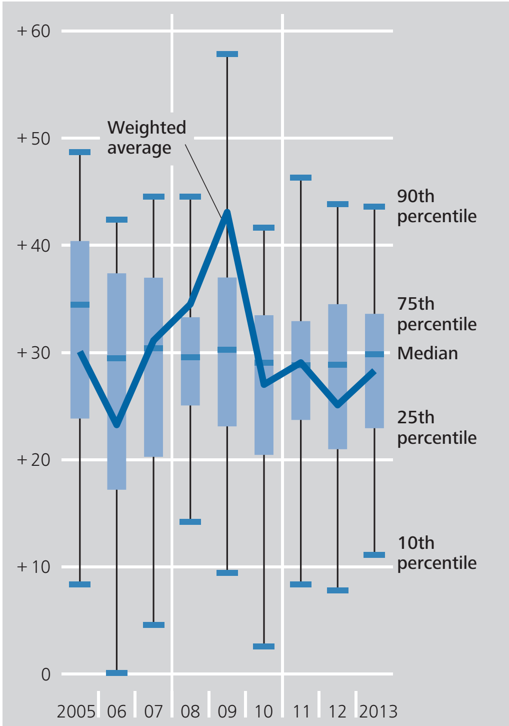
the consolidated financial statement statistics alone do not provide sufficient evidence of such strategies for the majority of German groups. A look at the distribution parameters shows that the ratio of income taxes to the groups' earnings before tax stood at just over 28% on a weighted average in 2013. The median income tax ratio, at 29.8%,[25] matched the level of the overall tax rate on the profit of corporations in Germany of around 30%.[26] Roughly 75% of the groups in the past few years recorded an implicit calculated tax rate of more than 17%. Groups mostly indicate their expected tax rates, which include taxes on income to be paid abroad, at around 28% to 31%.[27] However, income tax rates contained in the consolidated financial statements do not allow a final conclusion on aggressive accounting techniques in the form of shifting profits abroad. There are, for example, discrepancies between the pre-tax profit calculated according to the IFRS and the tax base or between current tax payments and reported tax expenses in the context of losses brought forward.

Indication of earnings developments in domestic corporate sector

The consolidated financial statement statistics can be used, not least, to obtain relatively timely indications of current earnings trends in the domestic corporate sector. Irrespective of their strong global economic integration, groups' business operations have a substantial effect on the domestic economy; conversely, the domestic economy influences these operations to a considerable extent. Whereas the domestic market accounts for a share in group revenues of just over 30%, more than 40% of the analysed groups' employees work in Germany. It is therefore not surprising that, over the last seven years, pre-tax returns have exhibited a similar growth pattern to the returns (which only became available at a later date) contained in the extrapolations.[28] However, a higher return on sales recorded by groups is generally accompanied by greater volatility.

Income tax ratio distribution parameters of listed non-financial groups

Tax expenses as a percentage of earnings before taxes



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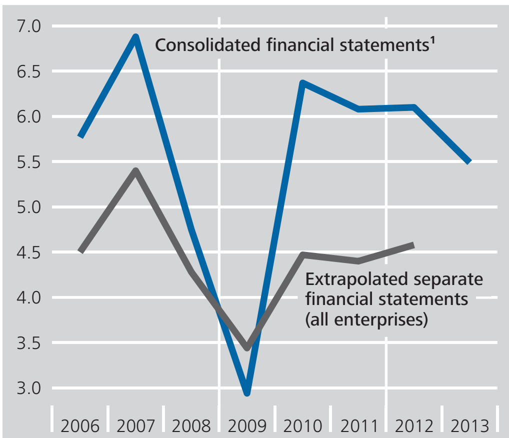
Annual result before taxes on income

As a percentage of total revenues



1 Approximately 260 listed non-financial groups.
Deutsche Bundesbank

25 Negative pre-tax profits were excluded from the calculation.
26 See Federal Ministry of Finance, Die wichtigsten Steuern im internationalen Vergleich 2013, p 18.
27 Enterprises calculate the expected tax rates for each country in order to assess their deferred taxes. In addition, a group's expected and actual tax expenses are reconciled. For this, the German tax rate or a rate consistent with the group's regional focus is used as a basis.
28 See also Deutsche Bundesbank, Monthly Report, December 2013, p 54.

Outlook

Availability of the new consolidated financial statement statistics

The consolidated financial statement statistics offer a new approach to analysing the asset and capital structure as well as the profitability of large German groups in a timely manner on the basis of consolidated data and common accounting standards, thereby providing in many respects a useful complement to the Bundesbank's financial statement statistics to date. This article has outlined the methodological and data-based principles and presented initial selected results. From now on, key figures will be regularly made available in the statistical section of the Monthly Report, in the Statistical Supplement 4 to the Monthly Report (Seasonally adjusted business statistics) and on the Bundesbank's website.[29] Hence, the Bundesbank's Statistical Information System covers a wide range of detailed statistical data and indicators on the asset and capital structure as well as the profitability of Germany's non-financial corporate sector based on separate and consolidated financial statements. It also cooperates with the European Committee of Central Balance Sheet Data Offices (ECCBSO) to provide corresponding annual data for the European economy.

Planned stages of expansion

Moreover, the consolidated financial statement statistics are due to be supplemented with additional information over time. To begin with, this may include the statement of cash flows, which allows an in-depth insight into the cash flows resulting from operational activity as well as from an investment and finance perspective.[30] Further data for preparation may include those on changes in equity, on comprehensive income as well as the breakdown of financial liabilities into bank liabilities and bonds, which, however, is possible only on an annual basis. From this, findings relevant to monetary and financial stability policy are likely to be derived on any shifts in the relative importance of groups' bank-based and market-based financing.

29 See http://www.bundesbank.de/Navigation/EN/Statistics/Enterprises_and_households/Corporate_financial_statements/corporate_financial_statements.html
30 Similar to the analysis of sources and uses of funds in the traditional corporate financial statement statistics.