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Germany's Construction Industry: Strong Growth Followed by Stagnation

by Martin Gornig and Hendrik Hagedorn

2011 was one of the construction industry's strongest years of growth since German reunification. For the year as a whole, a nominal increase in construction volume of almost eight percent is expected. The price increase is forecast at over 2.5 percent. Real construction volume in 2011 will be over five percent higher than in 2010.

However, according to current information, we can expect the construction industry to experience a break in growth in 2012. Real construction volumes will barely be higher than in 2011. This development is partly due to the phasing out of economic stimulus packages. Further, the promising announcements of support for energy-efficient modernization as part of the change in energy policy for residential construction has had more of a negative impact on the construction industry. The predicted reluctance to invest will only be overcome if the German government swiftly determines specific financing conditions for the coming years.

The construction volume calculation conducted by DIW Berlin covers production in the construction sector. DIW's analysis of development trends is not confined to the construction industry in the narrowest sense. It also includes other sectors such as steel and light alloy construction, the manufacture of prefabricated buildings, construction metal works, and specific branches of other sectors of the economy which contribute to construction work, as well as planning and other services. The definition used in this report is largely in line with that used for construction investments in the national accounts with the distinction that non-value-enhancing repairs are also included here.[1]

Residential Construction: Construction Work on Existing Buildings Dominates

As part of its traditional construction volume calculation, DIW Berlin determines the value of construction of new buildings and construction work carried out on existing buildings (Box 1). The calculations for new building volume are based on detailed model calculations, whereas work on existing buildings is captured using a difference calculation. The volume of work carried out on existing buildings was recently corroborated by extrapolation based on survey results from Heinze GmbH (a leading provider of specialist information for the construction industry).[2]

According to calculations by DIW Berlin, the new building volume in residential construction was only 31.4 bil-

1 Gornig, M., B. Görzig, H. Hagedorn, and H. Steinke, Strukturdaten zur Produktion und Beschäftigung im Baugewerbe – Berechnungen für das Jahr 2010. Endbericht des DIW Berlin. Bundesministerium für Verkehr, Bau und Stadtentwicklung (ed.): BMVBS-Online-Publikation, no. 19 (2011), www.bbsr.bund.de/cln_032/nn_629248/BBSR/DE/Veroeffentlichungen/BMVBS/Online/2011/ON192011.html.

2 Hotze, S., C. Kaiser, and C. Tiller, Struktur der Investitionstätigkeit in den Wohnungs- und Nichtwohnungsbeständen. Heinze GmbH, Celle (2011).

Box 1

DIW Berlin's Methods for Calculating the Construction Volume

New Building Volume in Residential Construction

For many years, DIW Berlin has been carrying out annual calculations for the construction sector, taking the development of the new building construction sector as a separate entity. All calculations are based on information provided by construction activity statistics. The key starting variables are based on data on the estimated pure construction costs of approved and completed residential buildings in a specific year. These data are combined to arrive at the total value of new buildings constructed over the period of one year, using a model-based approach and allowing for one-off effects. The statistics on construction backlog are used as a control variable. The costs defined here are the estimated pure construction costs. To calculate the new building volume, therefore, the difference between estimated and actual pure construction costs must be determined. The actual pure construction costs should correspond to the construction industry's production inputs and the manufacturing inputs for new housing. Additional building costs are also incorporated into the calculation using the information available. Apart from development measures and fees, these costs mainly include architectural and planning work. Further factors to be taken into account are personal contributions to the construction project and, where applicable, also undeclared work. In order to acquire information on the extent of the discrepancies between estimated and actual pure construction costs and also on the distribution of planning work between new building and construction work on existing properties, DIW Berlin analyzed a survey conducted among architects and consulting engineers which was developed specifically for this purpose.

Volume of Construction on Existing Buildings

The volume of construction on existing buildings is calculated as the difference between the total construction volume and new building volume. It includes renovation and extension projects as well as modernization and repairs on existing buildings. Using these calculations, it is possible to conduct particularly consistent comparisons over time. The model calculations on the basis of a pure differential approach lack structural information. Therefore, the results from the model calculations based on official statistics are combined with extrapolated results on modernization volumes from surveys. The extrapolation results are drawn from a study carried out by Heinze GmbH. To ensure consistency, the structural information taken from the surveys only relates to the investment part of the construction volume (not including maintenance). Based on these calculations, different structural variables are captured, within the overall construction volume, for construction work on existing properties. Initially, this only applies to 2010. Energy-efficient modernization includes measures from the following product areas: thermal insulation, replacement of windows and outside doors, re-placement of heating systems, and the installation of solar panels. Further, a residential construction project which involves work in at least ten product sectors is treated as a full modernization. In the non-residential construction sector, the threshold is 15 product sectors. Projects involving fewer product sectors are considered to be only partial modernization.

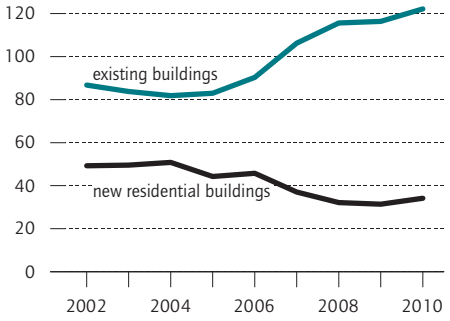
lion euros in 2009.[3] Even nominally, this is the lowest value since the mid-1990s (Figure 1). The downward trend in the new building volume in housing construction comes in waves: periods with relatively stable new building volume such as 2001 to 2004 were followed by strong slumps in new building activity. Between 2006 and 2008 alone, new construction output dropped by almost 30 percent. However, since 2009 there has been evidence of stabilization at a low level. In 2010, there was even nominal growth of almost nine percent boosting new building volume to over 34 billion euros.

Total residential construction volume, however, has been experiencing positive development since 2006 as a result of a significant increase in the volume of construction work on existing buildings. Whereas, construction work on existing buildings was at around 83 billion euros in 2005, this sum reached in excess of 122 billion euros in 2010, representing a 47 percent increase. This

3 See Gornig, M. et al., Strukturdaten zur Produktion und Beschäftigung

Figure 1

Residential Construction Volume in Germany
Nominal values, in billion euros



Source: calculations by DIW Berlin.

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New building volume is experiencing periodic slumps, while the volume of construction on existing buildings is increasing.

Table 1

Structure of Volume of Construction on Existing Buildings in 2010
In billion euros

	Residential construction	Non-residential construction	Total construction
Complete modernization	7.97	14.41	22.38
Partial modernization	100.69	28.49	129.18
Maintenance	13.53	13.98	27.50
Total	**122.19**	**56.88**	**179.06**
Including:			
Energy-related modernization	42.28	15.17	57.45
In percent			
Complete modernization	6.5	25.3	12.5
Partial modernization	82.4	50.1	72.1
Maintenance	11.1	24.6	15.4
Total	**100.0**	**100.0**	**100.0**
Including:			
Energy-related modernization	34.6	26.7	32.1

Sources: Federal Statistical Office; Heinze GmbH, model calculation by DIW Berlin 2011.

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is evidence of the increasing predominance of construction work on existing buildings in relation to the total residential construction output, which increased to 156 million euros in 2010. In that year, construction work on existing buildings made up 78 percent of the total residential construction volume. In 2002, this figure was only 64 percent.

There are a variety of reasons for the increasing share of construction work on existing properties—one important factor is the downturn in new building construction. Demographic developments have led to a decline in the demand for new housing. Furthermore, anticipated returns on investments in residential construction were low, particularly against the backdrop of weak growth in disposable income, which, in turn, led to a reluctance to invest. However, turbulence on the financial markets and the ensuing heightened insecurity led to a re-evaluation of potential returns from housing construction in comparison with other investment options. Not least as a result of this development, 2010 and 2011 saw renewed growth in building construction.

Motivated by a general feeling of uncertainty on the financial markets, private investors have preferred to invest in construction work on existing buildings, which has led to further growth in the volume of this type of construction activity over the past few years. Another important factor in the expansion of construction work on existing buildings is the steadily growing importance of energy-related modernization. This has been triggered partly by support measures established as part of climate policy and also by rising and highly volatile energy prices. The belief that energy-efficient modernization could combat climate change may also have boosted investment activity. According to analyses conducted by Heinze GmbH, energy-related modernization carried out in 2010 accounted for over a third of all investment in construction work on existing residential buildings.[4] In the construction volume calculation, this corresponds to a value of over 42 billion euros (Table 1).

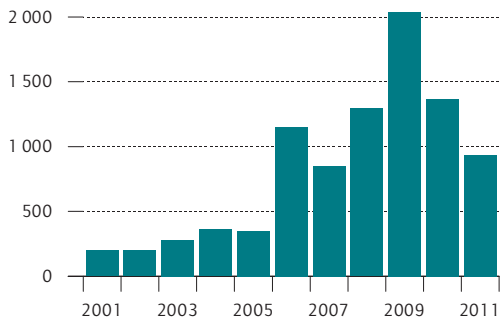
It may be assumed, therefore, that the share of energy-related modernization has experienced strong growth in the last few years. Since the middle of the last decade, subsidies have been increased dramatically as part of the support program for energy-related modernization implemented by the German government-owned development bank Kreditanstalt für Wiederaufbau (KfW). Over the past five years, sums amounting to considerably more than one billion euros per annum have been approved for this purpose (Figure 2).

In recent years, the focus of KfW construction sector programs has shifted noticeably towards construction work on existing buildings. Subsidies for residential construction which were available until 2006 as part of the grant scheme for first-home buyers were, in contrast, oriented towards construction of new buildings. This change

4 Hotze, S. et al. Struktur der Investitionstätigkeit.

Figure 2

Government Subsidization of KfW Programs for Energy-Efficient Construction and Modernization
In million euros



Source: Federal Ministry of Transport, Building and Urban Development (BMVBS).

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Subsidies for KfW programs for energy-efficient construction and modernization have been declining since 2009.

Table 2

KfW Programs and Construction Volume
In million euros

	Loan volume	Subsidized investments[1]	Construction volume
KfW support program for energy-efficient modernization, and volume of energy-efficient modernization in the residential construction industry (existing buildings)			
2008	3 953	4 552	
2009	5 769	7 761	
2010	5 092	7 042	42 280[3]
2011[2]	2 407	3 388	
For information:			
1st half of 2010	2 996		
1st half of 2011	1 114		
KfW program for energy-efficient construction, and volume of new buildings in the residential construction industry			
2008	2 389	8 648	32 160
2009	3 094	10 607	31 390
2010	3 654	14 288	34 140
2011[2]	3 087	12 728	34 618
For information:			
1st half of 2010	2 050		
1st half of 2011	1 807		

1 Total financed construction activity.
2 Extrapolation based on the first three quarters.
3 Modernization volume.
Sources: KfW, calculations by DIW Berlin.

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in funding policy has contributed to a shift in the distribution of residential construction volume in favor of construction work on existing buildings.

Support Measures Undergoing Change

Over the last two years, there has been a decline in German government subsidization of KfW programs for energy-efficient construction and modernization. The subsidy dropped from over two billion euros in 2009 to under a billion in 2011. Currently, however, there are plans to increase the funds available for KfW programs. In 2012, the government subsidy allocated to the KfW for this sector will be 1.5 billion euros. Additionally, as part of the transformation of energy systems announced by the German government, a further increase in funding is planned. From 2012, subsidies will be transferred to the KfW from the Energy and Climate Fund provided by revenues from trading in CO_2 emission certificates. In future, the size of this fund is set to increase with the growing shortage of emission trading rights. For 2013, the German government has already budgeted for 3 billion euros for this purpose. However, the current certificate price is around ten euros, considerably lower than previously anticipated and, also in the medium term, significantly lower emission trade revenues are forecast.

Subsidized Investment as an Early Indicator of Construction Volume

For the most part, the KfW uses government subsidies to reduce the cost of loans. However, this on its own is not enough to guarantee actual demand for financing. Demand is more heavily dependent on a wide range of factors in the construction industry.[5] The table below presents the actual approved credit volume (irrespective of government subsidization) and the related subsidized investments. The subsidized investments also include construction projects which do not involve energy-related modernization and are, therefore, not eligible for financing. Therefore, investment volume exceeds lending many times over, particularly in the construction of new buildings.[6]

5 The sensitivity of investment activity to government subsidies and any possible principle of additionality are not part of this analysis. Only the development of approved loans over time is taken into account. For forecasting the development of construction volume, the leverage effect of state subsidies is not significant.

6 Further, the size of KfW loan that is eligible for subsidy is restricted, in the case of new buildings, to 50,000 euros and, in the case of construction work on existing buildings, to 75,000 euros.

Table 2 also shows the volume of energy-related modernization in the respective sectors. There is evidence that the subsidized share of the total volume is quite substantial in some areas. In 2010, energy-efficient modernization was carried out on existing residential buildings to a value of more than 42 billion euros against a subsidized investment volume of over five billion euros. The figure for new residential buildings was even higher with a construction volume in 2010 of 34 billion euros against subsidized investments accounting for 14 billion.

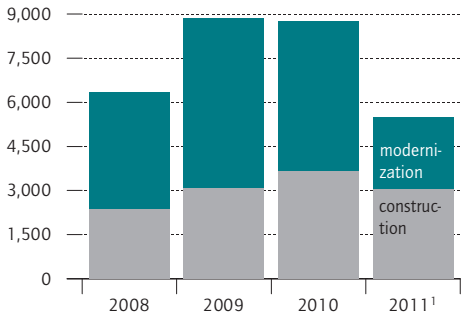
It must be taken into account, however, that the investment volume shown here is not directly comparable with the construction volume for the same year as the investments currently only represent planned expenditure to be made over a period of time which cannot be predicted accurately. This means that no precise correlation between subsidy and residential construction volume can be derived from the figures presented here. However, it can be assumed that subsidized construction measures will turn into construction volume in the future. The time frame for this is likely to be considerably longer for new buildings than for construction work on existing buildings.

The amount of investment registered by the KfW via loan commitments can, therefore, be ascribed a forecast function. This function also applies to construction on existing properties which makes up the lion's share of construction investments and for which there have been no early indicators so far. The commonly applied bundle of indicators, i.e., building permits, orders received, and order backlog do not give a complete picture of the development of construction activity. The building permits upon which forecasts are based only ever refer to new buildings as only a small proportion of construction projects on existing buildings require permits. Yet the share of residential construction volume accounted for by new buildings is, at 22 percent, relatively low. Data on companies' orders is also only collected for the construction industry as a whole. When compared against the total number of firms operating in the construction industry as a whole, a disproportionate number focus on the construction of new buildings. New residential buildings make up around a third of the construction industry as a whole whereas the volume of work on existing buildings stands at only twelve percent.

Taken on its own, this circumstance does not present any problems for forecasting. However, if the segment of construction work that can be analyzed using indicators covers a different time frame than the rest of construction work, the forecasts based on these indicators will necessarily be distorted. This seems to have occurred with the data on KfW financing. Against this backdrop, in the current situation the KfW data provides valuable additional information for forecasting construction investments.

Figure 3

KfW Loan Commitments for Energy-Efficient Construction and Modernization
In million euros



1 Extrapolation based on the first three quarters.
Source: KfW.

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2011 saw a dramatic decline in the number promotional loans approved for modernization.

Bring-forward Effects Play an Important Role

The development of promotional loans summarized in Figure 3 shows that lending for the construction of new buildings has been far more stable than for modernization over the past few years. Notably, in 2011, the number of promotional loans approved for modernization declined sharply.[7] Against the backdrop of a sound construction economy, this is initially quite surprising. Considering the low interest rate and the favorable labor market situation, the general climate in the construction industry is at least as good as in previous years. This apparent downturn in modernization projects could primarily be traced back to bring-forward effects last year followed by investment reluctance this year because, from 30 June, 2010, subsidies for modernization in compliance with KfW Standard 130 came to an end. For many investors who had planned to carry out modernization according to this standard, this may have acted as an in-

7 Although the value for 2011 is only an estimate on the basis of the first three quarters, a comparison of the half year values in Table 2 suggests that there are no significant shifts in the size of the allocation over the course of the year.

centive to apply for funding before the deadline. The increase in government subsidies that is planned for the coming years and the ongoing debate on the introduction of special depreciation have also led to the investment reluctance we are now observing. Both measures hold out the prospect of considerable cost savings for developers if they wait a little with the implementation of energy-efficient modernization. The current stance in the discussion is that the introduction of special depreciation would result in investment costs being cut by 16 percent for rental properties and 35 percent for owner-occupied properties.[8]

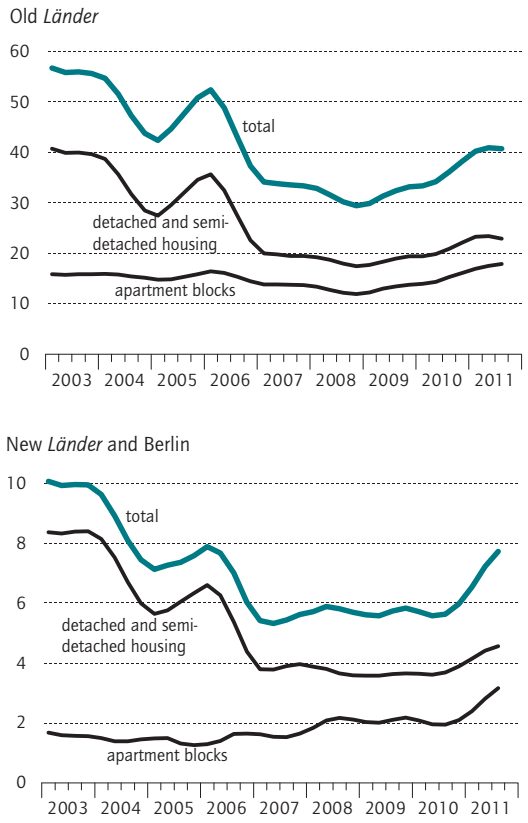
A large share of investments recorded by KfW last year may not actually have been implemented until this year, which may have contributed to the continued dynamic growth that has been observed. However, the financing figures for 2011 suggest that we are more likely to see a decline in investment activity next year. If we also take into account that the reluctance to carry out energy-efficient modernization has now spread to other construction areas,[9] we should expect more subdued growth in the development of investment in construction work on existing residential properties next year.

In contrast to the situation with existing buildings, there has only been a slight decline in promotional loan commitments for new buildings this year. However, KfW promotional loan figures also indicate a slight downturn in new building construction activity. However, this will not necessarily have an immediate negative impact next year as the range of investment plans for new buildings is greater than those for construction work on existing buildings.

Building permits, at least, signal continued robust development (Figure 4). 2011 saw an increased number of building permits granted, particularly in eastern Germany. In western Germany, the figures remained at a higher level than in previous years. If we also take into account the sustained favorable financing situation, overall we can definitely expect stable development in the construction of new residential buildings in 2012.

Figure 4

Building Permits for Residential Construction
In 1,000 properties per quarter[1]



1 Seasonally adjusted according to the Berlin procedure (BV4) (methodology and software for decomposing economic time series).
Sources: Federal Statistics Office, calculations by DIW Berlin.

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In 2011, the number of building permits approved for residential construction increased considerably, particularly in eastern Germany.

Residential Construction Still Showing Little Growth

Despite these indicators of new residential construction, the growth rate of the entire residential construction volume next year is forecast to be considerably lower than in 2011, for which real growth of 6.3 percent is expected. This is primarily due to adverse weather conditions since 2010 was a year with an early onset of another long winter. At the same time, the first quarter of 2011 was marked by backlog effects. The result of this is that the construction volume in 2011 is extraordinarily high, particularly in comparison to the previous year. In view of this special effect, a significantly lower growth

8 Neuhoff, K., H. Amecke, A. Novikova, and K. Stelmakh, „Energetische Sanierung: Handlungsbedarf auf vielen Ebenen," Wochenbericht des DIW Berlin, no. 34 /(2011).

9 This applies for instance to full modernizations, which make up around ten percent of investments in existing buildings.

Table 3

Construction Volume in Germany

	2008	2009	2010	2011[1]	2012[1]	2009	2010	2011[1]	2012[1]
	In billion euros at current prices					Change compared to the previous year in percent			
Total construction volume	279.32	278.35	289.96	312.71	317.24	–0.3	4.2	7.8	1.4
Old Länder	225.25	224.22	233.92	252.64	256.68	–0.5	4.3	8.0	1.6
New Länder and Berlin[2]	54.07	54.14	56.04	60.08	60.56	0.1	3.5	7.2	0.8
	Index 2000 = 100								
Price levels	115.71	116.79	118.44	121.56	123.32	0.9	1.4	2.6	1.4
Old Länder	115.37	116.48	118.15	121.30	123.12	1.0	1.4	2.7	1.5
New Länder and Berlin	117.16	118.09	119.65	122.66	124.18	0.8	1.3	2.5	1.2
	In billion euros at 2000 prices								
Total construction volume	241.39	238.34	244.83	257.25	257.25	–1.3	2.7	5.1	0.0
Old Länder	195.23	192.49	197.99	208.27	208.49	–1.4	2.9	5.2	0.1
New Länder and Berlin	46.15	45.84	46.84	48.98	48.76	–0.7	2.2	4.6	–0.4
By construction segment									
Residential construction	127.49	126.04	131.13	139.43	140.04	–1.1	4.0	6.3	0.4
Old Länder	109.34	108.12	112.56	119.76	120.24	–1.1	4.1	6.4	0.4
New Länder and Berlin	18.15	17.92	18.57	19.66	19.80	–1.3	3.6	5.9	0.7
Non-residential construction	113.89	112.30	113.70	117.82	117.21	–1.4	1.2	3.6	–0.5
Old Länder	85.89	84.38	85.43	88.51	88.24	–1.8	1.3	3.6	–0.3
New Länder and Berlin	28.00	27.92	28.27	29.31	28.96	–0.3	1.2	3.7	–1.2
Including: *By producer group*									
Construction sector	72.82	71.10	70.03	73.84	74.14	–2.4	–1.5	5.4	0.4
Old Länder	55.65	54.07	53.20	56.38	56.68	–2.8	–1.6	6.0	0.5
New Länder and Berlin	17.17	17.03	16.83	17.62	17.64	–0.8	–1.2	4.7	0.1
Finishing trade	96.96	97.01	101.82	106.73	106.25	0.1	5.0	4.8	–0.5
Old Länder	79.14	79.13	83.10	87.48	87.23	0.0	5.0	5.3	–0.3
New Länder and Berlin	17.82	17.88	18.72	19.48	19.27	0.3	4.7	4.0	–1.1

1 Extrapolation for 2011. Forecast for 2012.

2 The distribution is according to the location of the construction companies.
Sources: Federal Statistical Office, calculations and estimates by DIW Berlin.

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Growth rates for 2012 are expected to be significantly lower than for 2010 and 2011.

rate is to be expected in 2012. Another factor is the above-mentioned reluctance to modernize. This, too, will ensure that construction activities next year will only slowly regain momentum, although the general climate in the construction industry should also be favorable next year. Nevertheless, growth next year will, therefore, probably be only 0.4 percent (Table 3). This estimate differs considerably from the forecasts by other institutes and research groups. The growth rate for residential construction in the Joint Economic Forecast Project Group (Projektgruppe Gemeinschaftsdiagnose) for 2012 was still predicted as 2.3 percent.[10] The German Council of Economic Experts (Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung) even forecasts 2.9 percent in its latest report.[11] The diverging assessment by DIW Berlin may be due in particular to the more pessimistic estimate concerning construction work on existing residential buildings.

Non-Residential Construction: Economic Stimulus Packages Being Phased Out

According to model calculations by DIW Berlin, the new building volume in commercial and public sector construction has tended to develop differently than that of residential construction (Figure 5). There were various

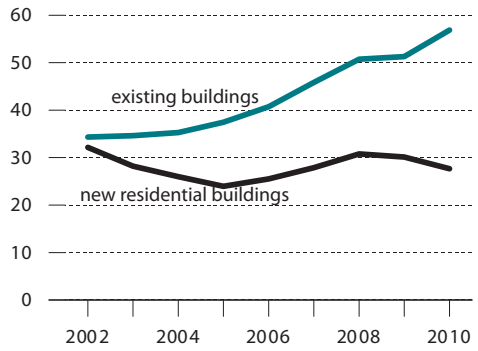
10 Projektgruppe Gemeinschaftsdiagnose, Gemeinschaftsdiagnose Herbst 2011: Europäische Schuldenkrise belastet deutsche Konjunktur, 2011.

11 Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, Verantwortung für Europa wahrnehmen. Jahresgutachten 2011.

Figure 5

Construction Volume for Non-Residential Buildings in Germany

Nominal, in billion euros



Sources: Federal Statistics Office, calculations by DIW Berlin.

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Work on existing buildings is gaining significance in non-residential construction, too.

phases to the change in new construction activities. From 2003 to 2005, the nominal new building volume for non-residential properties decreased significantly. It fell from 32 billion euros to around 24 billion euros. With the general economic upswing in 2006, however, construction of new non-residential buildings also increased. In 2007 and 2008, growth rates continued to rise and were at around ten percent for each year. Conversely, 2009 and 2010 saw a significant drop in new building volume for non-residential buildings. One decisive factor here was the slump in new construction of production sites in the wake of the crisis in the export sector.[12]

Development of construction work on existing buildings in the commercial and public sectors followed a similar pattern to that of residential buildings. It has been increasing tangibly since 2002. The rise was particularly strong between 2005 and 2008. Even in the crisis year of 2009, construction work on existing non-residential buildings rose slightly again. Growth was extremely positive in 2010, not least thanks to economic stimulus packages in the public sector and support measures in commercial construction. At a level of almost 57 billion euros, the volume of construction on existing buildings reached a record peak.

The gap between construction work on existing and new buildings thus continued to widen also in non-residential properties. The highest increases in the share of construction work on existing buildings are observed during economic slumps. This applies to the period from 2002 and 2005 as well as more recently to the years 2009 and 2010. Although existing buildings only accounted for around half of the construction volume in the commercial and public sectors in 2002, the share of construction work on existing non-residential properties in 2005 was over 60 percent. In 2010, construction work on existing buildings reached a share of more than two thirds of all non-residential construction.

However, the predominance of construction work on existing buildings in non-residential construction is significantly lower than in residential construction, where the share comes close to 80 percent. Similar to in residential construction, the incentive of energy-efficient modernization plays a major role in investment in non-residential construction. If the shares for investments, as calculated by Heinze GmbH, are transferred to the Construction-Volume Account, the volume of energy-efficient modernization in 2010 exceeds 15 billion euros. In other words, more than one in four euros invested in constructed work on existing non-residential buildings is spent on energy-efficient modernization.

Commercial Construction Stagnates, Public Sector Construction Declines in 2012

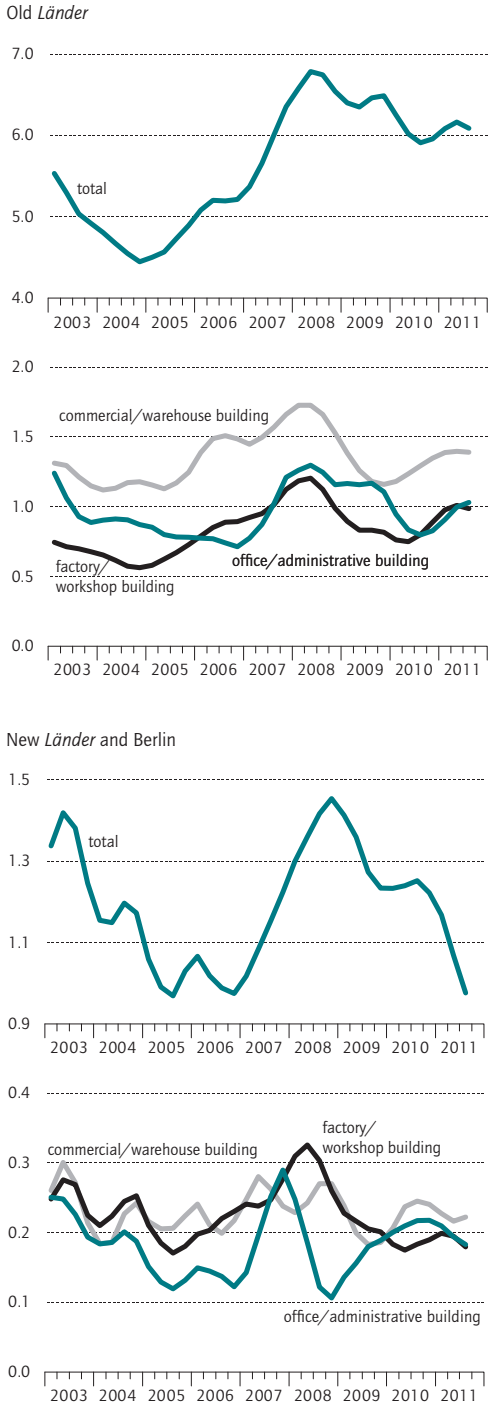
The significance of modernization measures in commercial construction is relatively low, however. Here, the share of overall construction work on existing buildings was only 21 percent. Apart from the funding allocated in the first economic stimulus package, these measures are not state funded in commercial construction, either. Rather, it is energy prices and expectations regarding future development that are behind modernization being considered a good investment. But this factor alone does not determine the development of non-residential construction. In structural terms, traditional non-energy-related areas still carry significantly more weight. In view of the faltering economy and uncertainty due to the debt crisis, no increase in investment is to be expected here in the foreseeable future, however. Although building permits showed a relatively stable development in 2011, it still remains to be seen whether the projects approved will also come to fruition in these times of economic uncertainty (Figure 6).

Unlike in the commercial construction sector, subsidization of building modernizations is a significant factor for public sector construction. Here, however, programs

12 See Gornig, M. et al., Strukturdaten zur Produktion und Beschäftigung.

Figure 6

Permits for Non-Residential Construction
Construction costs in billion euros per quarter[1]



1 Seasonally adjusted according to the Berlin procedure (BV4).
Sources: Federal Statistical Office, calculations by DIW Berlin.

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Particularly in eastern Germany, the phasing out of the economic stimulus package is noticeable from the volume of building permits.

Table 4

KfW's Program for Energy-Efficient Construction in the Public Sector (Existing Buildings)
Loan commitments in million euros

	Total lending	Investment volume	Modernization volume (nominal)
2007	28	57	
2008	85	133	
2009	145	229	
2010	106	206	9,070
2011[1]	108	145	

1 Extrapolation based on the first three quarters.
Sources: KfW, estimates by DIW Berlin.

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Compared to the total modernization volume, the support program for energy-efficient construction is of only minor significance.

implemented by the KfW development bank appear to have played only a minor role over the past few years. As shown in Table 4, subsidized investments make up only a small fraction of all the modernization measures carried out and consequently also give very little indication of further development. The share seems to be low partly because the economic stimulus packages acted as the decisive incentive to modernize in public sector construction over the past few years. Distributed over the last three years, an investment package of over ten billion euros was provided for modernization.[13] A substantial part of this investment program was not implemented until 2011.

Since these subsidies earmarked for municipal budgets will no longer be available as of next year, there is likely to be a significant decline in modernization of buildings in the public sector then. Instead, state-funded investments are set to concentrate on areas where there is room for improvement. Yet, no real revival of public investments is to be seen at present. Rather, it is to be assumed that despite this year's economic upturn, many local authorities are unlikely to initiate many additional investment projects next year. Generally, the heterogeneity of the local authorities and their notorious financial constraints cannot be ignored. Specifically in eastern Germany, we have not seen an extensive improvement in the financial situation of the local authorities this year due to the low enterprise density.

13 See Gornig, M. and H. Hagedorn, „Konjunkturprogramme: Stabilisierung der Bauwirtschaft gelungen, befürchtete Einbrüche bleiben aus," Wochenbericht des DIW Berlin, no. 47 (2010).

Box 2

DIW Berlin's Methods for Forecasting the Construction Volume

The forecast for development trends in construction volume is embedded in the macroeconomic forecast by DIW Berlin[1]. Consequently, in an initial step, projections of construction investments are carried out, which can then be presented consistently in the system of national accounts. Indicator-based statistical models are used for forecasting construction investments. The volume of commercial buildings, for instance, is predicted by performing a regression with an autoregressive term and lagged values of the pertinent indicator. The forecast equation is generally expressed as follows:

$$y_t = \alpha + \sum_{i=1}^{n} \beta_i y_{t-i} + \sum_{j=1}^{m} \gamma_j x_{t-j} + \varepsilon_t,$$

where y_t is the value to be predicted, x_t the indicator, and ε_t the statistical error term. The parameters α, β_i, and γ_j are estimated.

The delay lengths n and m (in years) are determined using the autocorrelation and/or cross correlation function. The various specifications are also evaluated according to the information criteria available.

The forecast quality is checked using ex-post forecasts. The specifications with the least square deviation of the forecast values from the actual values are then used for the forecast.

The backlog of orders and volume of building permits in residential construction have proven to be suitable indicators for forecasting residential construction, while for commercial construction, investment in equipment, capacity utilization, and orders and/or building permits for non-residential properties are taken into consideration.[2] On the other hand, construction in the public sector is not determined using indicators, but it is derived from the forecast of government accounts, bearing in mind both government revenue and economic stimulus packages.

The individual indicators sometimes lead to very different results. Moreover, construction investment is largely shaped by legislative frameworks such as the discontinuation of the grant scheme for first-home buyers, changes to which can only be inadequately depicted in these models. Therefore, these statistical procedures serve only as an indicator for the forecast. The picture for the individual aggregates of the construction investment is then matched with the other aggregates of the national accounts in a further step.

In the final step, the forecast results are transferred to the model of the construction volume calculations. Additionally, also taking into account the characteristics of non-invested construction work in the economic cycle, development trends on the demand side are taken into consideration. More detailed information on building permits and the order backlog is used to differentiate according to further structural characteristics. This makes it possible to predict different developments between eastern and western Germany and between individual production groups, such as the construction sector as a whole and the finishing trade.

1 On the method, see, for example, Rapach, D.E. and M.E. Wohar, "Forecasting the Recent Behaviour of U.S. Business Fixed Investment Spending: An Analysis of Competing Models," Journal of Forecasting (2011): 26, 33-51; for recent findings, see Fichtner, F., S. Junker, K. Bernoth, K. Brenke, C. Dreger, A. Erdmann, C. Große Steffen, H. Hagedorn, B. Jochimsen, and K. Pijnenburg, "Herbstgrundlinien 2011," Wochenbericht des DIW Berlin, no. 40 (2011).

2 See Döpke, J., U. Fritsche, J. Gottschalk, E. Langmantel, B. Loose, and C. Schumacher, "Indikatoren zur Prognose der Investitionen in Deutschland," Kieler Arbeitspapier, no. 906, (Kiel: 1999).

The weakness in public sector construction is also evidenced by building permits. For the whole of Germany, their value in the first half of 2011 was 20 percent lower than that of the previous year. This decrease is also reflected in the index for building permits for all non-residential construction. In eastern Germany, the decline was particularly noticeable. Thus, prospects for public sector construction in the East are bleak. In the West, conversely, in view of constant building permit figures, it can be expected that at least to some extent the investments which have been withheld will now be forthcoming. Nevertheless, for western Germany, too, a decline is to be expected next year.

The construction volume for non-residential buildings is expected to increase again in 2011 by a total of 3.6 percent. However, a decline in public sector construction and the cautiousness of investors in commercial construction will have an impact in 2012. The real decline to be seen then is estimated at around half a percent.

Strong Overall Growth in the Construction Industry in 2011

2011 will prove to be one of the years with the strongest growth for the construction industry since reunification. For the year as a whole, growth of the construction volume is forecast at a nominal 7.8 percent. The annual average price increase is expected to be over 2.5 percent. This means the real construction volume will increase by over five percent in 2011. This favorable development stems from an overlap of positive impetus for growth from all areas of the construction sector. Not only does residential construction continue to be developing very positively, but commercial construction is also currently still supported by the economic outlook. In public sector construction, the remains of the economic stimulus packages are already having a procyclical effect.

The overall growth rate in the old Länder is somewhat higher. Primarily because of less dynamic growth in residential construction, development in the new Länder in 2011 remains below average. But here, too, real growth will be at around 4.5 percent.

In 2011, the construction sector as a whole may also finally profit again from growth of the construction volume. After a decline in the past few years, the construction sector should show above-average real growth at almost six percent. In the finishing trade, on the other hand, the upward trend that began in 2010 continues.

Stagnation Expected in 2012

Most of the current forecasts for investment in construction next year anticipate a continuation of the growth process, albeit at a lower level. The German Council of Economic Experts predicts a real growth rate of 1.5 percent for 2012, while the Joint Economic Forecast expects growth of 1.3 percent.[14] These relatively optimistic estimates can be largely attributed to the indicators used in these reports—namely, details of building permits and orders received by larger companies in the construction industry. Both are areas that reflect the development of new buildings above all. The narrow focus on new building activity and the construction industry is an increasingly poor indicator of the overall development of construction investment and/or the construction volume, however, since construction work on existing buildings is becoming increasingly important and is subject to other development trends.

Taking better account of the data on KfW financing could bring an improvement in forecasting. In the past few years, KfW loans have gained growing importance and now play a role in a significant share of all construction work carried out. Consequently, they are also of increasing interest for construction industry forecasts. One decisive factor here is that the statistics on financing by the KfW also provide information about planned construction measures on existing buildings. Therefore, they represent a source of information that provides more content than existing sets of indicators. The lead time of the plans to invest approved by KfW can sometimes be over a year.

On the basis of the expanded set of indicators and according to the information available at present, a break in the growth process of the construction industry is expected in 2012. Overall, a stagnation of the real construction volume is predicted for 2012. On the one hand, this is accounted for by the general slowing of the economy in Germany. On the other hand, the promising announcements of support for energy-efficient modernization as part of the change in energy policy are currently causing a reluctance to make investment plans. This reluctance to invest in measures for energy-efficient modernization in particular will only be overcome if the German government swiftly determines the specific financing conditions for the coming years.

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14 Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, Verantwortung für Europa wahrnehmen; Projektgruppe Gemeinschaftsdiagnose, Gemeinschaftsdiagnose Herbst 2011.

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