



Chapter **10**

HOUSING AND  
CONSTRUCTION

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# Highlights

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House prices increased by an average of 5% in advanced economies in 2017 and by 4% in emerging markets.

Between the fourth quarter of 2017 and the first quarter of 2018, house prices rose by 4.5% in the euro area and by 4.7% in the EU28.

The median price for new single-family units in the US was \$323,100 in 2017, an increase of 5.0% over 2016 (\$307,800). The mean price was \$384,900, up by 6.7% (\$360,900).

The Euroconstruct region's new-residential-construction subsector grew by more than 10% in 2017, the biggest increase of all the construction subsectors.

Between April 2017 and April 2018, construction spending increased by 1.8% in the euro area (+2.1% in civil engineering and building construction, +1.8%) and 0.9% in the EU28 (1.6% in civil engineering and +0.7% in building construction).

A total of 78.6 million m<sup>2</sup> of new residential space was put in place in the Russian Federation in 2017, about the same as in 2016.

The goal of the "Housing for Russian Family Programme" is to build 500,000 two-room apartments, beginning in 2018, and to put in place 120 million m<sup>2</sup> of residential space per year, by 2024.

All construction sectors of the US housing market improved in 2017. Beginner or starter housing remains weak, however, and the quantity of dwellings being built is insufficient to match population growth.

The number of US household formations increased in 2017 but remains less than the historical average.

In Canada, federal, provincial and local governments introduced regulations in 2017 designed to dampen rising house prices and valuations, including a nationwide mortgage stress test, a foreign buyer's tax, and rent controls.

The Canadian housing market is projected to be stable, even with the implemented regulations, new directives to be employed, and the potential of interest rate increases.



## 10.1 Introduction

In many countries, the new construction and remodelling housing markets are the largest value-added markets for wood products, and housing is a primary indicator and catalyst of economic activity for overall economies. Thus, economic projections and house-price analysis may provide insights into house construction and remodelling markets.

Szemere (2018) reported that global real residential property prices increased by 2% between end-2016 and end-2017 and were 7% higher in 2017 than before the global financial crisis. House prices in advanced economies increased by an average of 5% in nominal terms in 2017 and by 3% in real terms. Canadian house prices increased modestly compared with those in the US and the euro area. House prices in emerging market economies increased by an average of 4% in nominal terms in 2017 and by 1% in real terms; BIS (2018) noted that prices decreased noticeably in the Russian Federation. Brondino (2018) reported that house prices rose by 4.5% in the euro area and by 4.7% in the EU28 from the fourth quarter of 2017 to the first quarter of 2018. US existing-house prices increased by an average of 2.9% in 2017 (Federal Reserve Bank of St. Louis, 2018a) and overall US housing prices grew by 5.8% (Mortgage Bankers Association, 2018).

The World Bank (2018a) reported that global growth has eased but remains robust. The growth rate of global GDP was projected at 3.1% in 2018, easing to 2.9% by 2020.

GDP is projected to grow by 2.2% in 2018, 2.0% in 2019 and 1.7% in 2020 for advanced economies; by 2.1% in 2018, 1.7% in 2019 and 1.5% in 2020 in the euro area; and by 2.7% in 2018, 2.5% in 2019 and 2.0% in 2020 in the US (World Bank, 2018a). Canada's GDP growth is estimated at 2.1% in 2018 and 2.2% in 2019 (IMF, 2018; OECD, 2018). The Russian Federation's economic recovery continues, but growth prospects are modest (World Bank, 2018b). The World Bank projects that Russian GDP will grow by 1.5-1.8% in 2018-2020, with consumer demand expected to be the primary driver; the country's poverty rate is forecast to decline slightly. These projections are based on increasing oil prices in the near term and macroeconomic stabilization, which would support economic growth.

## 10.2 European construction market

### 10.2.1 Review and outlook

The residential construction sector serves an estimated 474 million persons and 207 million households in the



Euroconstruct region.<sup>14</sup> The housing stock is about 235 million units, of which nearly 8% are second homes and 6% are vacant (Euroconstruct, 2017, 2018). An estimated 1.6 million units were completed in 2017, yielding an average of 3.4 new dwellings per 1,000 people (Euroconstruct, 2018). The low number of dwellings started and completed affects the construction sector and many others.

According to the 2017 "State of Housing in the EU" report, housing has become the greatest expense for many Europeans. As in the US, under-building results in constrained inventories and higher prices for new and existing houses. Migration, building regulations, labour shortages and the decreased availability of building lots are additional factors affecting house prices (Housing Europe, 2017). The global trend towards urbanization may also affect future European housing construction. Napolitano *et al.* (2018) reported that more than half the global population now lives in cities – and 75% of Europeans live in urban centres, up substantially from about 60% in the 1960s.

It may take time for stronger construction growth to occur in Europe. The numbers of building permits and starts have trended downward in recent years, and the outlook for new residential starts is for a decline in the longer term. This contrasts with new housing completions, the number of which is forecast to rise. France, Germany, the UK, Sweden and Spain (in descending order, by share) were estimated to account for 59% of all residential completions in 2017 (Euroconstruct, 2018). Möbert (2018) estimated a 1-million unit deficit in existing housing in Germany, the second-largest housing market in the euro area (as measured by permits and completions) after France.

In addition to lacklustre forecasts, the type of structures built has changed recently, with more flats than 1+2 family

<sup>14</sup> The Euroconstruct region comprises 19 countries. The western subregion consists of Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the UK. The eastern subregion comprises the Czech Republic, Hungary, Poland and Slovakia.

dwellings<sup>15</sup> completed. In Germany, for example, Dorffmeister (2017) projected the quantity of 1+2 family dwellings built to decline due to the aging of the population, declining household size, substantial reductions in state subsidies, and rapid increases in land prices and construction costs.

House construction and sales markets are greatly influenced by government policies in several euro-area countries. In France, for example, 60% of sales in 2016 were associated with public programmes. France has also implemented new directives to spur affordable housing (with a target of 80,000 flats for youth by 2023) and new construction (Yacoubi, 2017). Similarly, the Nordic countries of Denmark, Finland, Norway and Sweden all have programmes for affordable housing and new construction, such as housing allowances and favourable mortgage terms and stipulations for certain groups (e.g. disabled people, students, and people with inadequate resources). Such programmes may partly explain the high completion rates for dwellings in Nordic countries: the rate is 6.6 units per 1,000 people in Finland, 6.5 units in Norway and Sweden, and 3.8 units in Denmark, compared with the aggregate rate for the Euroconstruct region of 3.4 units per 1,000 people (Pajakkala, 2018).

The total value of the Euroconstruct region's construction industry was estimated at €1,521 billion in 2017. Even though new housing construction remains historically tepid in the Euroconstruct region, output increased by 3.9% in 2017. New residential construction grew by more than 10% (averaging more than 9.7% across 2016 and 2017), leading all construction subsectors in growth. Residential remodelling is also a bright subsector, particularly in western and northern Europe, due to the aging of the housing stock. Looking forward, construction growth is projected in all Euroconstruct countries in 2018 (Euroconstruct, 2018).

New residential construction accounted for 42.6% of total new construction spending in 2017, non-residential construction for 34.4% and civil engineering for the other 23%. Residential remodelling accounted for 55.8% of total construction spending in 2017 (more than 25% of Europe's total construction market value), non-residential remodelling for 31.9% and civil-engineering remodelling for 18.7% (Euroconstruct, 2018). Grandovska (2018) reported that, between April 2017 and April 2018, construction spending increased by 1.8% in the euro area and by 0.9% in the EU28. The gains in both areas were due to improvements in the civil-engineering and building construction subsectors.

Total spending on civil engineering is forecast to increase by 4.4% in 2018, 4.5% in 2019 and 2.5% in 2020 and total non-

TABLE 10.2.1

### Construction spending forecast, Euroconstruct region, 2018-2020 (€ billion)

	Change (%)					
	2018e	2019f	2020f	2017-2018	2018-2019	2019-2020
<b>New residential construction</b>	336.6	341.3	343.4	5.1	1.4	0.6
<b>Residential remodelling</b>	407.4	411.9	418.4	1.0	1.1	1.6
<b>Non-residential – new</b>	262.2	265.3	267.9	2.8	1.2	1.0
<b>Non-residential – remodelling</b>	235.1	238.5	241.9	1.5	1.5	1.4
<b>Civil engineering – new</b>	182.2	193.0	199.7	1.7	5.9	3.4
<b>Civil engineering – remodelling</b>	139.5	143.1	144.8	1.6	2.5	1.2
<b>TOTAL</b>	<b>1,563</b>	<b>1,593</b>	<b>1,616</b>	<b>2.7</b>	<b>1.9</b>	<b>1.4</b>

Notes: in 2017 prices; e = estimate; f = forecast.

Source: Euroconstruct, 2018.

residential expenditure by 1.6% in 2018, 1.3% in 2019 and 1.2% in 2020 (Euroconstruct, 2018).

### 10.2.2 Residential construction and remodelling

The total residential construction market (new construction plus renovation) increased by 5.3% in 2017. New residential construction – a vital sector in the euro area – is projected to increase from €336.6 billion in 2018 to €343.4 billion in 2020 (table 10.2.1). Aggregate residential construction volume in 2017 was driven by new housing construction, which had a 10% share of expenditure. New residential construction is forecast to increase by 5.1% in 2018, 1.4% in 2019 and 0.6% in 2020 (table 10.2.1) (Euroconstruct, 2018).

Residential remodelling is forecast to remain the principal construction activity in the euro area, increasing from €407.4 billion in 2018 to €418.4 billion in 2020. Government programmes have historically supported home renovation projects (Euroconstruct, 2018).

An estimated 1.8 million new-housing permits were issued in the Euroconstruct region in 2017. In several countries, the number of building permits issued is a leading economic indicator because it is forward-looking: it is used for gauging future housing supply and economic activity. Table 10.2.2 shows estimates and projections for issued building permits for the top five countries in 2017-2020; graph 10.2.1 shows trends in total permits, starts and completions over the period 2002-2020 (Euroconstruct, 2018).

15 1+2 family dwellings are detached or semi-detached single or multi-unit structures for families.

TABLE 10.2.2

**Top five Euroconstruct region countries for total housing permits, 2017-2020**

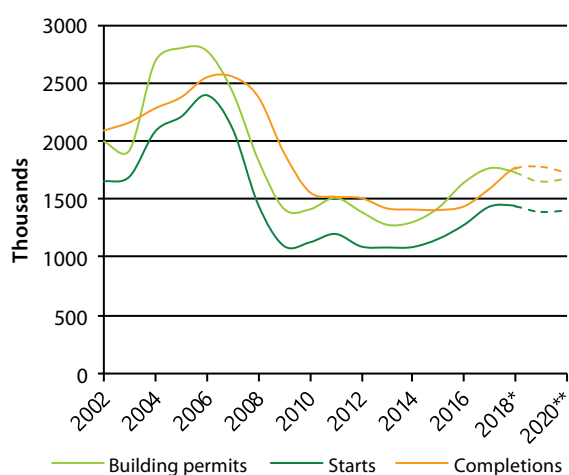
	2017e	2018f	2019f	2020f
(THOUSAND HOUSING PERMITS)				
France	497.7	458.0	405.0	433.0
Germany	300.7	290.0	275.0	270.0
Poland	250.2	225.0	220.0	215.0
Italy	85.4	87.8	89.1	90.5
Sweden	76.5	76.2	67.1	62.9

Notes: e = estimate; f = forecast. Data for the UK are unavailable.

Source: Euroconstruct, 2018.

New housing starts were estimated at 1.4 million units in the Euroconstruct region in 2017, comprising 796,000 flats and 601,000 1+2 family dwellings. Data on starts are used for assessing housing demand and forecasting future construction employment, consumer-based product demand and potential recessions. Table 10.2.3 shows the top five countries in the Euroconstruct region for housing starts in 2017; graph 10.2.1 shows trends in starts in 2002-2020 (Euroconstruct, 2018).

GRAPH 10.2.1

**Building permits, housing starts and completions, Euroconstruct region, 2002-2020**


Notes: FD = family dwellings; \* = estimate; \*\* = forecast.

Source: Euroconstruct, 2004, 2018.

TABLE 10.2.3

**Top five Euroconstruct region countries for total housing starts, 2017-2020**

	2017e	2018f	2019f	2020f
(THOUSAND HOUSING STARTS)				
France	427.7	396.0	356.0	371.0
Poland	206.0	230.0	220.0	210.0
UK	191.0	198.0	208.0	210.0
Italy	85.6	87.6	89.0	90.4
Spain	80.8	90.0	100.0	105.0

Notes: e = estimate; f = forecast. Data for Germany are unavailable.

Source: Euroconstruct, 2018.

TABLE 10.2.4

**Top five Euroconstruct region countries for total housing completions, 2017-2020**

	2017e	2018f	2019f	2020f
(THOUSAND HOUSING COMPLETIONS)				
France	363	419	388	351
Germany	260	375	280	275
UK	187	794	199	203
Poland	179	200	210	205
Italy	81	83	86	88

Notes: e = estimate; f = forecast.

Source: Euroconstruct, 2018.

Total completions were estimated at 1.6 million units in 2017, comprising 869,000 flats and 716,000 1+2 family dwellings. Completion data indicate the quantity of houses finished and available for use, sale or rent; as with starts, they can be used in estimating sales for consumer-based products. Table 10.2.4 shows estimates and projections for housing completions in the top five Euroconstruct countries in 2017-2020; graph 10.2.1 shows completion trends for 2002-2020 (Euroconstruct, 2018).

Table 10.2.5 presents estimates and projections for new construction and remodelling valuations for the top five countries in 2017-2020. Germany is top-ranked in both new construction and remodelling (Euroconstruct, 2018).

**10.2.3 Top five new-housing-permit countries in focus**

Below we present insights into the top five permit-issuing countries – including France and Germany, the traditional

TABLE 10.2.5

**Top five Euroconstruct region countries for new construction and remodelling expenditures, 2017-2020**  
(€ billion)

	2017e	2018e	2019f	2020f
<b>NEW CONSTRUCTION</b>				
<b>Germany</b>	64.1	67.0	68.3	67.3
<b>France</b>	45.5	47.2	45.5	43.8
<b>Italy</b>	51.9	53.7	55.3	56.7
<b>Spain</b>	30.7	33.2	35.5	37.3
<b>UK</b>	21.1	21.3	21.1	20.9
<b>REMODELLING</b>				
<b>Germany</b>	121.7	121.0	120.4	120.4
<b>Italy</b>	68.5	69.5	70.2	71.0
<b>France</b>	62.0	62.5	63.4	64.6
<b>UK</b>	40.0	40.5	40.9	42.0
<b>Spain</b>	17.8	18.1	18.6	19.1

*Notes:* 2017 prices; e = estimate; f = forecast.

*Source:* Euroconstruct, 2018.

leaders in new construction and remodelling in the Euroconstruct region.

**France.** According to the European Commission's European Construction Sector Observatory (ECSC) (ECSC, 2018a), 2017 was a record year for residential construction; nevertheless, housing demand surpassed supply. Spending in the French construction subsector was €36.8 billion in 2017 (23.7% of total spending in real estate). Real estate's overall contribution to GDP was 11.5% (€243.8 billion), comprising residential investment (the construction of new single-family and multifamily houses; residential remodelling; the production of manufactured homes; and brokers' fees); housing services spending (rent; owner's equivalent rent; and utilities); and expenditure on furnishings and durable goods. The outlook for France is positive, with low interest rates expected to increase housing demand.

**Germany.** Housing demand is strong, with an estimated 350,000 new units needed per year to the end of 2020. Spending in Germany's construction subsector was €69.6 billion (29.8% of total spending in real estate) in 2016, and real estate's overall contribution to GDP was 9.8% (€278.6 billion). The residential segment is expected to provide the impetus for Germany's construction industry, projected to increase by 3.5% in 2018. In sum, the outlook for the German construction sector is robust due to strong demand and low interest rates (ECSC, 2018b).



**Poland.** ECSC (2018c) reported that Poland's residential sector is improving as a result of low interest rates and increasing incomes. Housing is also influenced by "Apartments for the Young" and "Family 500+", two programmes designed to spur demand. Spending in Poland's construction subsector was €5.1 billion in 2016 (21.6% of total spending in real estate), and real estate's overall contribution to GDP was 4.7% (€19.2 billion). The outlook for Poland is positive, with low interest rates, rising incomes, and subsidy programmes expected to increase housing demand.

**Italy.** The number of households in Italy has increased steadily since 2010, and an increasing proportion of the population lives in urban and peri-urban areas. House building has declined incrementally since 2010, however, with only 46,000 building permits issued in 2016 (down by 54% since 2010). The housing market has been rebounding since 2014, due in part to declining house prices and the enforcement of a favourable housing tax code; despite this, the new-residential-construction subsector is the only construction segment forecast to continue a negative investment trend. Spending in Italy's construction sector was €17.8 billion in 2016 (19.8% of total spending in real estate), and real estate's overall contribution to GDP was 12.5% (€196.1 billion). There is general uncertainty about the future of Italy's construction sector (ECSC, 2018d).

**Sweden.** A lack of housing supply, combined with high demand, has resulted in surging house prices in Sweden (ECSC, 2018e). Thus, the National Board of Housing projects that 600,000 new homes will be needed between 2017 and 2025. The government has introduced an infrastructure bill for 2018-2029 in an effort to increase infrastructure investment, advance mobility and ease the housing shortfall. Spending in Sweden's construction sector was €18.9 billion in 2016 (31.7% of total spending in real estate), and real estate's overall contribution to GDP was 7.7% (€31.2 billion). The outlook for residential construction in Sweden is positive, with housing projected to be a driver of the Swedish economy over the next few years. Nevertheless, Euroconstruct (2018) reported

that new financial regulations and a large influx of new houses are dampening housing prices and sales.

### 10.2.4 Non-residential buildings and civil engineering

Non-residential construction accounted for 31.9% of aggregate construction value in the Euroconstruct region in 2017. Overall economic conditions and government funding (e.g. buildings for education and health) influence demand. New non-residential construction is predicted to increase by 1.5% in 2018, 1.2% in 2019 and 1.0% in 2020. It is forecast to comprise the following components in 2020: commercial building construction (20.5%); office buildings (16.7%); industrial buildings (16.4%); miscellaneous construction

TABLE 10.2.6

**Civil-engineering construction spending forecast, Euroconstruct region, 2017-2020 (€ billion)**

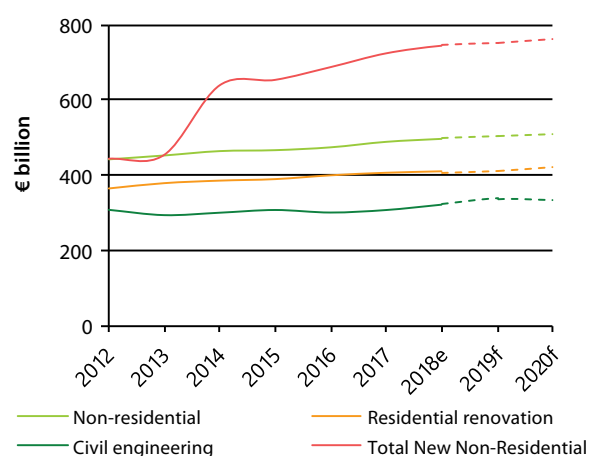
	<i>New civil-engineering construction</i>	<i>Civil-engineering renovation</i>	<i>Total civil engineering</i>
2017	173.1	135.1	308.2
2018e	182.2	139.5	321.8
2019f	193.0	143.1	336.1
2020f	199.7	144.8	344.5

Notes: 2017 prices; e = estimate; f = forecast.

Source: Euroconstruct, 2018.

GRAPH 10.2.2

**European construction spending, 2012-2020**

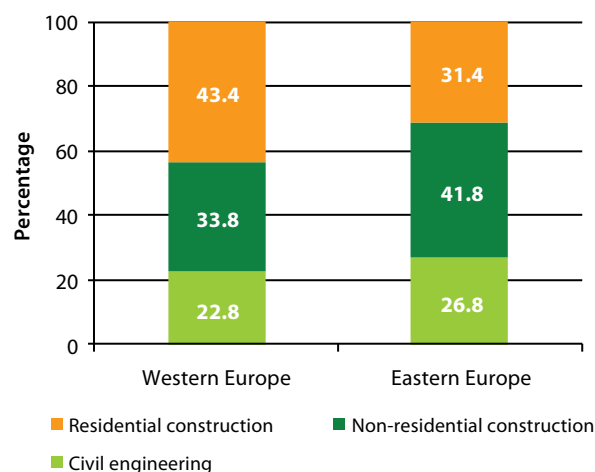


Notes: 2017 prices; e = estimate; f = forecast.

Sources: Euroconstruct, 2018.

GRAPH 10.2.3

**New construction spending, by Euroconstruct subregion and sector, 2017**



Source: Euroconstruct, 2018.

(12.2%); educational buildings (11.3%); storage buildings (8.4%); health buildings (7.9%); and agricultural buildings (6.4%) (Euroconstruct, 2018).

The UK, Germany, France, Spain and Poland) were the five largest markets for non-residential construction in 2017 (Euroconstruct, 2018).

The Euroconstruct region's volume of new civil-engineering construction was less in 2017 than it was in 2007, losing nearly one-third of its GDP value. Civil-engineering renovation was unchanged over the same period. Civil-engineering projects are affected by different factors in different countries. Modest spending increases are forecast through 2020 (table 10.2.6; graph 10.2.2). Germany, France, Italy, the UK, and the Netherlands were the five largest civil-engineering markets in 2017 (Euroconstruct, 2018).

### 10.2.5 Construction-sector shares and growth: Contrasting western and eastern Europe

In the Euroconstruct's western subregion, total residential construction expenditure is projected to increase from €718.7 billion in 2018 to €734.4 billion in 2020. Total residential construction spending in the Euroconstruct's eastern subregion is forecast to increase from €25.2 billion to €27.3 billion over the same period (Euroconstruct, 2018).

New residential leads expenditure in the construction sector in the Euroconstruct's western subregion (43.4% of total construction spending), followed by new non-residential (33.8%) and new civil engineering (22.8%). Expenditure in the eastern subregion is led by new non-residential (41.8%),



followed by new residential (31.4%) and new civil engineering (26.8%) (graph 10.2.3) (Euroconstruct, 2018).

### 10.3 CIS construction market, with a focus on the Russian Federation

#### 10.3.1 Housing construction in the Russian Federation, 2016-2017

An estimated 252,100 residential buildings were put in place in the Russian Federation in 2017, a decline of 3.2% from 2016 (Rosstat, 2018); it amounted to an increase of 78.6 million m<sup>2</sup> of residential space, roughly the same as in 2016. An estimated 269,300 buildings (including non-residential) were put in place in 2017, down by 2.9% from 2016. In total, 131.1 million m<sup>2</sup> of floor space was installed in 2017, a 2.0% decrease, year-on-year.

About 1.13 million houses were commissioned in the Russian Federation in 2017, up by 2.4% over 2016. It was the country's fourth-highest number on record for commissioned houses (Rosstat, 2018).

Although the Russian housing market is improving, house prices fell in 2017 (Global Property Guide, 2018), possibly partly due to the robustly expanding construction market. Lasek (2018) reported that house completions rose strongly in October 2017 (by 13.4%) and January 2018 (by 16.3%) (both month-on-month). New housing regulations (scheduled to begin on 1 July 2018), which place stronger financial requirements on construction companies, are thought to have provided the impetus for the increase in housing completions (Lasek, 2018).

The goal of the "Housing for Russian Family Programme" is to build 500,000 two-room apartments, beginning in 2018 (WorldBuild365, 2018a). Accordingly, the Russian government plans to increase residential floor space by an additional 120.0 million m<sup>2</sup> per year to 2024 (Radio Free Europe, 2018). This will be a substantial increase over the last four years, when the average was about 80 million m<sup>2</sup> per year (Rosstat, 2018).

The Russian Federation's Ministry of Construction and Ministry of Industry and Trade – in conjunction with other entities – were asked in July 2017 to develop programmes for the building of wooden houses. The initiative includes the construction of wooden buildings higher than three stories (WorldBuild365, 2018b).

Construction output in the Ukraine increased by 17% in 2016 (after a cumulative decline of 42% between 2012 and 2015). During the first quarter of 2017, construction output in the Ukrainian non-residential sector increased by almost 21%, residential construction by 17% and civil engineering also by 17%, compared to the same period the previous year (KHL, 2018).

Kazakhstan is also experiencing solid growth in construction with total spending on buildings rising by 6.8% between January and May of 2016 (to over \$2 billion). The residential construction component of this has risen by 9.9% during the same period, which is particularly impressive given that the average floor area has increased by 20% (WorldBuild365, 2018c).

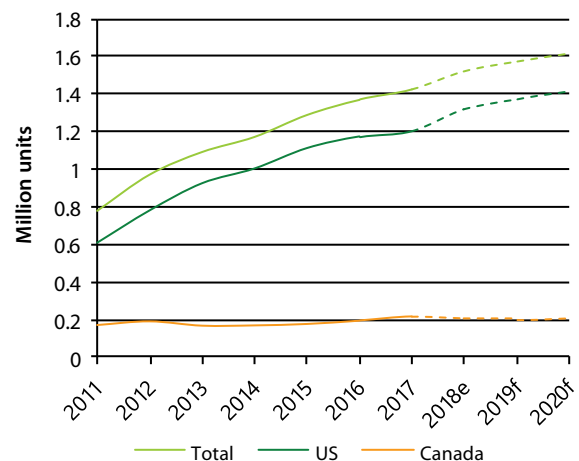
### 10.4 North American construction market

The US housing market has been improving since its low-point in 2009, and the Canadian market has been steady (graph 10.4.1).

Although the overall US housing market has improved, new single-family house construction remains far below its historical average. In Canada, the primary concern in housing

GRAPH 10.4.1

Housing starts, North America, 2011-2020



Notes: e = estimate; f = forecast.

Sources: US Census Bureau, 2018a; CMHC, 2018; Mortgage Bankers Association, 2018.





is overvaluation: prices are at historic highs, even after adjusting for inflation.

### 10.4.1 The US housing market

The US housing construction market continued its moderate growth in 2017. New housing starts remain below the 1959-to-2007 average of 1.547 million total units and 1.102 million single-family units. Total housing starts were estimated at a seasonally adjusted annualized rate (SAAR) of 1.287 million in April 2017, a 7.7% increase over April 2016 (graph 10.4.2) (US Census Bureau, 2018a).

US sales of newly constructed single-family houses amounted to 613,000 units (SAAR) in 2017 (US Census Bureau, 2018b). This was well below the 1963-to-2007 average (697,000 units) and similar to the average in 1963-1970, a period in which the civilian non-institutional population averaged 129,349 million, compared with 255,079 million in 2017 (Federal Reserve Bank of St. Louis, 2018b). The number of single-family units being built is insufficient for current population growth and there is a shortage of “starter houses” (which typically cost \$200,000 or less). New single-family sales and starts are crucial for the wood products industry, with new single-family units consuming more value-added products than any other wood-consuming sector.

The median price for new single-family units in the US was \$323,100 in 2017, an increase of 5.0% over 2016 (\$307,800). The mean price was \$384,900, up by 6.7% (\$360,900). The median size of completed new single-family houses increased slightly in 2017, to 2,426 square feet (225.4 m<sup>2</sup>), up

from 2,422 square feet (225.0 m<sup>2</sup>) in 2016. The mean size was 2,631 square feet (244.4 m<sup>2</sup>), down from 2,640 square feet (245.3 m<sup>2</sup>) in 2016 (US Census Bureau, 2018b,c).

Sales of existing (i.e. previously owned) homes declined by 3.8% in 2017, to 5.510 million (down from 5.450 million in 2016). The median existing-house sales price in April 2018 was, \$243,800 up by 5.7% over April 2017 (when it was \$ 230,700) (Mortgage Bankers Association, 2018).

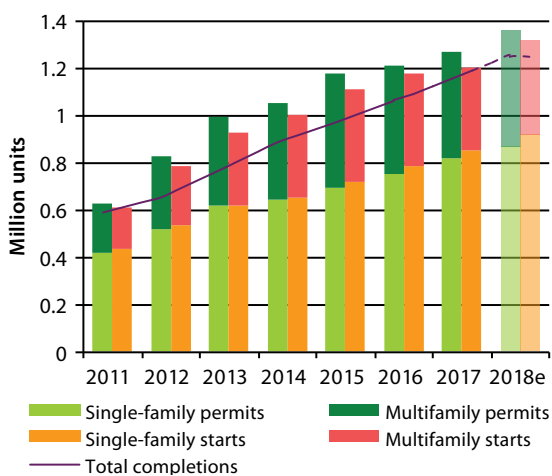
Total private residential construction spending (i.e. single-family + multifamily + remodelling) increased by 12.4% in the US in 2017, to \$525 billion. New single-family construction spending increased by 11.4%, to \$270.1 billion; multifamily expenditure decreased by 1.9%, to \$59.9 billion; and house renovation spending increased by 19.1%, to \$194.8 billion (all SAAR; nominal US dollars) (graph 10.4.3). The Joint Center for Housing (2018) estimated that \$306 billion was spent on remodelling in the US in 2017 and forecast this to rise to \$327.9 billion in 2018 and \$341 billion in 2019.

Private non-residential spending increased by 1.3% in the US in 2017, to \$437.8 billion, and public expenditure decreased by 3.2%, to \$283.2 billion (US Census Bureau, 2018d) (graph 10.4.3).

Historically, US housing construction and sales have been a major component of US GDP. Before the housing crash and the global financial crisis, the contribution of housing to GDP averaged 17-19%. It was 15.9% in 2017, compared with 18.6% in 2005.

GRAPH 10.4.2

#### US housing permits, starts and completions, 2011-2018

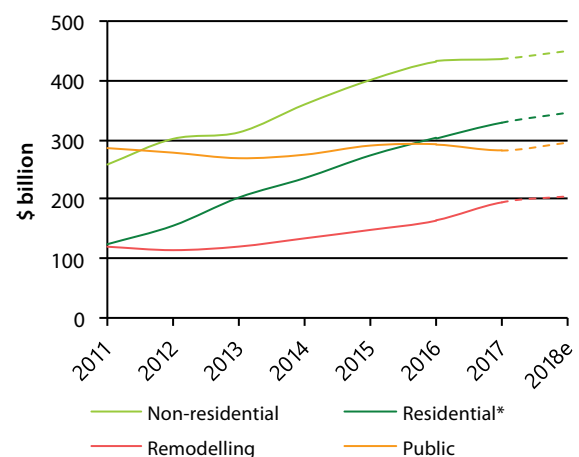


Notes: e = estimate (January-April 2018 data); SAAR = seasonally annualized adjusted rate.

Sources: US Census Bureau, 2018a; Mortgage Bankers Association, 2018.

GRAPH 10.4.3

#### US construction spending, 2011-2018



Notes: \*Private residential spending less remodelling expenditure (seasonally annualized adjusted rate); nominal values; e = estimate (January-April 2018 data).

Source: US Census Bureau, 2018d.



Residential investment peaked in 2005 at 6.5% of total GDP and averaged 4.9% from 1963 to 2006. It was only 3.5% of US GDP in the first quarter of 2018, however (US Bureau of Economic Analysis, 2018a,b,c), an additional indication that the new-housing-construction sector has further room to expand (US Bureau of Economic Analysis, 2018).

### 10.4.2 US construction outlook

The US housing market is improving, with most housing sectors progressing since 2009. According to housing analysts, robust housing construction and sales markets are impeded by deficient inventory of new and existing houses for sale; a lack of available lots for new construction and, in some locations, a lack of construction workers; regulatory burdens; a lack of builder financing; student-loan debts accrued from higher education; shifting attitudes towards house ownership; underemployment; and stagnant-to-declining median incomes. There remains a tendency for millennials (adults born in 1982 or later) to live with their parents. The number of household formations increased in 2017 but is still below the historical average.

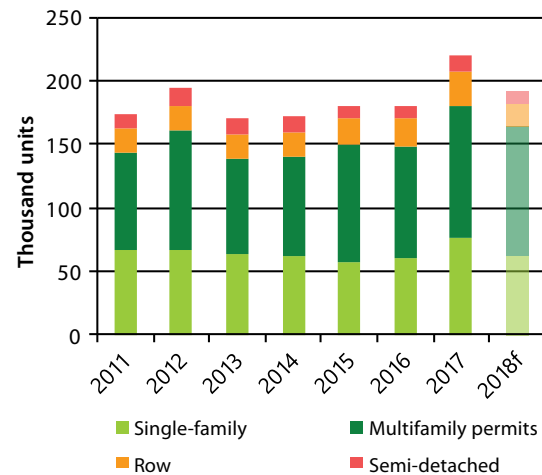
The Mortgage Bankers Association (2018) projected new single-family housing starts in the US at 0.92 million units in 2018, 0.99 million units in 2019 and 1.03 million units in 2020. Projections for starts are 1.31 million units in 2018, 1.38 million units in 2019 and 1.41 million units in 2020. The Mortgage Bankers Association (2018) forecast new single-family sales of 0.65 million units in 2018, 0.67 million units in 2019 and 0.70 million units in 2020. Sales of existing houses are projected at 5.56 million units in 2018, 5.77 million units in 2019 and 5.93 million units in 2020.

### 10.4.3 Canadian housing construction market

Amid considerable unease about Canada's rapidly escalating housing prices, federal, provincial and local governments

GRAPH 10.4.4

#### Housing starts, Canada, 2011-2018



Note: f = forecast.

Sources: BMO, 2018; CMHC, 2018; Scotia Bank, 2018; TD Bank, 2018.

introduced regulations in 2017 to dampen rising prices and valuations. These included a nationwide mortgage stress test; a foreign buyer's tax; and rent controls (Price Waterhouse Coopers, 2018). By the first quarter of 2018, the effect of the regulations had been a decline of 10% in the average sales price for Canadian houses and a sharp drop in house sales (Evans, 2018). House prices were down by 1.3%, year-on-year, in June 2018 (CREA, 2018). Dolega and Sondhi (2018) forecast that existing regulations, additional directives, and increasing interest rates would hamper the housing market, which, nevertheless, would remain "sturdy".

Canadian new-housing starts were estimated at 219,763 units in 2017 and 191,528 in 2018 (CMHC, 2018). On average, starts are projected at 201,000 units in 2019 and 205,000 units in 2020 (BMO, 2018; Scotia Bank, 2018; Preston and DePratto, 2018). Of the starts in 2017, 76,843 were single-family; 28,046 were row-house units; 12,291 were semidetached units; and 102,583 were multifamily. Of the estimated starts in 2018, 61,378 are single-detached; 18,808 are row houses; 8,962 are semidetached units; and 102,380 are multifamily units (graph 10.4.4) (CMHC, 2018). Estimated housing sales in 2017 were 510,489 units; projections are for sales of 459,900 units in 2018 and 474,800 units in 2019 (CREA, 2018).

Cl roux (2018) expected Canada's GDP growth to slow to about 2% in 2019, with the provinces of Alberta, British Columbia, Saskatchewan and Ontario the main economic drivers.

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